World Congress on Clinical and Preventive Cardiology 2007
World Public Conference on 3D Heart Care 2007
28-30 September, 2007

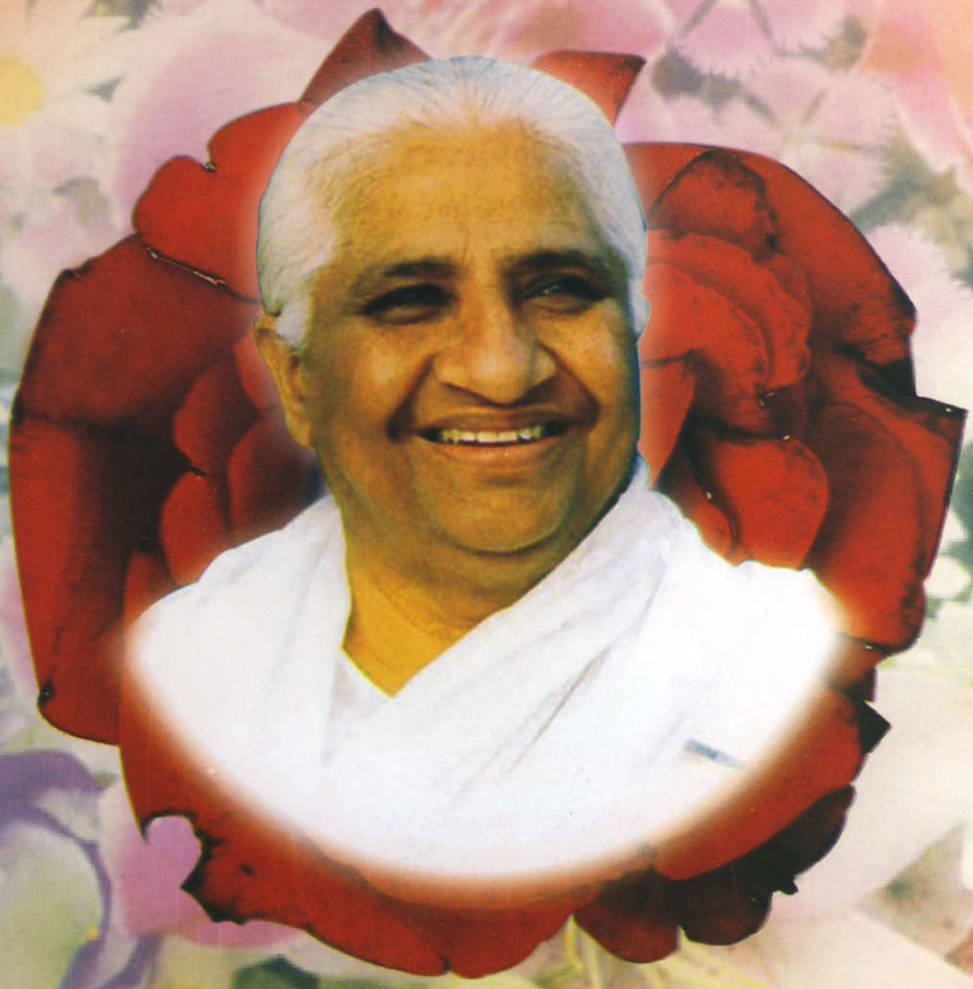
SOUVENIR

Brahma Kumaris
Shantivan, Abu, India

UN Secretary General Dr. Pervez De'cular honouring Dadi Prakashmani with Peac

Loving Tributes to

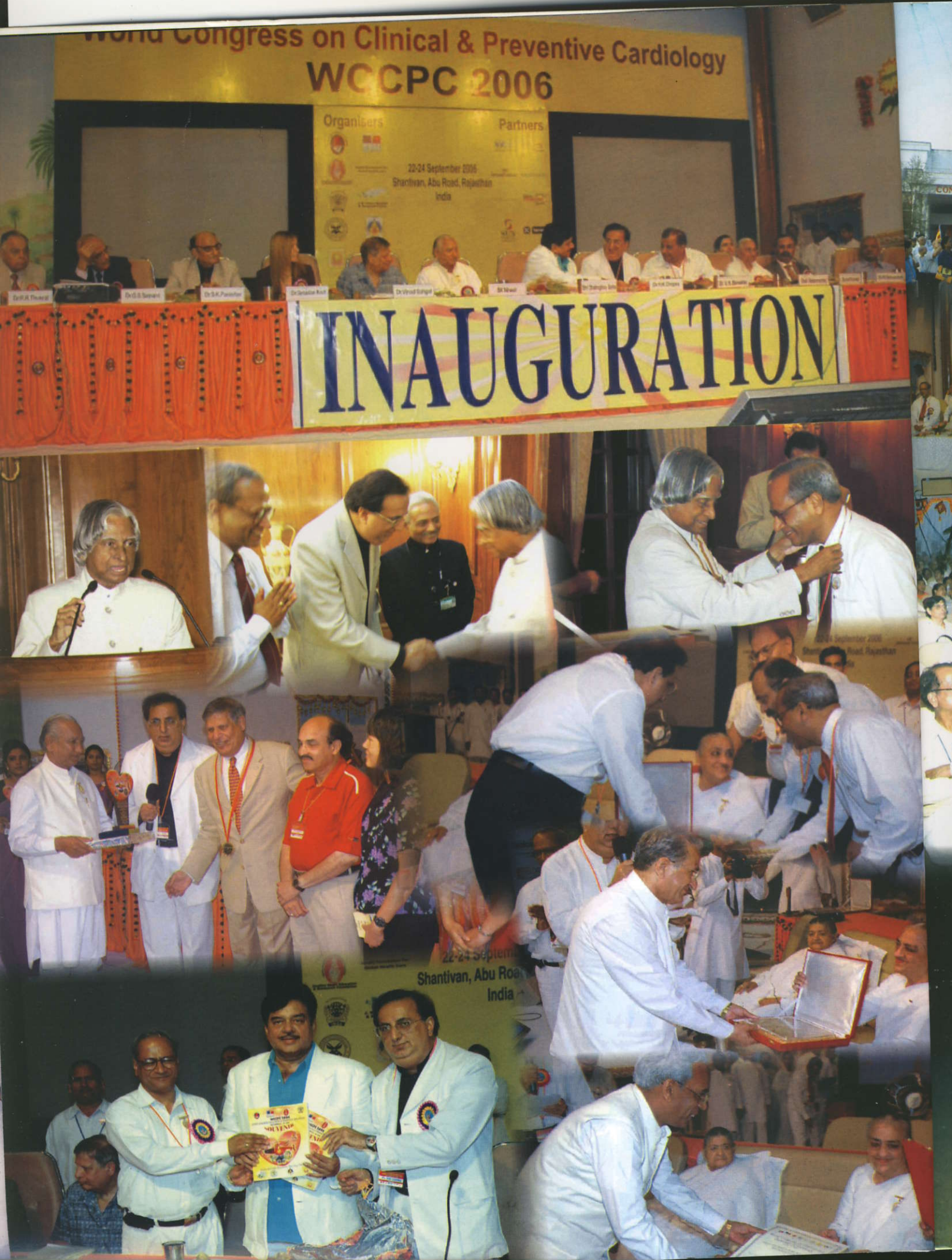
Most Reverend
Rajyogini Dadi Dr. Prakashmaniji
(01/06/1922 - 25/08/2007)



Organising Committee

WCCPC 2007 & WPCHC 2007

World Heart Academy, Cardiological Society of India, Asian Pacific Society of Cardiology
International Society of Cardiovascular Ultrasound, International Medical Sciences Academy,
Defence Research & Development Organisation, Indian Academy of Echocardiography,
World Academy of Spiritual Sciences, Times of India Group, Express Health Care, ASSOCHAM
J. Watumull Global Hospital & Research Foundation
Medical Wing, Rajyoga Education & Research Foundation
Healthy Heart Education & Research Foundation


World Congress on Clinical & Preventive Cardiology
WCCPC 2006
Organisers
Partners
22-24 September 2006
Shantivan, Abu Road, Rajasthan
India
INAUGURATION

Contents

prizm Printers & Publishers Ltd.
Ph. : 079-25462088, 25451142

Organising Committee

WCCPC & WPCHC 2007

Dr. H.K.Chopra
Organising Chairman

Dr. S.K.Parashar
President CSI

Dr. Satish Kr. Gupta
Secretary General

Dr. Anil Kumar
President Elect , APSC

BK Sarla Didi
Dir, Reception Committee

BK Mohini Didi

BK Munni Didi

BK Sharda Behn
Dir, Registration Committe

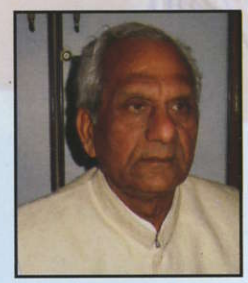
BK Mritunjay
Dir, Public Relations

Dr. Pratap Midha
Dir, Souvenir Committee

Dr. Banarsi L. Sah
Exe. Secretary

BK Karuna
Dir, Media Committee

BK Dr. Ramshalok
Dir, Accomodation
Committee



BK Atma Prakash
Editor

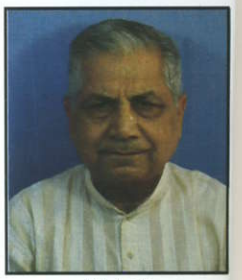
BK Bhopal
Dir, Transport
Committee

BK Suraj
Dir, Food/Catering
Committee

BK Chand Mishra
Dir, Entertainment
Committee

M. P. Agnihotri
Dir, Exhibition
Committee

B. L. Maheshwari
Dir, Leagal & Finance
Committee



M. Lall
Dir, Hospitality
Committee

Welcome note from Secretary General's Desk

I consider it my privilege to welcome you all to the 2nd World Congress on Clinical & Preventive Cardiology and World Public Conference on Three-Dimensional Heart Care, the first ever such conference to be held in India, being organized by World Heart Academy, Cardiological Society of India, Delhi Branch, Asia Pacific Society of Cardiology, Healthy Heart Education & Research Foundation, Defence Research & Development Organization, Ministry of Defence; Medical Wing of Rajyoga Education & Research Foundation, International Medical Sciences Academy, World Academy Of Spiritual Sciences, J.W. Global Health & Research Centre, Times Foundation of the Times of India Group, SCOPE, ASOCHAM, Express Healthcare and Peace Water House Coopers, to be held at Brahma Kumaris Shantivan Complex, Abu Road, Rajasthan, from 28th to 30th, September, 2007.

With the support and cooperation of all and every one concerned, the first World Congress held in September last year made a great success story. I am happy to say that we have been successful in bringing the preventive aspect of cardiology into limelight, but much still remains to be done. The most notable feature of the first World Congress was the inspiring inaugural address of His Excellency Dr. A.P.J. Abdul Kalam, the former President of India, which was received with thunderous applause by one and all. It was, in fact, the advice of Dr. Kalam to the medical faculty to the effect that they should follow the three-dimensional approach of treatment of Body, Mind and Soul, essential to keep the human beings healthy and fit, which inspired us to organize the World Public Conference on Three-Dimensional Heart Care on 30th September, 2007, the World Heart Day.

Several developments have taken place here since the conclusion of the first World Congress, some of which are note-worthy. A Trauma Centre and Global Hospital Institute of Ophthalmology have come up in Shantivan to offer 24-hour emergency specialist medical care to trauma patients road accident and medical emergencies, and to provide a well-equipped, modern tertiary eye care centre. The Global Hospital & Research Centre also propose to set up an Institute of Preventive Cardiology & Life-Style Sciences with the objective to create awareness amongst the masses about epidemic of CAD and other life style related diseases, e.g., atherosclerosis, Hypertension, Diabetes, Obesity, etc., and the value of adoption and maintenance of healthy and happy life style for healthy, peaceful and happy living. The proposed Institute of Preventive Cardiology & Life-Style Sciences will be developed to promote research in life-style sciences and to conduct diploma courses in life-style sciences for medical professionals.

It is well known that it became possible to organize this World Congress, as also the first World Congress, with the initiative of CAD patients who have benefited from the CAD project

program undertaken at Shantivan. It is they who have made contributions in the form of cash and free services, to realize their dream of making their country, nay, the world as a whole, disease free, not only from CAD but also other diseases associated with the present-day faulty life styles. My heart goes out to them in appreciation of their untiring efforts in that direction.

I hope you will enjoy your stay here. It is my firm belief that the deliberations at the Congress will not only widen your knowledge of the spiritual side of the science of preventive cardiology but also as doctors, will make us more amenable and responsive to the needs of patients.

I must express my deep gratitude towards Dr. H.K. Chopra, Dr. S.K. Prashar, Dr. Anil Kumar and all other honorable members of the various organizing committees of WCCP-2007 and WPCHC-2007 for their ungrudging guidance, cooperation and assistance in managing and running these events. I must also thank my colleagues and fellow workers in the Healthy Heart Secretariat and the Global Research & Health Centre for their unflinching support against all odds and in all situations.

I take this opportunity to convey my heart-felt thanks to Rajyogini Dadi Janki, Chief Administrative Head, Brahma Kumaris, Rajyogini Dadi Hriday Mohini, Rajyogini Dadi Ratan Mohini, B.K.Munni Didi and B.K. Mohini Didi; B.K. Nirwair, B.K. Ramesh Sha, B.K. Brij Mohan, B.K. Karuna, B.K. Mrituaanjay; and all the Brahma Kumaris brothers and sisters of Shantivan, Pandav Bhavan and Gyan Sarovar, and of Global Hospital & Research Centre, particularly Dr. Ashok Mehta , Dr. Pratap Midha and Dr. Banarsi Lal Sah for their constant moral and spiritual support.

I have a special mention to make here of B.K. Brother Nirwair. (The name literally means one with no enemy). He is Managing Trustee of J.W. Global Hospital & Research Centre and Secretary General, Brahma Kumaris. He is a living example of a rare balance of Science and Spirituality. I am thankful to him for his ceaseless efforts to expand the medical services, including clinical and preventive Cardiology, undertaken by the Global Hospital & Research Centre. A spiritual icon, he is an example for all others to follow in the practice of Rajyoga in day-to-day life.

I thank the publishers of the different prestigious journals who kindly consented to our reprinting their articles on cardiology. I am thankful to all the honored cardiologists of the World Congress who have submitted their articles and abstracts for printing.

In the end, on behalf of the participating organizations of WCCPC-2007 and WPCHC-2007 and all the delegates attending the Congress, I pay Homage to Rajyogini Dadi Prakashmani, past Chief Administrative Head, Brahma Kumaris, who left her mortal coil on the morning of 25th August this year. She was the epitome of Love and Sacrifice and is still guiding us as our guardian angel.

But, nevertheless, the show must go on. Once again, I welcome you all with great respect and regard from the core of my heart.

Dr. Satish Kr. Gupta
Secretary General
WCCPC-2007 & WPCHC-2007

Messages

TO TEACH OR TO LEARN

When I look at a patch of dandelions, I see a bunch of weeds that are going to take over my yard. My kids see flowers for Mom and blowing white fluff you can wish on.

When I look an old drunk and he smiles at me, I see a smelly, dirty person who probably wants money and I look away. My kids someone smiling at them and they smile back. When I hear music I love, I know I can't carry a tune and don't have much rhythm so I sit self-consciously and listen. My kids feel the beat and move to it. They sing out the words. If they don't know them, they make up their own.

When I feel wind on my face, I brace myself against it. I feel it messing up my hair and pulling me back when I walk. My kids close their eyes, spread their arms and fly with it, until they fall to the ground laughing.

When I pray, I say thee and thou and grant me this, give me that. My kids say, "Hi God! Thanks for my toys and my friends. Please keep the bad dreams away tonight. Sorry, I don't want to go to Heaven yet. I would miss my Mommy and Daddy.

When I see mud puddle I step around it. I imagine muddy shoes and dirty carpets. My kids sit on it. They see dams to build, rivers to cross and worms to play with.

I wonder if we are given kids to teach or to learn from. No wonder God loves the little children.

"Enjoy the little things in life, for one day you may look back and realize they were the big things.

सत्यमेव जयते

President's Secretariat
Rashtrapati Bhavan,
New Delhi - 110004.

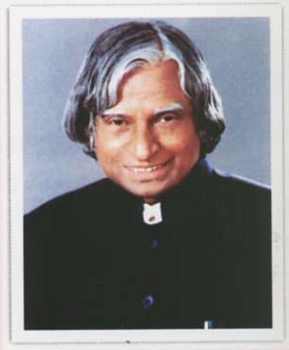
(**Smt. Pratibha D. Patil**)
President of India

The president of India, Smt Pratibha Devisingh Patil is happy to know that the '2nd World Congress on Clinical and Preventive Cardiology 2007' and the 'World Public Conference on Three Dimensional Heart Care 2007' are being held during September 28-30, 2007 at Shantivan.

The president extends her warm greetings and felicitations to the organizers and the participants and wishes the Congress and the Conference every success.

Archana Datta
Officer on Special Duty (PR)

Former President of India
10, Rajaji Marg
New Delhi - 110011.



Bharat Ratna
Dr. A.P.J. Abdul Kalam

I am happy to know that the Healthy Heart Education and Research Foundation in association with the Delhi Branch of the Cardiological Society of India, Asia Pacific Society of Cardiologists, Indian Academy of Echocardiography and International Medical Sciences Academy is organizing the 2nd World Congress on Clinical and Preventive Cardiology, 'WCCPC-2007' and the first ever World Public Congress on Three-Dimensional Heart Care to be held in India, on September 28-30, 2007 at Brahma Kumaris, Shantivan, Abu Road, Rajasthan on the occasion of World Heart Day.

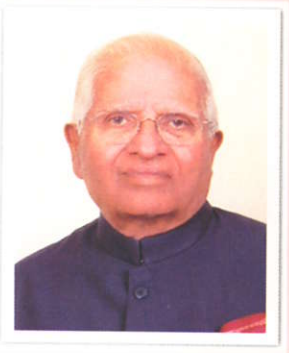
I thank the organizers for their invitation to inaugurate the 2nd World Congress on Clinical & Preventive Cardiology. The Conference on preventive cardiology is a very important event. Time has come to introducing the proven methodologies of preventive cardiology by expert teams nationally.

My best wishes for the preventive cardiology Congress on the World Heart Day,

Dr. A.P.J. Abdul Kalam

सत्यमेव जयते

Governor of Rajasthan
Raj Bhawan, Jaipur – 302 006



Shilendra Kr. Singh

All Indians need to be concerned that Coronary artery disease, also its attendant risk factors of hypertension, diabetes and obesity are in ordinately wide spread in our country, along with the rest of the world where too these are spreading. Great advances have been made in the treatment which is now available for this disease. However even now adequate attention is not being paid to the prevention of this killer disease.

I congratulate the organizers for scheduling World Congress on Clinical & Preventive Cardiology 2007 from 28th to 30th September, 2007 and the World Public Conference on Heart Care on 30th September 2007 at Brahma Kumaris, Shantivan, Abu Road, with focus on prevention and control of contrary artery diseases.

I wish them all success.

(Shilendra Kumar Singh)
Governor of Rajasthan

सत्यमेव जयते

Governor of Gujarat,
Raj Bhavan,
Gandhinagar 382 002.

Naval Kishore Sharma

I am pleased to know that "World Congress on Clinical & Preventive Cardiology 2007" and "World Public Conference on Three Dimensional Heart Care 2007" are being organized at Brahmakumaris Shantivan Complex, Abu Road from 28th to 30th September, 2007.

It is hightime to take remedial measures to check killer diseases like Coronary Artery Disease and other life style related maladies such as Hypertension, Diabetes, Obesity etc. I congratulate the Medical Wing of Brahmakumaris, J Watumal Global Hospital & Research Centre, Healthy Heart Education & Research Foundation (an organization said to be formed by the CAD patients themselves) for joining hands with the Cardiology Society of India (Delhi branch) and other nationally and internationally reputed organizations working in fields of clinical cardiology, in their effort to seek cheaper and easily affordable means of preventing, treating and curing Coronary Artery Disease and the other life style related disease. I hope that the Congress would go a long way to fulfill its objectives and would spread is message among the suffering masses.

I wish the "World Congress on Clinical & Preventive Cardiology 2007" and "World Public Conference on Three Dimensional Heart Care 2007" every success.

Naval Kishore Sharma

(Naval Kishore Sharma)
Governor of Gujarat,

सत्यमेव जयते

Chief Minister
Rajasthan

Vasundbara Raje

I am glad to know that "2nd World Congress on Clinical & Preventive Cardiology (WCCPC 2007)" from 28th to 30th September, 2007 and first ever "World Public Conference on Three Dimensional Heart Care (WPCHC 2007)" on 30th September, 2007 are being organized at Brahma Kumaris, Shantivan, Abu Road, with focus on prevention and control of Coronary Artery Diseases.

I hope the Conference with its focus on the preventive side of the science of cardiology would not only bring into limelight this aspect but also disseminate knowledge about advancement in this field.

I extend my greetings and felicitations to all the participants & wish the Conference a grand success.

Vasundhara Raje

(Vasundbara Raje)
Chief Minister, Rajasthan

सत्यमेव जयते

Chief Minister,
Gujarat State.

Narendra Modi

In this era of the globalization, the opportunity grows faster than the capacity. But, only the person with skill, knowledge and conviction is able to create the path to realize his own dream.

India, the second fastest growing economy of the world has dream to be 'SUPER ECONOMIC POWER' and fortunately we have vibrant skilled, knowledgeable man power to grab this opportunity. What we require is WILL to work untiringly towards our goal.

'Health Care' is the fastest growing economic sector. India has specialized medical workforce and highly developed infrastructural medico facilities. In Fact, India is capable to be major a health care destination of the world.

I convey my heartiest wishes on the occasion of World Congress on Clinical & Preventive Cardiology and World Public conference on 3-D Health Care to be held at Brahma Kumaris, Abu, on 28th Sep. 2007.

My best wishes.

(Narendra Modi)
Chief Minister, Gujarat

सत्यमेव जयते

Minister for Health & Family Welfare India,
Government of India
Nirman Bhavan, New Delhi-110011

Dr. Anbumani Ramadoss

I am pleased to know that JW Global Hospital & Research Centre is organizing Second World Congress on Clinical arid Preventive Cardiology and World Public Conference on 3D Heart Care from 28-30 September at Brahma Kumaris Shantivan, Abu Road. I am also told that a Souvenir is also being brought out on the occasion.

The World Congress is an opportunity to the medical fraternity in India to showcase initiatives that can impact the lives of the rural poor in Cardiovascular disease which is a challenging problem for our country as it has become a wide spread life disease. The Government of India have launched the National Rural Health Mission in April 2005, to mainstream quality and accessible health care to the rural households across the country. In the past two years, through the National Rural Health Mission, we have been able to access innovations in technology to provide quality health care to the poor and down trodden. The learnings of such Conferences are extremely important as it provides us opportunities to take technology to the doorstep of rural poor.

The Government of India is committed to mainstream innovations in critical fields of Cardio-vascular disease and the recent technological advances have helped India to perform interventions with perfection and at an affordable cost.

I am confident that the three-day Conference would be able to help in mainstreaming cheap accessible health care in the field of Cardiology. I hope the deliberations at the Conferences and the technical papers presented at various sessions would be fruitful.

I wish the participants and the organizers all success.

(Dr. Anbumani Ramadoss)
Minister for Health & Family Welfare India,
Government of India

सत्यमेव जयते

Minister for Medical, Health, FW & Ayurved Dept.
Government of Rajastan,
Jaipur

Dr. Digamber Singh

It gives me immense pleasure that World Heart Academy, Cardiology Society of India, Healthy Heart Education and Research Foundation & other reputed bodies are jointly organizing "2nd World Congress on Clinical & Preventive Cardiology (WCCPC 2007)", from 28th to 30th September 2007, and first ever World Public Conference on Three Dimensional Heart Care (WPCHC 2007)" on 30th September 2007 at Brahmakumaris, Shantivan, Abu Road, with focus on prevention and control of Coronary Artery Disease.

I am confident that the Congress will provide an opportunity to eminent Cardiologists, representative of World Health Organization & members of various public welfare institutions to exchange new ideas and technology. The Congress would be useful for participants to enrich their knowledge by interaction with experts.

I wish the conference & publication of Souvenir a grand success.

(Dr. Digamber Singh)
Minister for Medical, Health,,
FW & Ayurved Dept.
Government of Rajastan

सत्यमेव जयते

Minister, Law & Judiciary,
Health & Family Welfare,
Legislative & Parlimentary Affairs,
NGO Co-ordination, NRG Dept.
Government of Gujarat,
Sachivalaya, Gandhinagar 382 010.

Ashok Bhatt

I am pleased to know that 2nd World Congress on Clinical & Preventive Cardiology 2007 and first ever World Public Conference on Three Dimensional Heart Care 2007 is being organized on World Heart Day at Brahma Kumaris Shantivan, Abu Road from 28th 30.th September, 2007.

A healthy heart is the driving force behind the productive life of everybody. Cardiovascular disorders are very common. I am sure that this conference will provide an excellent platform for experts to discuss and provide appropriate preventive strategies to conquer the diseases.

I wish the Conference a very Grand Success

(Ashok Bhatt)
Minister, Law & Judiciary,
Health & Family Welfare,
Legislative & Parlimentary Affairs,
NGO Co-ordination, NRG Dept.
Government of Gujarat

सत्यमेव जयते

Principal Secretary,
Medical, Health, FW & Ayurved Dept.
Government of Rajastan

R. K. Meena, I.A.S

I extend my warm greetings to the organizers for holding 2nd World Congress on Clinical & Preventive Cardiology (WCCPC 2007), from 28th to 30th September 2007 and first ever World Public Conference on Three Dimensional Heart Care (WPCHC 2007) on 30th September 2007 at Brahmakumaris, Shantivan, Abu Road, with focus on prevention and control of Coronary Artery Disease (CAD).

I am sure this world congress will provide a platform where experts of this field will discuss together & enlighten various possible steps to combat the epidemic of CAD.

I wish them all success.

(R. K. Meena)
Principal Secretary,
Medical, Health, FW & Ayurved Dept.
Government of Rajasthan

सत्यमेव जयते

Directorate General of Health Services
Government of India.

Dr. R. K. Srivastava

I am happy to learn that "2nd World Congress on Clinical & Preventive Cardiology (WCCPC 2007)" and "World Public Conference on Three Dimensional Heart Care (WPCHC 2007) is being organized at Brahma Kumaris, Shantivan, Abu Road, Rajasthan from 28-30 September, 2007.

India is being projected as a hub of Cardiac Diseases in the coming future. It is an alarming thing, which is to be tackled jointly by planners, clinicians, Philanthropists and social workers as no single agency can handle this burden.

We being a developing country, have the constraints of economy, infrastructure as well as trained man-power. In the light of our constraints; it I better we focus our attention on preventive and alternative medicine also. Prevention being cost effective will be more relevant for our Society. A balanced approach of diet, exercise, yoga and life style modifications may prevent the occurrence as well as progression of *many diseases and help us in attaining the goal of 'health for all'*

I am sure the deliberation from the learned speakers will help us in learning and implementing the preventive strategies.

I wish the conference a success.

Dr. R. K. Srivastava
Directorate General of Health Services
Government of India.

सत्यमेव जयते

Director General Armed Forces
Medical Services &
Sr. Colonel Commandant
Ministry of Defence,
'M' Block, New Delhi-110001

Lt Gen Yogendra Singh

I am happy to learn that the "2nd World Congress on Clinical & Preventive Cardiology (WCCP - 2007)" and "World Public Conference on Three-Dimensional Heart Care (WPCHC - 2007)" are bein organized at Brahmakumaris Shantivan, Abu Road (Rajasthan) from 28th to 30th Sep 2007

In the past few decades, the focus and concern of mankind have shifted from communicabl diseases to lifestyle diseases as a result of significant reduction in deaths due to infectious diseases. It now feared that even India's economic growth could be severely retarded by the rapid rise in occurrenc of heart disease, stroke and diabetes in the younger age groups.
Dietary habits and lifestyle play a big part in reducing the occurrence of heart attacks hypertension, strokes, lipid disorders, type II diabetes, osteoporosis, depression, anxiety and certai cancers. Dietary modification may be initially difficult but its importance should be highlighted and neve underestimated.

Many things in modern life make people avoid physical activity as machines have taken ove most of the daily chores that earlier involved physical action. In order to promote physical activity, w should prioritize and develop parks and open spaces, sidewalks, clean air, safe and attractive streets sports, recreation facilities and a vibrant public life. Relaxation methods such as yoga and meditation ar useful ways to bring emotions into balance and synchronize the body and mind.

It is the need of the hour that members of the medical fraternity put their heads together t develop strategies to fight these diseases and join their hands to put them into action. I am confident tha the World Congress on Clinical & Preventive Cardiology and World Public Conference on Three Dimensional Heart Care will evolve a practical plan of action for implementation so that the benefit reach all those afflicted by these diseases, particularly the most needy and underprivileged.

I take this opportunity to convey my best wishes to the organizers for an outstanding success i their endeavor.

(Lt Gen.Yogendra Singh VSM, PHS
Director General Armed Force
Medical Services &
Sr. Colonel Commandan

Director General
Indian Council of Medical Research
V. Ramalingaswami Bhawan, Ansari Nagar,
New Delhi - 110029

Prof. N. K. Ganguly
Director General

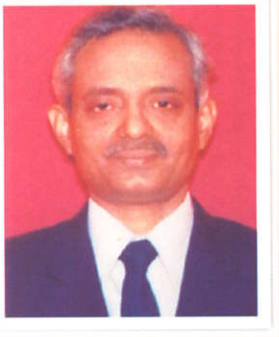
I am happy to note that the 2nd World Congress on Clinical & Preventive Cardiology (WCCPC) and the World Public Conference on Three Dimensional Heart Care (WPCHC)- 2007 are being organized at Brahma Kumaris Shantivan, Abu Road, Rajasthan from 28-30 September 2007.

The theme chosen for the conference is very apt for the venue of the Brahma Kurnaris, where the emphasis is on promoting the qualities of humanism, tolerance and never- ending enthusiasm for spreading the knowledge of truth in every sphere of life. This would provide the platform for controlling ones lifestyle and behavioral risk factors to achieve optimal health.

The ICMR has been working towards addressing the various aspects on prevention and control of Non-communicable diseases by organizing need based studies in an integrated manner. Cardiovascular diseases, Diabetes, Stroke, and Cancers are the most important lifestyle related diseases facing us. They are facilitated by a group of major risk factors which are amenable to prevention and control, thus influencing their disease outcomes. While we improve our understanding and skills in the diagnostic and therapeutic modalities associated with these diseases, we should try to include other important stakeholders so as to be able to provide a holistic health for all human beings.

I look forward to the deliberation outcomes of this conference and wish it all the success.

(Prof. N. K. Ganguly)
Director General
Indian Council of Medical Research



Dr. W. Selvamurthy

सत्यमेव जयते

Ministry of Defence
Defence Research &
Development Organization
201, DRDO Bhavan,
New Delhi-110011

Dr. R. C. Sawhney

Heart disease and cardiovascular ailments have increased in the recent years. It is of grea concern for developing countries like India that the population in the young productive age get afflicte with these ailments leading to increase in morbidity and mortality at young age.

I am glad to know that the World Congress is focusing its deliberations on Clinical & Preventiv Cardiology with the mission of creating a greater awareness of the causes and the methods prevention and treatment.

The Conference should formulate new strategies for the prevention and treatment cardiovascular diseases. I wish the conference a great success.

Sd/-
(Dr. W. Selvamurthy)
Distinguished Scientist &
Chief Controller Research & Development
Government of India
Ministry of Defence
Defence Research &
Development Organization
201, DRDO Bhavan, New Delhi-110011

Sd/-
(Dr. R. C. Sawhney)
Director, Life Sciences
Government of India
Ministry of Defence
Defence Research &
Development Organization
DRDO Bhavan, New Delhi-11001

President ISCU
International Director
WCCPC 2007 and WPCHC 2007

Navin C. Nanda

It is a great pleasure and honor for me to welcome all the delegates at "2nd World Congress on Clinical and Preventive Cardiology 2007 and First World Public Conference on Heart Care" from 28-30 September, 2007 which are being organized by the World Heart Academy, Cardiological Society of India, Delhi Branch, International Society of Cardiovascular Ultrasound, Asian Pacific Society of Cardiology, Healthy Heart Education and Research Foundation, International Medical Sciences Academy in association with Global Hospital and Research Center, Defense Research and Development Organization, Indian Academy of Echocardiography, World Academy of Spiritual Sciences and Indian Academy of Mind Body Medicine.

This Congress will highlight the numerous advances in the fields of clinical cardiology, preventive cardiology, echocardiography, interventional cardiology, cardiac surgery and other modalities. As heart disease remains a global problem, prevention, early diagnosis, continuous management and proper follow-up are vital to patient care and the wealth of knowledge to be shared at this Congress will benefit both clinicians and their patients worldwide. As the International Director of this Congress, I would like to join Dr. H. K. Chopra in welcoming all delegates to this prestigious conference. I am very sure you will find this Congress very useful and stimulating.

(Navin C. Nanda)
President ISCU,
International Director
WCCPC 2007 and WPCHC 2007

President
Cardiological Society of India

S.K. Parashar

It is with great pleasure that I invite you to the World Congress on Clinical and Preventive Cardiology (WCCPC 2007) being organised by World Heart Academy (WHA), Cardiological Society of India, Delhi Branch (CSI DB), Asian Pacific Society of Cardiology (APSC), Healthy Heart Education and Research Foundation(HHERF), International Medical Sciences Academy (IMSA) in association with Global Hospital & Research Centre (GHRC), Defence Research & Development Organisation (DRDO), Ministry of Defence, Govt. of India, Indian Academy of Echocardiography (IAE), International Society of Cardiovascular Ultrasound (ISCU) and World Academy of Spiritual Sciences (WASS), from September 28 to 29, 2007 followed by World Public Conference on Heart Care (WPCHC 2007) on 30th, 2007 at Brahma Kumaris, Shantivan, Abu Road, Rajasthan (India). I have been actively associated with continuing medical education on various aspects of cardiology since a long time. Each year the quality of the Scientific material has improved. This year we are making it a mega event with participation of largest ever number of delegates from India and Abroad.

Cardiology and its various sub-specialties have taken great strides in last many years. As such it becomes difficult for practicing physicians & cardiologists to keep abreast of various advances in these fields. As such the aim of the organizing committee will be to synthesize a scientific program of high academic and stimulating value, yet wide ranging in its appeal to all cardiologists, cardiac surgeons , family physicians , internists etc. Special stress will be placed on few case study sessions which will be of immense interest to the audience. I am confident that the three days scientific feast will be liked by everybody.

The world congress faculty has the unique distinction of having nationally & internationally recognized cardiologists. I am sure that their inputs, suggestions and scientific contribution will go a long way in making this conference a great success. I would urge all the members of various organisations involved for their active participation and contribution to this great event. I compliment Dr.H.K. Chopra, Organising Chairman, Dr. Satish Kr. Gupta, Organising Secretary General, Dr. Navin C. Nanda International Director, Dr. Anil Kumar, President Elect APSC and Chairman Reception Committee and Dr. Michael Lim, President APSC for organising this unique Academic feast. I am sure the consensus of the conference will bring out guidelines for the practicing cardiologists. No conference can be a great success without the full support of the industry. As such I look forward and request them for their active participation.

(S.K. Parashar)
President,
Cardiological Society of India

Patron
WCCPC 2007 & WPCHC 207

G. S. Sainani

I am indeed very happy to learn that you are organizing the **"2nd World Congress on Clinical and Preventive Cardiology (WCCPC 2007) & "World Public Conference on Three Dimensional Heart Care (WPCHC 2007)"** at Brahma Kumaris, Shantivan, Abu Road (Rajasthan) from 28th to 30th September 2007 by the Cardiological Society of India, Delhi Branch, Asian Pacific Society of Cardiology, Healthy Heart Education and Research Foundation and the International Medical Sciences Academy in association with J. Watumull Global Hospital & Research Centre, Defence Research & Development Organisation, Ministry of Defence, Govt. of India, Indian Academy of Echocardiography and World Academy of Spiritual Sciences. There cannot be a better place than Brahma Kumaris Shantivan to hold such a congress. Secondly, J. W. Global Hospital and Research Centre, Mount Abu is the place where original research on the reversal of coronary atherosclerosis with Rajyoga meditation is being carried out by Dr. Satish Gupta with positive results. It will give a first hand opportunity to national and international delegates to appreciate the virtues of Rajyoga.

In the new millennium, our country is already facing an epidemic of coronary artery disease and soon coronary heart disease will become the number one killer in our country. With a little over 1 billion population, we have 600 million persons in the age group of 35-65 years which is most susceptible for heart attacks. As of now we have around 65 million persons suffering from coronary heart disease. This is going to rise steeply and within the next 2-3 decades. India will be the global capital of coronary artery disease. Our cardiologists and cardiothoracic surgeons are doing an excellent job in salvaging sick patients by coronary angioplasty and coronary artery bypass surgery. Our back is already against the wall and the only strategy is to enforce preventive measures nationwide on an emergent basis.

I am sure your WCCPC 2007& WPCHC 2007 will be an eye opener for our country, as the important messages of preventive cardiology will be conveyed through news media and television.

I wish your WCCPC 2007 & WPCHC 2007 a grand success.

Sd/-
(G. S. Sainani)
Patron
WCCPC 2007 & WPCHC 2007

President Elect
Asian Pacific Society of Cardiology
Chairman Reception Committee
(WCCPC 2007 & WPCHC 2007)

Anil Kumar

It gives me great pleasure to welcome you all to the **"2nd World Congress on Clinical and Preventive Cardiology (WCCPC 2007)" and "World Public Conference on Three Dimensional Heart Care(WPCHC 2007)** being organized by the Cardiological Society of India, Delhi Branch, Asian Pacific Society of Cardiology, Healthy Heart Education and Research Foundation and the International Medical Sciences Academy in association with J. Watumull Global Hospital & Research Centre, Defence Research & Development Organization, Indian Academy of Echo-cardiography and World Academy of Spiritual Sciences. **This will be held from September 28 to 30, 2007 at Brahma Kumaris, Shantivan, Abu Road, Rajasthan, India.** I am very happy that Asian Pacific Society of Cardiology has joined as a co-organizer for this World Congress with a prime focus on Clinical and Preventive Cardiology.

I am sure the scientific program under the dynamic leadership of Dr. S.K. Parashar, President CSI, and the organizing skills of Dr. H.K. Chopra, Organizing Chairman, and Dr. Satish Gupta, Organizing Secretary, will match the international standards. The Scientific deliberations will crystallize the recent trends and evolve guidelines for better patient care on different aspects of clinical, primordial, primary, secondary and tertiary prevention of coronary artery disease, hypertension, dislipidemia, metabolic syndrome, echocardiography, interventional cardiology, cardiac arrhythmias and cardiac surgery.

Once again on behalf of the members of the executive committee of APSC, I extend a warm welcome to you all and assure that you will have a comfortable and unforgettable stay with the memories of this Scientific Feast.

Sd/-
(Anil Kumar)
President Elect
Asian Pacific Society of Cardiology
Chairman Reception Committee
(WCCPC 2007 & WPCHC 2007)

Patron
WCCPC 2007 & WPCHC 2007

Dr. Naresh Trehan

It gives us great pleasure to welcome and invite you to join us ***"2nd World Congress on Clinical and Preventive Cardiology - 2007" & "World Public Conference on Three Dimensional Heart Care - 2007"*** being organized by Cardiological Society of India, Delhi Branch, Asian Pacific Society of Cardiology, Healthy Heart Education and Research Foundation and the International Medical Sciences Academy in association with J. W. Global Hospital & Research Centre, Defence Research & Development Organization, Indian Academy of Echocardiography and World Academy of Spiritual Sciences ***to be held from September 28 to 30, 2007 at Brahma Kumaris, Shantivan, Abu Road, Rajasthan, India.***

I am sure that this congress has been organized to highlight and share the explosive growth of knowledge in the field of clinical cardiology, preventive cardiology, echocardiography, electrophysiology and pacing, interventional cardiology and cardiac surgery as heart disease continues to be a daunting problem to clinician's world wide. Its preventive strategies, early diagnosis, correct and appropriate management and follow-up can be crucial for patient benefit.

The conference should evolve guidelines for better patient care. I am very happy to learn that under the stewardship of Delhi CSI, APSC, IMSA, IAE and various other oranisations, this conference will serve as the best platform for an excellent continuing medical education in cardiology.

I congratulate Dr. H. K. Chopra, Organising Chairman, Dr. S.K. Parashar, President, CSI and Chairman Scientific Committee, Dr. Satish Kr Gupta, Secretary General, Dr. Michael Lim, President APSC and Dr. Anil Kumar, President Elect APSC, and Chairman Reception Committee (WCCPC 2007 & WPCHC 2007), for their dedication and outstanding efforts to make this conference a success.

Sd/-
(Naresh Trehan)
Patron
WCCPC 2007 & WPCHC 2007

President,
Cardiological Society of India
Delhi Branch

Dr. Ashok Sheth

It gives us great pleasure to welcome and invite you to join us in the ***"2nd World Congress on Clinical and Preventive Cardiology - 2007" & "World Public Conference on Three Dimensional Heart Care - 2007"*** being organized by Cardiological Society of India, Delhi Branch, Asian Pacific Society of Cardiology, Healthy Heart Education and Research Foundation and the International Medical Sciences Academy in association with J. W. Global Hospital & Research Centre, Defence Research & Development Organization, Indian Academy of Echocardiography and World Academy of Spiritual Sciences ***to be held from September 28 to 30, 2007 at Brahma Kumaris, Shantivan, Abu Road, Rajasthan, India.***

I am sure the conference will evolve guidelines on various issues in the field of clinical cardiology, preventive cardiology, echocardiography, electrophysiology and pacing, interventional cardiology, cardiac surgery, cardiac rehabilitation and crystallize the recent trends and newer directions for better patient care and will make Delhi a perfect heart care destination for people from all over the world.

I firmly believe that optimisation in lifestyle and timely intervention with medical, mechanical and surgical treatment may curb the rising menace of coronary artery disease in a developing country like India. I compliment Dr. H.K. Chopra, Organising Chairman. Dr. S.K. Parashar, President CSI and Chairman Scientific Committee, Dr. Satish Kr. Gupta, Secretary General, Dr. Michael Lim, President APSC, Dr. Anil Kumar, Chairman Reception Committee (WCCPC 2007 & WPCHC 2007) and President Elect APSC, for their tremendous contribution in making this event great success by bringing together National and International organisations under one roof.

I am sure that the memories of this scientific feast at the Brahma Kumaris Shantivan will be an unforgettable one.

I wish WCCPC 2007 & WPCHC 2007 great success.

Sd/-
(Ashok Seth)
President, CSI -DB

President, International Medical Sciences Academy (IMSA)
Hony. Overseas Advisor,
Royal Collage of Physician & Surgeon, Glasgow.
Emeritus Prof. Dr. M.G.R. Medical University, Chennai,
Director K. J. Hospital, Chennai-600084

Dr. K Jagadeesan

It gives me great pleaser in congratulating you for organizing the World Congress on Clinical & Preventive Cardiology and World Public Conference on Heart Care roping in all the concerned faculties and organizers.

It is indeed a gigantic task in front of you. I am sure with your positive approach and dynamism you will certainly achieve one of the best meetings.

On behalf of the fellows and members of International Medical Science Academy and my own I wish you all success in this endeavor.

K. Jagadeesan

(Dr. K Jagadeesan)
President
International Medical Sciences Academy (IMSA)

President
Indian Academy of Echocardiography, India

Rakesh Gupta

It is heartening to learn that a **"2nd World Congress on Clinical & Preventive Cardiology (WCCPC 2007)" and "World Public Conference on Three Dimensional Heart Care (WPCHC 2007)"** is being organized on the occasion of **"World Heart day"** by Cardiological Society of India, Delhi Branch, Asian Pacific Society of Cardiology, Healthy Heart Education and Research Foundation and the International Medical Sciences Academy in association with J. Watumull Global Hospital & Research Centre, Defence Research & Development Organisation, Indian Academy of Echocardiography and World Academy of Spiritual Sciences. **This is being held from September 28 to 30, 2007 at Brahma Kumaris, Shantivan, Abu Road, Rajasthan, India.**

The second half of the 20th century has witnessed a global spread of cardiovascular disease (CVD). Even though CVD mortality rates are declining in industrialized countries the CVD epidemic is at an emergency level or accelerating in most developing countries. The health transition in India too reflects the growing burden of CVD. Several factors are contributing to the acceleration of CVD in India and the principal contributor is the demographic transition to an older population as a result of increasing life expectancy in India. The concomitant increase in the absolute level of risk factors, accompanying urbanization and western 'acculturation' leads to greater dose as well as duration of risk factor exposure with profound effects on CVD mortality rates. The projected CVD mortality rates in India are increasing at rapid pace from 271 per 1,00,000 population in 1985 to 379 per 1,00,000 population in 2000. The projected CVD mortality rate in 2015 in India is 534 per 1,00,000 population.

At this time in 2006, it becomes important to put an emphasis on the preventive aspect of CAD before and after the intervention. The organization of this conference on preventive cardiology at this juncture will prove a boon for identifying those important risk factors and managing them at this stage, so that the projected CVD mortality rate is reduced considerably in 2015.

The Indian Academy of Echocardiography as a co-organizer may play an important role in identifying these high risk individuals non invasively. The markers can be evaluated by measuring intimal medial thickness of carotid vessels, femoral artery, CARFEM index, endothelial dysfunction etc, which are supposedly surrogate markers of CVD.

I wish you all the success for this forthcoming conference and pray to almighty God that this effort results in a strategy and guidelines for lowering the CVD mortality rate significantly.

Sd/
(Rakesh Gupta
Presiden
Indian Academy of Echocardiograph

airman
ASS

S. K. Sama

World Heart Day is probably the most opportune time to hold a Congress of such great importance, like the I World Congress on Clinical and Preventive Cardiology - 2007 and World Public Conference on Three nensional Heart Care - 2007. It is all the more important because Dr. H. K. Chopra, the Organising Chairman of Congress, has involved such important organisations like the Cardiological Society of India, Delhi Branch, an Pacific Society of Cardiology, Healthy Heart Education and Research Foundation, International Medical ences Academy in association with J. Watumull Global Hospital and Research Centre, Defence Research and velopment Organisation, Ministry of Defence, Indian Academy of Echocardiography and World Academy of ritual Sciences.

Heart Disease is the second biggest killer and commonest cause of morbidity and mortality not only in our ntry but all over the world. It is affecting the masses in epidemic proportions and most of the surveys held show recedence of almost 10% amongst the urban population and 4% in the rural population.

Over 2.5 minion people die every year due to cardiovascular causes and almost 60% of them die without medical aid available to them. The most worrying cause for this country is that Coronary Artery Disease affects ians 10 to 15 years earlier than the rest of the world. It is also been observed that Indians in any part of the world more prone to Coronary Artery Disease as compared to other nationalities.

For a country like India to provide huge budgets for treatment of heart disease is next to impossible. It is all more important that stress is laid on preventive aspects of disease in the form of change in lifestyle and, proper ication regarding dietetics and regular schedule for exercise, as well as due attention to stress relieving dalities like Yoga and Meditation. Another aspect of lifestyle modification, which needs to lie propagated, is vention of smoking as smokers are most prone to Coronary Artery Disease.

It has also been found that obese children when they grow are more prone to cardiovascular diseases and d dietetics habits should be started right from childhood with proper regular exercise.

I am sure with a learned faculty from all over the globe, mutual interaction and deliberations in this gress will be very fruitful and strategies which are practical and applicable to this country will evolve and sequently be issued as guidelines.

I wish the Congress a great success and once again congratulate the Organising Committee for this ortant meeting.

Sd/-
(S.K. Sama)
Chairman
WASS

TIMES GROUP

Indu Jain
Chairperson
The Times of India Group

Indu Jain

It gives me great pleasure to know that the WCCPC is being convened at Mt Abu during 28 30th of September this year.

The age old adage that prevention is better than cure is especially true in the case of cardiac healthcare given today's high stress lifestyles. A strong need is felt today, on a global basis, to identify the environmental causes of heart problems which are increasingly afflicting younger age groups than they did a few decades back.

The solutions lie as much in holistic cures as in traditional medicine. No company, no industry and no country can afford to ignore the economic and social impact of cardiac problems on the youth who comprise the majority of our workforce today and have the potential to lead the country's socio-economic ecosystem in a fast evolving global economy.

I ardently hope that there will be distinct outcomes from the WCCPC 2007 which would enable us to address and enhance our understanding of the causes of cardiac problems and find feasible ways and means to address such issues in time.

I send my best wishes to the organizers of this mega event and hope The WCCPC 2007 is a great success and paves the path for formulating a well rounded system of prevention and cure.

Warm regards

(Indu Jain)
Chairperson
The Times of India Group

PRICEWATERHOUSECOOPERS

Managing Director
Price Water House Cooper
New Delhi

Deepak Kapoor

It is with great pleasure that I write for the upcoming World Congress on Clinical & Preventive Cardiology and the World Public Conference on Heart Care, being organized by World Heart Academy, Cardiological Society of India, Delhi Branch, Asian Pacific Society of Cardiology, College of Asia Society of Cardiology, Healthy Heart Education and Research Foundation and International Medical Sciences Academy at Shantivan Taleti, Rajasthan from September 28-30, 2007.

The latest figures clearly state that Indians are genetically more predisposed to have Coronary Artery Disease (CAD), and while in the rest of the world CAD has fallen by 50 percent, in India it is rising and has grown 300 percent over the last 50 years. I believe that preventive measures are the best control mechanisms and organizing such seminars and conferences would go a long way in fruitfully contributing to the cause of Preventive cardiology.

I commend the efforts of the organizing committee for taking the initiative to bring together Indian and internationally acclaimed cardiologists on a single platform to give their valuable inputs on Management of Coronary Artery Disease.

I wish organizing committee and Dr. H.K. Chopra all the very best and continued success in all such future endeavors.

(**D**eepak **K**apoor)
Managing Director

Director,
Rotary International, India

Ashok Mahajan

Heart disease kills more than any other disease known to mankind and is enemy No: 1 for medical profession.

Many of the heartaches of heart diseases are preventable, partly curable and relatively easily treatable.

This World Public Conference on Heart Care (WPCHC -2007) to be held on World Health Day is an ideal opportunity for cardiologists and physicians to interact , to evolve a strategy of battle lines and to enthuse the participants who can, then ,promote the concept to their work place.

The "Three Dimensional" approach to prevent, treat and correct lifestyle deficiencies will go a long way in making heart patients more comfortable, more productive and healthier.

I congratulate Healthy Heart Education and Research Foundations on demonstrating their foresight in celebrating World Heart Day in this unique manner.

Sd/-
(Ashok Mahajan)
Director,,
Rotary International, India

Organizing Chairman
WCCPC 2007 & WPCHC 2007

H. K. Chopra

It is a matter of great pleasure and honour indeed for me to welcome you all and invite you to the World Congress on Clinical and Preventive Cardiology (WCCPC 2007) being organised by World Heart Academy (WHA), Cardiological Society of India, Delhi Branch (CSI DB), Asian Pacific Society of Cardiology (APSC), Healthy Heart Education and Research Foundation(HHERF), International Medical Sciences Academy (IMSA) in association with Global Hospital & Research Centre, Defence Research & Development Organisation (DRDO), Ministry of Defence, Govt. of India, Indian Academy of Echocardiography (IAE), International Society of Cardiovascular Ultrasound (ISCU) and World Academy of Spiritual Sciences (WASS), to be held on September 28 to 29, 2007 and followed by World Public Conference on Heart Care (WPCHC 2007) on Sept. 30th, 2007 at Shantivan Taleti, Abu Road, Rajasthan (India). Over the past decade there has been a virtual explosion of knowledge in the field of Clinical Cardiology, Preventive Cardiology, Echocardiography, Electrophysiology, Interventional Cardiology and Cardiac Surgery. The objective of this conference is to focus on "Prevention to Intervention and Intervention to Prevention, Controversies to Consensus Where are we today and where are we going?" The scientific programme will include sessions of tremendous clinical application with high academic standards for internists, physicians, cardiologists, interventional cardiologists, cardiac surgeons, vascular surgeons, pediatric cardiologists and pediatrics cardiac surgeons, cardiac anesthetists, etc.

I am sure the scientific programme planned under the leadership of Scientific Core Committee & proceedings of the conference will evolve guidelines for several burning issues and newer innovative technologies and will definitely help in crystallizing the recent trends and newer directions for advanced patient care. There will be special emphasis on scientific sessions including recent advances in clinical cardiology, preventive cardiology, hypertension, congestive heart failure, dyslipidemia, coronary artery disease, cardiodiabetes, metabolic syndrome, echocardiography, electrophysiology and cardiac arrhythmia, interventional cardiology, cardiovascular surgery and cardiac anesthesia. I compliment Dr. S.K.Parashar, President CSI, and WHA, Dr.S.S. Chatterjee President Elect CSI, Dr. Navin C. Nanda International Director, Dr.Satish Kr. Gupta, Organising Secretary General, Dr. Michael Lim, President APSC, Dr.Anil Kumar, President Elect APSC and Chairman Reception Committee (WCCPC 2007), for their efforts and dedication in making this conference a success.

More than one thousand delegates are likely to participate in the scientific deliberations and more than five thousand members of public will participate in public conference.

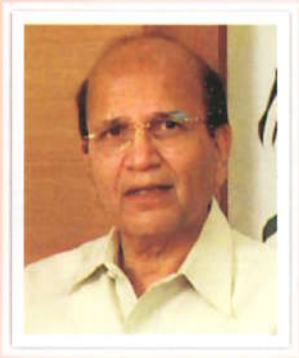
It shall be the endeavour of each and everyone of us to make the Conference a grand success.

I assure you that the memories of this scientific feast will be an unforgettable one.

Once again on behalf of the members of executive and organising committee, I extend a warm welcome to all of you.

In every challenge, there is uncertainty
When there is uncertainty, there is detachment
When there is a detachment, there is freedom,
When there is freedom, we surrender ourselves to cosmos
When we surrender ourselves to cosmos,
The whole cosmos, orchestrate its dance into your feet.
Maitreya Upanishad

(H. K. Chopra)
Organising Chairman
(WCCPC 2007 & WPCHC 2007)
Chairman WHA
Vice President CSI, DB. Secretary General, World HQ



Ashok R. Mehta

Pratap Midha

Banarsi L. Sah

I have great pleasure in welcoming you in the "2nd World Congress on Clinical & Preventive Cardiology 2007" & "World Public Conference on Thee Dimensional Heart Care 2007" , jointly organized by the Cardiology Society of India, Delhi Branch, Indian Academy of Echocardiography, International Medical Sciences Academy, Asia Pacific Society of Cardiology, Medical Wing of Brahma Kumaris, Global Hospital & Research Centre (GHRC) and Healthy Heart Education & Research Foundation (founded by CAD patients who have benefited from CAD Research Project) between September 28th and 30th, 2007.

The venue of the congress is Brahma Kumaris, Shantivan, Abu Road located at the foothills of Mount Abu. It is spread over an area of 70 acres. It has two halls - 'Diamond Hall' with capicity of 20 thousand and' Conference Hall' with 1700 seating capacity.

The GHRC, with 120 bed facility, has made the unique contribution of running a trial of more than 1000 patients with Coronary Artery Disease and its management with changes in their lifestyle (diet, exercise and Rajyoga meditation) with excellent results. You will have the opportunity during the conference to interact with outstanding teachers of Rajyoga. I am sure you will take this opportunity to give your valued opinion and suggestions in the deleberation at Congress and also enjoy your visit.

Ashok R. Mehta
President, Medical Wing, RERF, BKWSU
Medical Director,
J. W. Global Hospital & Research Centre

Pratap Midha
Medical Superintendent
J. W. Global Hospital &
Research Centre

Banarsi L. Sah
Executive Secretary
Medical Wing,
RERF, BKWSU

BK Nirwair

BK Ramesh Shah

BK Brij Mohan

Hearty congratulations on the ***"2nd World Congress on Clinical & Preventive Cardiology 2007 (WCCPC-2007)"*** and ***"World Public Conference on 3D Heart Care (WPCHC-2007"*** being held at Shantivan, Abu Road from 28th to 30th September 2007!

It is heartening to note that the response from all over the world has been encouraging. The participation of highly eminent cardiologists from Bharat and abroad will definitely pave the way for the world to benefit from the presentations of experienced cardiologists and other participants.

The serene environment of Shantivan, with the additional unmatched dimension of spiritual vibrations, will surely provide a unique and soothing experience to all the participants. The confluence of spirituality and science would prove to be a boon to the medical scientists, patients their families.

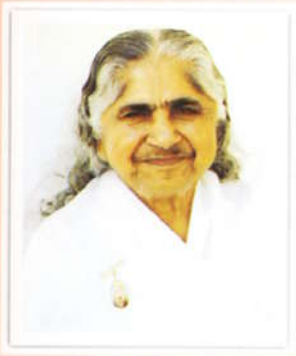
I extend hearty congratulations to the Organising Committee and best wishes for the success of WCCPC-2007 and WPCHC-2007.

With regards,

BK Nirwair
Managing Trustee, GHRC
Secretary General,
Brahma Kumaris

BK Ramesh Shah
Chairperson, Jurists' Wing of RERF
Managing Trustee,
WRST

BK Brij Mohan
Chairperson,
Politicians' Wing of RERF
Editor of 'Purity' Spiritual Magazine



Dadi Janki

Dadi Hirday Mohini

Dadi Ratan Mohini

From the heart with love

In our world today, there is a lot of research in medicine and science but we have forgotten to research inner peace. I have experienced a lot of illnesses throughout my life and have served others who are ill. To serve means to receive power, happiness and blessings from those you serve. During my time as the nurse for a spiritual community of 300 for 14 years, I found patients' recovery was helped when I served with love, and that 'blessings' and love from others contribute greatly to healing.

I came to the conclusion that to understand the patient and give with compassion is what is truly needed. Compassion comes when the heart is full, so that it easily reaches out to others who are in need. Compassion flows from inner peace and as patients receive this peace, both body and mind start to heal.

This is not simply another conference on Heart Care that you are attending, however in the peaceful environment of Shantivan, it is an opportunity to retreat inwards and examine the quality of your own heart. Ask your heart, 'To what extent is there cleanliness and honesty in my heart? Is my heart free from any selfish desires? With the practice of meditation, we go inwards and clean out our intentions and motivations, then we are naturally pulled upwards into the company of the Divine. The connection with God recharges the battery of the soul and fills it with power and peace. This brings lasting contentment , the basis for a healthy, wealthy and happy life.

Only when we begin to heal our hearts in this way using God's power can we truly become instruments to heal the hearts of others.

I am sure that the conversations and sharings will bring much newness during the course of the conference. This will be of tremendous help in deepening and refining heart care locally and globally and I wish it every success.

In the remembrance of the Divine

Dadi Janki
Chief of Administrative
Brahma Kumaris

Dadi Hirday Mohini
Add. Chief of Administrative
Brahma Kumaris

Dadi Ratan Mohini
Joint Chief of Administrative
Brahma Kumaris

Articles & Abstracts

Value Of Time

To realize the value of one year
Ask a student who has failed an exam
To realize the value of one month
Ask a mother who has given birth to a premature baby
To realize the value of one week
Ask the editor of a weekly magazine
To realize the value of one day
Ask a daily wage laborer who has ten kids to feed
To realize the value of one hour
Ask the lovers who are waiting to meet
To realize the value of one minute
Ask a person who has survived an accident
To realize the value of one millisecond
Ask the person who's won a silver medal in the Olympics.
Value every moment of the time you have!!

3D HEALTH CARE THE MIND, BODY, SOUL CONNECTION

- Rajyogini Dadi Janki

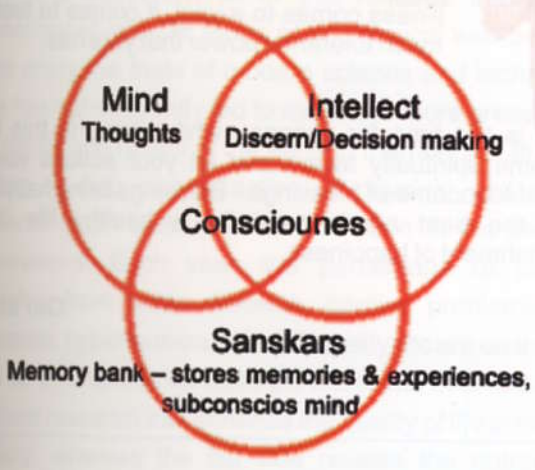
Administrative Head, Brahma Kumaris,
8,500 centres all over the world in more than 120 countries.

Most stable Mind in the world, at 92 years of age: has more energy than a person of age 29 years. Last year she travelled more than 1,50,000 kms.

There is a deep connection between my inner world of thoughts, feelings, vision and attitude with my outer physical world, starting with my own body. Understanding and strengthening this connection will help us to conquer stress and guide us back to an overall state of health at all levels, ie spiritual, mental, emotional and physical.

Inner dynamics of the soul

Understanding the inner dynamics of the self is an essential first step. There is the heart (feelings), the mind (thoughts), the intellect (decision making), the conscience (voice of truth) and the subconscious memory track (recording of all memories and experiences.)



Our subconscious memory track carries both positive and negative experiences. When the negative ones erupt, they contaminate our hearts and minds disabling their ability to function effectively and clearly. When thoughts and feelings are confused and polluted in this way, then the intellect isn't able to function properly in order to make the right decision. The mind has a connection with the intellect and the intellect has a deep connection with the conscience.

Why is the mind pulled in so many different directions?

The mind has a deep connection with the senses of the physical body. When the senses become mischievous or influenced by matter, this pulls the mind in the direction of the physical world. Only when the intellect receives and imbibes spiritual knowledge, can it control the mind and steer it back to order. Only then can the mind control the senses and achieve mastery over them.

What is self mastery? It is the inculcation and complete absorption of spiritual knowledge in the intellect. The intellect needs the co-operation of the mind to function effectively. However, when old experiences/memories or sanskars erupt, they pull the mind. In the face of situations, the mind is also influenced and this doesn't allow the intellect to function effectively. In all of this the conscience highlights what is right and wrong.

The mind-body connection

Healthcare and being healthy has a connection with the mind. The mind has a connection with the physical senses. How we use the senses affects our health. For example, all the food we eat has an impact on the body. It is important to take care of our actions. Our diet should be a satvic one. Everything we do has an impact on our consciousness. Our intellect has the potential to work well, but it has the tendency to become influenced due to two aspects: The quality of the company we keep, and the sustenance we receive, e.g. from our family and close relationships.

When we do something wrong, the conscience bites and makes the soul feel guilty. When there is the influence of bad company, the conscience becomes suppressed and can't speak. When the conscience is suppressed, even if a person is beaten they won't be able to speak the truth. The truth is suppressed and hidden.

Soul consciousness and God consciousness to rejuvenate health from inside out.

It is through meditation and the development of soul consciousness that the intellect will be empowered enough to work well. It will be able to remain still and stable and to absorb goodness.

When you remain in the physical awareness of body consciousness then you will be further influenced by your old memories they will come up or emerge. Let's say in the past, you took sorrow from someone the situation is finished and there is nothing in the present but when you see that person again, the memory will emerge and your vision will change towards them. Whatever I remember will be reflected through my eyes and colour the way I see things (my vision/perception). When there is God's remembrance, there is God's energy influencing me.

The way I see (vision or drishti) is deeply connected with my attitude (vritti). My attitude is created by my awareness of what I remember. By remembering God, create an elevated awareness, then the soul will not experience pain or sorrow.

Let the heart be honest, the head cool and the nature serene then there will be no tension or depression. Tiredness comes because of remembering old or negative memories and this doesn't allow me to be accurate in the present.

It is important to look after the inner stage of the self. Being influenced by external situations has drained us of energy and made us weak. This in turn has influenced our health. If I repeatedly have weak thoughts about something, that impacts me even more. e.g. if I keep complaining that I have a cough then those thoughts will aggravate the symptoms even more. Whatever I remember or carry in my awareness that will definitely have an influence on my mind and body.

When we become dependent on anything or anyone, including the body, then we experience sorrow. Let the self have trust in God and then perform actions. Draw power from God and eat the fruit of your elevated actions and feed others. Of course there are health problems and these are the results of karmic accounts, however my mind should be so strong that it isn't influenced by any of the problems.

There are three reasons for illnesses:

1) Settling of past karma may be karma from a previous birth, i.e. wrong actions performed in a previous birth.

2) Settling karma from this present birth there is a little suffering of wrong actions. e.g. when we have misused the senses or used them unnecessarily then there is the feeling of tiredness.

3) It is not the settling of the past or the present birth karma but the illness is a form of practice of karma yoga. It isn't experienced as the suffering of karma (*karma bhog*) but is karma yoga. Karma yoga is to renounce the consciousness of the body, be aware of the self as a soul and have a deep connection with God. The illness is an instrument to strengthen this. When an illness comes to a yogi, it comes to test how much tolerance power that yogi has.

Now is the time for change whilst living in this body, become spiritually aware and let your actions earn an elevated income of blessings. Blessings bring happiness and the best nourishment for a healthy life is the nourishment of happiness.

Om shanti.

Our vibrations of pure thoughts can

reach out and touch the whole world.

Our very life can do the work of a lighthouse.

- Dadi Janki

ENJOYING A HEALTHY & HAPPY LIFE

- Rajyogi B.K. Nirwair

Managing Trustee, J.W. Global Hospital & Research Centre, Mt Abu;
Secretary-General, Rajyoga Education & Research Foundation,
Brahma Kumaris, Mt. Abu.

Since the world came into being, humanity has strived relentlessly to be happy. Different experiments carried out in both the scientific and spiritualistic arenas provide ways and means for a person to feel happiness and joy for the maximum time in life. However, during the ensuing century, especially over the past five decades, there have been tremendous changes in the lifestyle of people from all age groups and socio-economic status. This century has developed the materialistic outlook, which has led to extraordinary means of domestic life, modes of travel, fashion, entertainment, and the fast-food culture. Undoubtedly, all of this requires tremendous concentrated effort in terms of economical well-being so as to enjoy the fruits of modern science and technology. This has subsequently led to more and more pressure on the minds and hearts of the earning members of families, further leading to contraction of physical and mental ailments much earlier in life than seen in the previous generations. Each year, the percentage of patients suffering from acute diabetes, cardiac problems, skin diseases, hypertension, infant mortality etc are on the rise. And so on one side we have the latest and best findings in medical research that enhance the quality of life in modern society, whereas the flip side reveals the outrageous incidents of suffering patients in cities as well as rural habitats.

These observations instigate scientists as well as those dedicated in spiritual services to ponder deeply in the definite direction of arresting further decay of health standards. The root cause of all discomfort and pain in health setbacks should be deciphered minutely, as these are omnipresent irrespective of educational and financial backgrounds. Perhaps modern science has been more focused on providing immediate. Relief through medication, surgery or alternative clinical treatments. However, some medical scientists have of late addressed these health problems, especially dealing with cardiac ailments, keeping the preventive methods in focus.

The wise saying, "Prevention is better than cure" seems to be a crucial method to aid large numbers of people in the world. Simple living and high thinking is an absolutely effective solution. The experiments of certain cardiologists in India and abroad have provided strong insights as they combine the following four factors for a healthy and happy lifestyle:

1. The most significant factor in preventive cardiology appears to be a high level of consciousness, meaning a positive and divine consciousness. It's shocking to see the present level of consciousness of the common person because most people have hardly any time for self-introspection or practice of connecting beyond the physical realm which would help in creating positive behaviour and a happy environment.

   The founding cause is one's self-centred thought processes which lead to negative personality traits. "As you sow, so shall you reap" and therefore actions stemming from negative consciousness result in suffering, unhappiness, prejudice, hatred, jealousy, competition and wars. The first focus of an individual needs to be elevation of one's consciousness for which simple ways of reflection and meditation are advisable and proven to be very effective in moulding one's lifestyle positively.

2. The next vital factor seems to be a balance between mental and physical activities. The physical human body needs moderate exercise to keep the whole system in good shape, and simple walks in fresh air while appreciating and enjoying nature help avoid unnecessary stress

and fear, namely the root causes of health problems. A while back I had come across a book on biographic stories of some great personalities. These memorable tales of well-known statesmen, scientists, economists, medical scientists, inventors, architects, engineers etc mentioned clearly that regular walkers tend to live longer lives.

Unfortunately, the fast-paced modern life and compact residential areas have inhibited people's walking and exercise routines. As a result, 90% of humanity suffers from some ailment or the other. When a spiritual student lifestyle is adopted, a young and active mental consciousness is retained even as the body age; thereby, the benefits of walking and exercise are experienced and used to enhance a healthy lifestyle.

3. The right diet is strongly connected to good health and a sense of well-being. The relationship between food and one's mental-cum-physical health is so subtle yet rarely understood and respected. It is widely known that a high-fibre, low-fat diet is essential to keep the heart and body, in general, working at optimum level. However, apart from the various nutritional aspects, one's attention towards the mental attitude and consciousness while cooking and eating meals are equally important as both spirit and body (of the human being) are nurtured in the process.

4. Recreation stimulates enthusiasm and vigour within the human spirit along with strengthening human relationships since most activities are accomplished in the company of family members, friends, team mates etc. The age of television, mobile phones, video and computer games - though advanced, chic and global - has injured one's sense of aesthetic beauty, appreciation for the outdoors,

Even though a large portion of the world population is committed to some sport or recreation, the competitive nature, artificial glamour and deceit being displayed today do more to harm one's mental, emotional, physical

and spiritual health. It is necessary that we re-evaluate our priorities and be firm in securing a good life for ourselves and becoming an inspiration for others.

Keeping these four in mind, it's impossible to forget regular early morning meditation as it stabilises and empowers the mind and intellect in preparation for the coming day. Recent studies in preventive cardiology support the fact that some form of meditation is very beneficial for securing a productive life, along with change in food habits and attitude, inclusion of exercise, and increased knowledge about karma and its repercussions.

We find there is a wonderful treasure-store of spiritual wisdom now available to help us evolve as spiritual beings, balance out our lives on all levels and give new meaning to our existence in the world. When practised in the right, earnest manner one enjoys a very healthy and long life capable of serving not just one's immediate family *and friends but the society we live in, which in* reality is an extended family of God. Selfless service unto others multiplies one's own happiness, which is unquestionably the most powerful nourishment to replace all other nutritional supplements.

An elevated consciousness and meaningful lifestyle canbe the master key for opening the gates to a new world order inhabited by a very healthy and happy society.

Inaugural Address of His Excellency, Dr. APJ Abdul Kalam,
Former President of India,
World Congress on Clinical Preventive Cardiology 2006,
22nd September 2006

Venue: Brahma Kumaris, Shantivan, Abu Road (Rajasthan)

Integrated Three Dimensional Approach for Healthcare

I am delighted to participate in the inauguration of the World Congress on Clinical and Preventive Cardiology taking place at Shantivan, Abu Road. I am very happy to meet and discuss issues with the experts in the fields of clinical, preventive and experimental cardiology who have gathered here and to share their experiences. I am extremely happy that cardiologists from the U.S., U.K., the Netherlands, Malaysia and many other countries have also gathered to deliberate on recent advances in cardiac care.

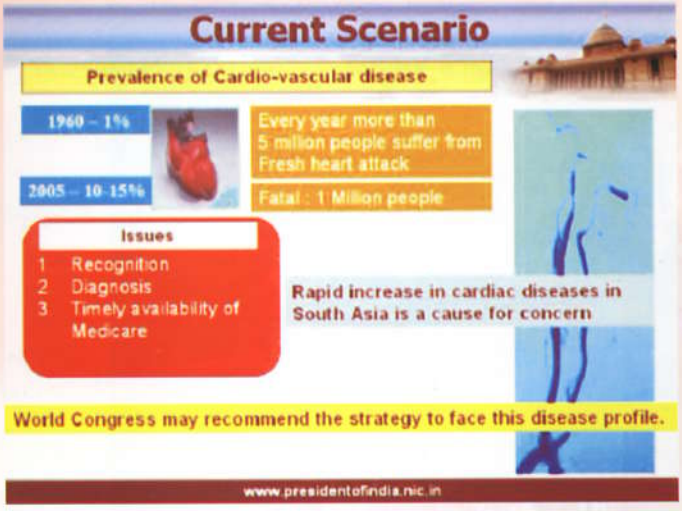
Current Scenario

Cardiovascular diseases leading to a variety of heart related problems have assumed epidemic proportions the world over and have become the most common cause of fatality in the developed as well as developing nations. In India, I understand the prevalence of cardiovascular diseases has increased from 1 % in 1960 to 10 % to 15 % of the adult population now. Every year, more than five million people suffer from fresh heart attacks including nearly 1.5 million fatal attacks. One of the critical issues is the recognition, diagnosis and timely availability of Medicare at the time of attack including rural areas. The rapid increase in the rate of coronary artery diseases in South Asia particularly in India, Pakistan, Bangladesh, Nepal and Sri Lanka is definitely a cause of concern for health specialists of this region. The increase in incidence of diabetics among our population aggravates the heart problem further. Hence, the World Congress will result in certain useful recommendations for the medical community and social organizations like the Brahma Kumaris and the institutions like DIPAS, DRDO and many more institutions.

Effect of Globalization

Rapid changes in lifestyle associated with globalization, industrialization and urbanization of this region is probably the greatest cause for the increase in the rate of cardiovascular diseases. Alterations in traditional life style due to migration from rural to urban areas in India or migration abroad to more prosperous conditions may also be responsible for increasing

coronary artery diseases. This leads us to think that a problem which has been self-created by adopting a faulty life style during the transition of the country from developing into a developed nation, may find a solution through reversing this process by appropriate modification of the life styles of individuals and families. Specialists may say that genetically Indians wherever they are, have a greater tendency to be affected by cardiovascular diseases. However, the adopted aberrant lifestyle provides an environment for expression of the genes, which can be easily avoided by choosing a very healthy life style, which is in control of every individual.



The cost of the cardiac treatment and recurrence even after treatment after a certain period and increasing trend of the cardiac cases has led to groups to work on the preventive methodology. Of course, this is what this congress will be in the process of discussing. I would like to share a few thoughts in the area of mind-body integrated treatment.

Mind-Body-Synergy Studies

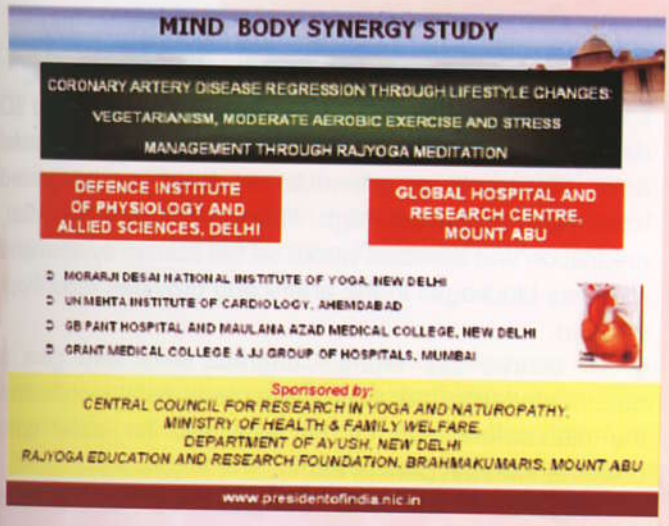
Studies on optimization of mind-body-synergy had commenced in the Defense Research and Development Organization in 1993 by integrating two laboratories namely the Defense Institute of Physiology and Allied Sciences and the Defense Institute of Psychological Research. This enabled creation of mind-body-synergy in understanding problems faced by humanity. Studies were started in three areas namely cancer, HIV/AIDS and the aim of the studies was to validate the hypothesis that mind-body-synergy could provide a solution to global health problems. Health has to be treated not as the absence of disease but the feeling of complete physical, mental and social well-being. Generally, the conventional health care system pays attention to physiology. I have come across a beautiful book 3 decades ago titled "Man the Unknown" written by the Nobel laureate Alexis Carroll. He brought out for the first time how in American medical schools, treatment deals with mostly converting pathology to physiology. Whereas, the cause of pain and the disease arises out of lack of an integrating mechanism in the mind and the body. This has led to a major change in thinking about the causes of disease and has resulted in a considerable amount of change in the medical syllabi in different parts of the world. Apart from mind-body-social synergy to attain good health, we need to add the fourth dimension, that of spiritual health.

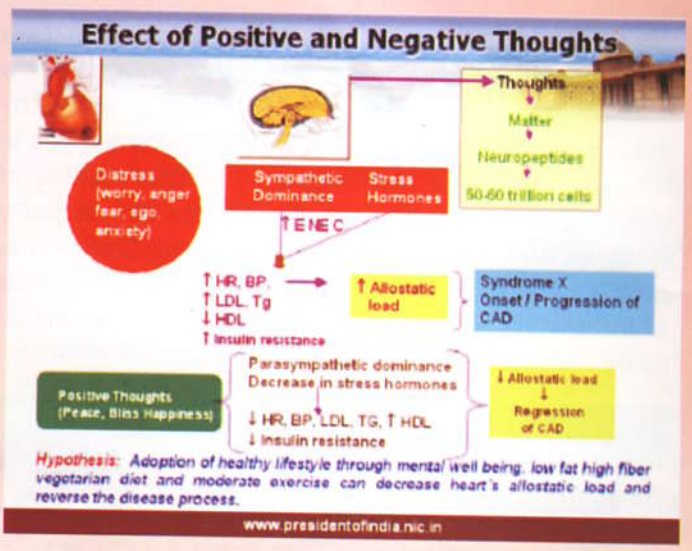
DRDO - Global Hospital Initiative

Keeping this in mind the DRDO took the initiative of formulating a project in collaboration with the Global Hospital and Research Centre, Mount Abu an institution of the Brahma Kumaris. They added the fourth dimension of spiritual health to take care of total heart health. In addition, this project involved a partnership from many hospitals and research institutions spread in different parts of the country, wherein cardiologists, endocrinologists, physiologists, fitness experts and spiritualists worked hand-in-hand for more than eight years to understand if this integrated mechanism can provide an antidote to the expanding global heart problem.

Effect of Positive and Negative Thoughts

Friends, we know well that thoughts whether positive or negative are not just vibrations in the air but well-defined electro-chemical events with physiological consequences. Thoughts, in the brain are converted into matter, which I understand reach all fifty sixty trillion cells of the body in the form of neuro-peptides. If thoughts are distressing, full of worry, anger, ego or anxiety, the brain





starts pouring stress hormones, which in turn increases the load on the heart and can set in coronary artery disease. If, we can reverse this process by creating an environment of positive thoughts, peace and happiness, this can minimize the load on the heart, which should lead to reversal of the disease. The main hypothesis was by adapting a healthy lifestyle of low fat high fibre vegetarian diet, moderate exercise and stress management through Rajyoga meditation, we can decrease load on the heart which in turn should reverse or halt the disease process. Similarly there are many types of meditation, which may suit certain groups of people. It has been recognized that keeping mind and body busy through good work is another way of Yoga.

Study Design

This hypothesis was tested in more than five hundred and eighteen patients, who had angiographically proven coronary artery disease. Two trials were carried out, Mount Abu Open Heart Trial in which patients served as their own controls and Abu Healthy Heart Trial in which hundred and twelve patients received a healthy life style, whereas hundred and five patients served as control and did not receive the healthy life style intervention. In fact, the control group was also prescribed the same diet and exercise but was not given instructions on meditation. Most of these patients had advanced coronary artery disease involving all three heart arteries. These patients were tracked over a period of eight years by the Global Hospital and DIPAS.

Life Style Intervention

The life style given to these patients was very simple and rudimentary. In fact, they received a traditional Indian diet having lots of fibre, fruits and sprouts which I understand was a staple diet of every Indian family about five decades ago. The exercise given was simple; a brisk walk both in the morning and evening hours. The major component of the intervention was stress management through meditation. The main efforts were to empower patients with information and education on heart disease and how they themselves can control or reverse it.

Angiographic Evaluation

I understand that angiographies were coded and analyzed by a panel of independent angiographers. The outcome appears to be quite rewarding. Like any medical treatment a visibly marked improvement in cardiac health of these patients could be seen within seven days of the commencement of the intervention. Their requirement of drugs prescribed by their cardiologists decreased markedly. The symptoms of chest pain and uneasiness reduced. Their capacity to exercise improved dramatically. I understand that after six months of intervention some of the patients were even able to take to swimming. The so-called bad cholesterol, stress hormones profile improved noticeably. The psychological or mental health showed considerable improvement.

The heartbeat became very rhythmic and natural. The brain waves especially the Alpha that I understand are an indicator of mental tranquility increased dramatically. In fact, the increased Alpha waves could be recorded both during eye closed and eye open conditions suggesting that while they were doing their routine work mental tranquility was well maintained.

When their angiographies were repeated the control group showed an increase in artery blockage whereas the group, which received life style intervention, showed a substantial decrease in artery blockage. Thus, this experiment clearly gives us ample evidence to confirm our hypothesis about the efficacy of lifestyle intervention in promoting sustainable healthy hearts.

Replication of Experiments

However, I would suggest that the specialists gathered at

this Congress should extend this experiment to their establishments in their countries so that what benefit a limited number of people have got today can be shared by the entire universe. This will definitely lead to savings in billions of dollars of expenditure as a large number of diseases are now well recognized to be due to faulty lifestyles. Also, the savings added to the well being of the people can result in faster development due to enhanced availability of healthy human resource and additional funds.

Conclusion

While concluding, I would like to congratulate both the technical and scientific teams of Physiology and Psychology; I have seven suggestions for the members assembled in the World Congress of Clinical and Preventive Cardiology.

a. A new website has to be launched on the occasion of this Conference, putting the theme papers as source material.

b. In this large gathering, there may be number of experts who are working in the three dimensional healthcare approach. Each one can write a page about their experience and physio-psycho meditation treatments.

c. Similarly, patients who found great relief by the three dimensional health approaches can also record their experiences in any language, which can be facilitated by the organisers. It can be available on the website. There also may be a suggestion that any one who has experience in the field can also respond.

d. A quarterly journal on three-dimensional health care may be published; jointly by the Brahmakumari organisation and DRDO about the progress made in technology and management of cardiac are through Life Style Intervention. Worldwide contributions may be requested.

e. The results and the recommendations of this conference on three-dimensional healthcare can be communicated to the Indian Medical Council for action.

f. What is reported in the conference is the integrated 3D dimensional approach to healthcare through experimental data. Research is essential on how an integrated treatment involving high fibrous vegetarian diet, meditation and aerobics works on the human system and removes blockages in the artery and provides relief from the pain.

g. Of course this World Congress may also give a recommendation based on the experimental results and the discussions. Can it be extended for other type diseases like HIV, Cancer etc.?

I inaugurate the World Congress on Clinical and Preventive Cardiology. I greet all of you on the eve of World Heart Day, which you will be celebrating day after tomorrow.

On this occasion let me wish you success in your mission of removing the pain of the people by adapting the preventive strategy and giving a simple solution of healthy life style to the ailing humanity.

May God bless you!

Question answer session

Q 1. Your Excellency, What exactly is three dimensional approach? Can you just elaborate?

From Dr. H. K. Chopra, Organising Chairman, WCCPC 2006

Answer by His Excellency:

1st dimension: Healthy food style, high fibrous food

2nd dimension: Aerobic exercises

3rd dimension: Meditation These I meant by three dimensional approach.

Q. 2.India has got a very rich heritage in spiritualism. The 4th dimension as you mentioned is spiritual health. We can very well export spiritual health to the globe. Thank you.

From the audience of Doctors

Answer by His Excellency: Regarding the export, making a business you can do afterwards. But what you do now make the India's health is good health using this three dimensional or four dimensional approach. OK.

Q. 3. What we can do to bring awareness's among the masses so that more people who don't know much about cardiology, what we can do best so that they know and bring about awareness in more peoples heart so that we can do much to prevent heart diseases in the society?

From audience of Doctors

Answer by His Excellency Well it is a good question. I would like to tell you how you can do this. Are you a doctor? Now I would like to address all the doctors. When a patient comes to a doctor, he considers and accepts doctor as Godly person. He accepts that. Now imagine, when you treat that person, when you are treating a person, he get number of people from his family and friends to see the patient. As a doctor you spread the information, you tell his friends, you tell his relatives, how your relative got a heart problem because of the following reasons. So I will suggest these are the schedule of three dimensional schedules he should follow. If you spread this information, that will be the best teaching. You will become a teacher, not only a doctor, you should be a teacher also. They will believe you because you are treating the man or women. You agree? Yes or no?

Comments: Thank you very much His Excellency, for this excellent lecture. I thought you are a Cardiologist by profession, the way you spoke.

From Dr. Abdul Wase, USA, International Faculty, WCCPC 2006

Comments by His Excellency: In my last birth I was a Cardiologist.

Q. 4 This is just a comment, then I will ask the question. There was one presentation today morning where they have collected data from rural India Andhra Pradesh over one lac people, and they found the death from cardiovascular disease was 25%. I was shocked see this number. Actually when I was coming to the conference,

I was doing some research, I was trying to get some figures, unfortunately there is nothing available on internet in term of prevalence of cardiovascular diseases specifically cardiac arrest and certain cardiac death. So my question to you, Your Excellency is, may be we should have a some kind of huge database, that we should collect all the data from the different parts of the country, and try to establish the problem, how big the problem is and collect different variables and then follow those patient population over a long period of time, as they have done in Framingham's study and other parts of the United States.

From the Audience of Doctors

Answer by His Excellency: I appreciate your question. In the beginning as soon as I started presenting the material, I felt the increase in the heart problem since 1960, today it is further increasing. I agree that database is to be generated, and I will see to that every state in my Country, they put some clinical data, clinical incidences in the internet about Indian Hearts some thing like that, I will going to recommend and suggest so that we know the material which create problem. As an export you can understand genetically Indians are susceptible for cardiac diseases that is well known. But the question is, what we are discussing, you know, once heart problem is detected how to handle and how to prevent. So the preventive cardiology treatment is most vital. This is the message that the world congress should spread.

Comments by Dr. S. K. Parasar, President of Cardiological Society of India about the previous figure:

The ICMR (Indian Council for Medical Research) has taken a big project and I happened to be a member of that project and the first meeting is on 15th October 2006, in which they have setup of a big website and they will studying on acute cardiovascular accidents through out the country and then collect the whole data and that is starting from 15th October.

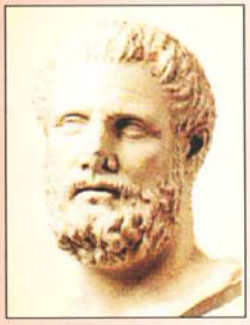
Comments by His Excellency: But my suggestion you start tomorrow the whole the information for various countries so that the database will be available for you.

Q. 5. I am saying just like for body we have got all the branches all over the world in all the Medical Institutes. Now this is a Preventive Cardiology Congress, why not we have a chair on this three dimensional approach,

at least that start from India, so that this thing can be spread.

From G. K. Jain, Participant of CAD Program (Dilwala)

Answer by His Excellency: Yes, I will take your suggestion. The best way to do that, I told you an international website you must start, and you are empowered to do in this congress, Dr. Selvamurty will do every aspects of necessary requirements.



Hippocrates, the first Greek to challenge the notion that disease was punishment sent from the gods, discovered the connection between human disease and poor environmental conditions. Considered to be the father of medicine, his ability to make accurate clinical observations led him to the concept of preventive medicine.

THE OATH OF HIPPOCRATES (MODIFIED)

- I swear to fulfill to the best of my ability and judgment, this covenant.
- I will respect the hard-won scientific gains of those physicians in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow.
- I will apply for the benefit of the sick, all measures which are required, avoiding those twin traps of over treatment and therapeutic nihilism.
- I will remember that there is art to medicine as well as science, and that warmth, sympathy and understanding may outweigh the surgeon's knife or the chemist's drug.
- I will not be ashamed to say" I 'know not", "nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery.
- I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know.
- Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at being God.
- I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.
- I will prevent disease whenever I can, for prevention is preferable to cure.
- I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sounds of mind and body as well as the infirm. If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter.
- May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.

Translated by Louis Lasanga (1964) Academic Dean, Tufts University

The following paragraphs are excerpts taken from the Presidential address of Professor Douglas Zipes at the plenary session of the American College of Cardiology in March 2002:

The way medicine is practiced today raises many questions about where our concerns and our responsibilities must lie in this world. The questions are many and the answers difficult. But one answer, particularly for us as physicians, stands out above all the rest. We now know that our concerns can no longer be limited to a personal agenda, to a regional interest, or to any single corner of any particular market. We now know that the proper sphere of influence for every responsible man and woman is this entire fragile sphere called earth. Castes and communities, religious fanatism, regional parochialism, and the errant politicians fade into the mist of dreams when held up to the pleading realities affecting our world. It has become blindingly clear that our concerns must encompass the relief of misery wherever we find it. And that means that we, as physicians and cardiologists, must expand our vision to include all of humankind.

Our world has been likened to a beautiful book that is of little use to those who cannot read. And in a similar sense, our knowledge as physicians is a fine and priceless asset whose value is vastly diminished unless it can be taught, disseminated, and practiced throughout the world. In Peru, Calcutta, and Afghanistan. I have written about it in one of my president's pages, and I like to call it a patient in a box. It is designed to teach physicians at all stages of their careers how to use new medical devices and perform new procedures.

It will allow trainees to practice new techniques without fear of harming patients. In fact, in the future a certain number of practice hours logged on a simulator will probably become required before performing a procedure on a patient. It will help us to work and train as a team, along with our nurses, technicians, and physician colleagues. Dealing with rare or infrequent complications, such as cardiac perforation and tamponade, can be practiced many times on the simulator, so that when it actually happens, the catch team can respond like a crack drill squad. In the near future, from the first venopuncture that a medical student performs to a complex angioplasty in the last year of cardiology fellowship training, procedures will be taught in such virtual reality settings. Perhaps, also in the future, low volume operators will be able to make up for lack of patient numbers by documented hours spent practising on a simulator. I submit to you that virtual reality is an unquestionable part of our educational future, and it is a means through which we can spread knowledge all over the world. It will change forever how we teach, test, and treat.

We must educate the public of the wrong doings and unethical practices they are subjected to. What else can we do, as individual clinicians and as a College, to improve the quality of the care that we deliver? How can we demonstrate that quality to regulatory agencies, third-parry players, and, most importantly, to our patients and their loved ones? In searching for an answer to these questions, we must first look to the nature of our relationship with the society in which we live. We are social animals with a need to coexist in the company of others, and to interact with them.

It seems to me that the mora1 glue that binds us together comes in large measure from our accountability to those others. For each of us is accountable in some way to someone.... . . a husband to his wife, a parent to a child, a physician to a patient. We know this and live by it.

And in these interactions, we think of ourselves, for the most part, as honorable men and women with standards that are an unshakable part of our accountability to society. Those standards are founded on an underlying knowle4ge of what is right and what is wrong.

And, as physicians, we think of ourselves as knowledgeable and competent professionals with a distinct understanding of what is right for our patients, and what is not. We know this with complete confidence. And rarely, if ever, do we find the need to question it.

And, in the most immediate sense, that accountability applies direct/y to the vulnerable state of the patients whom we treat. I like to think that good health is when your body does not talk to you, when it is silent. You are largely unaware o of your body when you are healthy. You don't consciously think about having an arm, a head, or a stomach. But you know very well that you have a back when it aches. And you know very well that you have a heart when your chest hurts. It is then that your body talks to you. We physicians tend to see people when they are most aware of their bodies, when their bodies are talking to them a lot, which means that we see them when they are at their most vulnerable. We see them when they are undressed in every wayphysically, emotionally, and spiritually. To see them so places us in a position of enormous privilege and responsibility. Because, we are all the same when we are naked.

The wise and the foolish.
The mighty and the weak.
The wealthy and the will be gone.
All the same.... all vulnerable.

And it is this vulnerability that endows the physician with stunning privilege, and an equal stunning responsibility. For it is our privilege to shield our patients when they are bare and without defenses. And to listen to the voice of the patient, not the voice of the disease. And to clothe them not only with health but also with the ability to thrive once they have left our care. And to be their friend, their counselor, their trusted advisor. These are concerns that apply to every physician in the world. It has nothing to do with national borders, with ethnicity or with religious affiliation. It has everything to do with the frame work of humankind that needs our constant support, not just as physicians but as men and women of sensibility and conscience.

It has everything to do with the achievement and expectation of excellence and it has everything to do with the Hippocratic Oath, which as a profession we swear. It has everything to do with putting the patient first, above our own interests.

And we have a great deal to give, a great deal to share with the world.

We must always bear in mind that excellence is elastic. It knows no limits. And it must be maintained not only by the preservation of the best of the past, but by the brilliance of the future, by the need to dare, and by the willingness to embrace both innovation and experimentation, and to stay abreast of these advances. For excellence, is a reflection of spiritual wealth, and the exportation of that wealth is a notion that we cherish. And to me that notion is what defines the difference between a profession and a calling. Because;

A profession is something that you train to do.

A profession is something that you can change; I t has impermanence about it.

A profession is something that you are likely to find routine in later years.

A calling on the other hand is something that captures you, entrances and embraces you, and keeps you enchanted for the rest of your life. You see, those who have the calling must be healers by conviction, not simply by virtue of a medical degree. We become healers when the identifiable purpose of our lives is forever bound up with the relief suffering, with the forestalling of death or its embrace when the time has come, and with the creation of environments where our patients can flourish.

We become healers when the relationship with our patients and us is a covenant of faith, not a business contract, an article of/ trust, not simply a fee for services. We become healers when we come to understand that healing is hard work, for both the patient and the physician, that the amount of health that we can actually promote is relatively small when weighed on the scale of human mortality. And we become healers when we ignore that scale and fight for every inch of health, against the odds, as if embedded in our fingerprints is the ability to create that body that does not talk to you. These are the sort of healers that our profession cries out for men and women who are willing to labor in the trenches.

Who are willing to treat all patients equally.

Who are willing to touch what others see as untouchable.

Who are willing to strive for nothing less than the promise of blood, toil, sweat, and tears in return for nothing more than the privilege of healing and saving. To treat each day as if it were your last, and each patient as he or she were your first. We should be ashamed to die until we have won some victory for humanity. Saving one life helps save that humanity.

Modified from the Presidential Address of Dr. Douglas Zipes at American College of Cardiology, March 2002

THE SCIENCE AND ART OF MEDICINE

There are qualities beyond pure medical competence that patients need and look for in their physicians. They want reassurance. They want to be looked after and not just looked over. They want to be listened to. They want to feel that it makes a difference to the physician.

- Norman Cousins

The importance of becoming a doctor is not fully realized by the majority of students at the time of joining the medical course. Most of us took up medicine because that was considered the best choice at that time. The students are perplexed further by the negative attitudes of their own seniors, teachers and the complexity of the society we live. Having chosen medicine as a profession, the best way to deal with it is to go all out and not be contented with half hearted efforts at it. Happiness in life lies in doing something closest to our souls in the best possible manner. The following paragraph from one of the most respected physicians of our time emphasizes the scope of medicine in all its dimensions.

No greater opportunity or obligation can fall to the lot of a human being than to become a physician. In the care of the suffering he needs technical skill, scientific knowledge and human understanding. He who uses these with courage, with humility, and with wisdom will provide a unique service to his fellow man, and will build an enduring edifice of character within himself. The physician should ask of his destiny no more than this: he should be content with no less.

- Tinsely R. Harrison

The limits to medicine are best expressed by Trudeau: To cure sometimes, to relieve often, to comfort always, to be able to do this, we require to cultivate attitudes that enable us to gain a broad knowledge of the subject of medicine, technical skills and the wisdom to use them well. In the dedication to his volume *Underwoods,* Stevenson wrote:

There are men and classes of men that stand above the common herd, the soldier, the sailor, and the shepherd not infrequently; the artist rarely , rarelier still, the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and that stage of man is done with, and only remembered to be marveled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is that which brings air and cheer into the sick-room, and often enough, though not as often as he wishes, brings healing.

William Osler maintained that *"The practice of medicine is an art, not a trade; a calling, not a business; a calling in which your heart will be exercised equally with your head…."*

The science of medicine is easily learned in our training. To practice medicine as an art requires life long commitment and dedication. The practice of any art requires style. As we practice the art of medicine, develop a style or a manner of our own, a method by which we deal with our patients, students and colleagues. The ingredients of an ideal physician involve compassion, gentleness toward patients, a balanced disposition and coolness of mind especially under stress. The ability to communicate well is particularly important as most of what we do involves either teaching patients or students.

In his address to the medical students at Harvard Medical School in 1927 Dr. Peabody said:

"The practice of medicine in its broadest sense includes the whole relationship of the physician with the patient. It is an art based to an increasing extent on the medical sciences but comprising much that still remains outside the realm of any science. The art of medicine and the science of medicine are not antagonistic but supplementary to each other. There is no more contradiction between the science of medicine and the art of medicine than between the science of aeronautics and the art of flying. Good practice presupposes an understanding of the sciences that contribute to the structure of modern medicine, but it is obvious that sound professional training should include much broader equipment.

The treatment of disease may be entirely impersonal; the care of a patient must be completely personal. The significance of the intimate personal relationship between physician and patient cannot be too strongly emphasized, for in an extraordinarily large number of cases both diagnosis and treatment are directly dependent on it, and failure of the young physician to establish this relationship accounts for much of his ineffectiveness in the care of patients. What is spoken of as a clinical picture is not just a photograph of a man sick in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relationship, his friends, his joys, sorrows, hopes, and fears. Thus the physician, who attempts to take care of patient while he neglects those factors that contribute to the emotional life of his patient, is as unscientific as the investigator who neglects to control all the conditions that may affect his experiment. The good physician knows his patients through and through, and his know1edge is bought dearly. Time, sympathy, understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine. One of the essential qualities of the clinician is interest in humanity for the secret of the care of the patient is in caring for the patient."

His instruction is even more pertinent today than in

1927. The requisites of a profession are best summarized by Tuttle and are particularly applicable to medicine.

The professional man is in essence one who provides service. But the service he renders is something more than that of a laborer, even the skilled laborer. It is a service that wells up from the entire complex of his personality. True, some specialized and highly developed techniques may be included, but their mode of expression is given its deepest meaning by the personality of the practitioner. In a very real sense his professional service cannot be separated from his personal being. He has no goods to sell, no right price for service, for what is the share of a man worth? If he does not contain the quality of integrity he is worthless. If he does, he is priceless. The value is either the nothing or it is infinite. So do not set a price on yourself. Do not measure out your professional services on an apothecary's scale and say only this for so much. Do not debase yourself by equating your souls to what they will bring in the market. Do not be a miser, hoarding your talent and abilities and knowledge either among yourself or in dealing with jour clients, patients, flock. Rather be reckless and spendthrift pouring out your talent to all to whom it can be of service. Throw it away, waste it, and in the spending it can be of service. Do not keep a watchful eye lest you slip and give away a little bit of what you might have sold. Do not censor your thoughts to gain a wider audience. Like love, talent is useful only in its expenditure, and it is never exhausted. Certain it is that one must eat, so set what price you must, on your service. But never confuse the performance, which is great, with the compensation, be it money power, or fame, which is trivial.

All this may be considered too idealistic and impractical by present day standards and requirements. Everybody is equally concerned about the state of affairs in medicine today. The best way to deal with this problem appears to be to take care of one's own attitudes first. One should avoid being judgmental in dealing with others but show that right things are still possible, by personal example. Most of us start as ideal medical students, progress to near ideal postgraduates, good assistant professors, and finally metamorphose in to that ultimate achievement, the terrible professor. To maintain these ideals one must constantly struggle. Systems within which we operate are far from perfect and the personal influence of the teacher can to some extent compensate for the inadequate academic system. Cultivate the following qualities and propagate them. Some of the qualities are elaborated but others are self explanatory.

Qualities of a physician

- Enthusiasm
- A full personal knowledge of the branch practiced/taught
- A sense of obligation to teach
- The art of detachment
- A systematic method
- Thoroughness
- Honesty
- Attitude
- Appearance
- Humility
- Unreserved respect for excellence
- The conviction that right things are possible
- Certain degree of insensitivity or obtuseness to criticism
- Willingness to take another opinion in the best interest of

1. ***Enthusiasm:*** One should have deep love for the subject and people. The desire to teach and care for people, without which all medical knowledge becomes cold and lifeless. Do not take up a subject that doesn't interest you for any length of time. By doing this, you are not only harming yourself but also the patients under your care.
2. ***A full personal knowledge of the branch taught:*** Not second hand information derived from books, but the living experience derived from practical, well tested experience of a lifetime.
3. ***A sense of obligation:*** The feeling which impels a teacher to also be a contributor, and to add to the stores of medical knowledge from which we so freely draw to teach and practice medicine.
4. ***Art of detachment:*** 'The faculty of isolating ourselves from the pursuits and pleasures incident to routine life and an emotional detachment to the diagnoses we make. In all matters medical, what is right is more important than who is right.
5. ***Systematic approach:*** Unless one is a genius, a systematic method is essential to learn medicine. We must plan each day of ours in such a way that minimum time is wasted in unnecessary things. What we do daily is going to decide what we are going to be at the end of a year or two. These few years as a student are going to make or break your career. The present system of medical education does not foster competence and conviction in the student or future doctor. By the time the students finish their course; they are hardly in a position to take care of patients because they have not spent enough time in the hospital. On many days in a week, the student neither examines nor even talks to any patient. During their clinical years, students are not given any clinical responsibilities. In order to learn to deal with patients they should spend their time taking care of patients as house physicians or residents do. In the present system,

it is not rare that by the time they finish their medical course, many find it difficult to communicate with patients.

6. ***Thoroughness:*** It is essential in all medical matters, be it a preparation for a talk, examination, or patient evaluation and management.
7. ***Honesty:*** The ability to admit a mistake, take another opinion or help when we are not sure requires courage and conviction on our part. We must conduct ourselves in an irreproachable manner so that not even the slightest doubt would be raised about our integrity.
8. ***Attitude:*** A doctor should be tolerant and patient. We should avoid judging people and taking sides because we undertake to take care of everybody irrespective of their origin or status.
9. ***Appearance:*** We must pay attention to appearance and behaviour as society often tends to judge us on this basis. A dignified and cheerful manner is particularly important in dealing with sick people
10. ***The grace of humility:*** Whatever excellence one achieves in medicine, there can never be perfection in it. There are always places to go and people to meet from whom we can learn to do better things. This realization makes us humble and without this quality, one stands out as an intolerable character.
11. ***Unreserved respect for excellence:*** Excellence in any branch of science or medicine, from whatever person, institution or country it emanates, should be respected and duly acknowledged. It is true that healthy competition or rivalry helps in achieving the higher objectives in medicine, but when carried too far it becomes counter-productive.
12. ***Unswerving conviction that good things are possible:*** In the present atmosphere of medical practice and medical education, contributed to by the profession, the politician, the bureaucrat, it is easy to give up all hope of anything extraordinary and to become part of the corrupt system. Only the strong conviction that right things are still possible and the courage to withstand the pressures and put up with criticism helps to achieve the desired goals. These ideals should be maintained in spite of heavy odds in one's day to day work. The best time to start learning these attitudes is now when one is a student although it is never too late even for an older doctor. The attitude towards friends, classmates, seniors, juniors, patients and their families is an indicator of what one is going to be. This is the time one must learn to interact with people and patients. It is not enough to be a good student. One must strive to be a likable person in the college, hospital, and home. Once cultivated, these habits like bad habits are contagious. The best target is the students at various levels who are yet to be spoiled by exposure to the tricks of the trade of medicine today.

While examining and evaluating patients

Tact, sympathy and understanding are expected of the physician for the patient is no mere collection of symptoms, signs, disordered functions, damaged organs, and disturbed emotions. He is human, fearful and hopeful, seeking relief, help and reassurance. To the physician as to the anthropologist, nothing human is strange or repulsive. The misanthrope may become a smart diagnostician of organic disease. But he can scarcely hope to succeed as a physician. The true physician has a Shakespearean breadth of interest in the wise and the foolish, the proud and the humble, the stoic hero and the whining rogue. He cares for people.

- Tinsely R. Harrison

While we do our best we should be prepared to face thanklessness and even exploitation from some people. A certain degree of obtuseness or insensitivity to criticism is sometimes necessary in a professional.

Finally, all that is done in medicine is based on the conviction, that human life is valuable and human beings require to be treated with dignity and respect. As a doctor if your first reaction to the person is suspicion and hatred, one should not pursue a career in clinical medicine. Those of us who are religiously oriented should realize that our religion is medicine and all other religions pale before it.

A good example is the best sermon.

(Anonymous)

With the rapid advances that occurred in the last decade, medicine has become more remunerative and extremely competitive. The competitive atmosphere brought out the best in some individuals and institutions leading to superlative performance. However some institutions and individuals wilted morally under this pressure and took recourse to devious methods of dealing with the problem. For them, each patient is a prospect on whom almost all tests and few procedures can be done. They later call up the referring doctor and tell him or her how much money can be made on that patient. Unnecessary investigations, surgeries, or interventions have become commonplace. However the system of fee-splitting is destroying the soul of medical practice. This practice takes away all the trust that patients come to us with. This distrust will continue to grow if medicine is debased with such practices.

The tragedy of life is what dies inside a man while he lives.

VALUES IN HEALTHCARE : CARING FOR DOCTORS

- Dr. Ashok R. Mehta MS, FRCS, FICS
Consultant Cancer Surgeon
Head of Department of Oncology,
Dr. Balabhai Nanavati Hospital : Surgical Oncologist, Lilavati Hospital;
Medical Director J.W. Global Hospital & Research Centre, Mount Abu
Medical Director, BSES MG Brahma Kumaris Global Hospital, Mumbai.

Values in Healthcare: caring for doctors

As practicing surgical oncologist for more than 35 years, most of them in a major cancer hospital, I realize how important **it** is for doctors to sustain our own wellbeing and prevent "burn out". Despite improvement in disease management, there is a decline in sense of purpose and general unhappiness amongst health professionals. This can have a harmful impact on the care of patients. Recent experience as medical director of Global hospital, however, I have found that measures to rekindle the experience of the higher values we share as human beings can bring rapid improvement in both individuals and institutions. Reminding ourselves of these values and focusing on them in the training and ongoing support, is a way to restore morale and enthusiasm. There is a saying that "Charity begins at home" and home is not just other people that we are close to; **it** begins with the self.

British Medical Journal posed the question in an editorial:

"Why are there so many practitioners who feel burdened? Why do so many physicians wallow in woe?" A writer, from USA, felt that our spirit, our morale, had drained away; that we had forgotten that taking care of people is the greatest honour we could have.

Doctors in particular need to know how to care for themselves, because if they do not, they will not be able to give optimum care to their patients. Our ability to care depends to a large extent on our own experience of being cared for and valued, similar to the experience of having been brought up by good parents. If institutions have a responsibility to provide care for patients, then they also have a responsibility to sustain the doctors who deliver that care. Slogans like "putting patients first" have become fashionable but this principle has been forgotten.

When institution encourages a culture of care, **it** contributes significantly to the quality of treatment, patients receive. Tiredness and emotional exhaustion can affect judgment but perhaps, a doctor's faith in himself and respect for himself is conveyed automatically to the patient, affecting the patient's faith in his or her treatment.

If a doctor feels insecure and unhappy, he does not listen properly to patients. He is less likely to perceive the complexities of a patient's condition, and he will find **it** difficult to collaborate in team work. He will be unable to offer the kind word, gentle touch or loving look that can mean so much to patients' under stress. A supportive work environment helps to contain or minimize the impact of a staff member's weaknesses, such as trying to control others just for the sake of **it,** or acting out of a need to be liked rather than doing the right thing.

Even though qualities such as calmness and compassion sometimes seem to have been lost beneath the weight of considerations such as shortage of time, or the need or desire to earn money or status, such higher qualities never disappear. They are innate to our humanity and can be recovered quite readily When that happens, work becomes enjoyable again.

Renewing values is part of the process of renewing energy and goals. But we do not strengthen our values just by talking about them, or writing them down in a mission statement. That can make us feel even worse, by highlighting the gap between what we are actually doing, and what we say we would like to do. We have to learn to understand our higher values deeply, to see where they come from, and put them into action.

Values can be described as principles or standards of what is valuable or important in life. Knowing and living our values can help us understand the purpose of our lives. They are fundamental personal truths which, when we understand how important they are to our happiness, we will not betray. They include our commitment to behave in a just and right manner, with all who come into our contact. They enable us to find the right balance between work, rest

and play; they help us to distinguish right from wrong.

Values are not like static rules. They can be used in a dynamic va); in our daily practice. For example, a London psychiatrist who helped to develop the values programme tells of when a physician sought her advice on whether to carry out major procedures on a patient with very poor quality of life. The psychiatrist asked, "What would be kindest for the patient?" You could never find an answer to a question like that in a textbook, but by raising the important value of kindness, this helped the physician solve his problem.

To recover awareness of such values, an approach using facilitated small-group experiential learning has proved very effective. Time is allowed for silence, reflection, meditation, and sharing in small groups. We used the "Values in Healthcare", a programme developed by JF which focused on three key principles: (1) "Physician, heal thyself" (2) Learning through experience (3) Rclcvance to work

- Physician heal thyself codes of medical ethics across the world include requirements for competent medical advice, confidentia1ir no harm or injustice to the patient, and working with compassion, love, sympathy and respect to human dignity. These are seen as our profession's greatest assets, greater even than scientific knowledge and technology. However, over recent decades they appear to have been sidelined in our training. We support and develop the personal wellbeing of the doctors rather than focus only on improving their clinical skills. The programme raises morale and give a sense of purpose.

- Learning through experience traditionally, formal lectures, personal study, tutorials and practical experience are used alongside apprenticeship learning. Little guidance is given for enhancing the qualities of calmness and compassion expected of doctors. Paradoxically, and unintentionally, these qualities may actually be trained out of us. It was decided that these qualities could best be explored through direct inner experience. An approach using facilitated small-group experiential learning was adopted. Time was allowed for silence, reflection, meditation, and sharing in groups of two and four in a supportive environment to encourage the discovery of personal values and insights.

- Relevance to work Rapid changes in society, organizational structures, medical and informational technology and patients' expectations have led to additional burdens on healthcare professionals often resulting in states of chronic tiredness and demoralization, and emotional and physical exhaustion (burnout). \Ve have found that stress and its consequences can be addressed by working with certain key values "peace", "positivity", "compassion", "cooperation", "valuing yourself" and "wellbeing taking care in practice".

At Global hospital in Mumbai, this type of approach has contributed significantly to a culture of care that is providing a healing environment for staff and patients. Programmes were conducted for both the medical and administrative staff members giving them space to interact and to experience and express their individual creativity, uniqueness and specialities. In the interactions, we use a technique called appreciative inquiry which focuses on ascertaining the best in each other, eliminating the common practice of criticism. With such methods, trust both in the self and others grows, a sense of personal empowerment increases, and the ability to care appropriately for the self colleagues and patients is restored.

We have used a model of mind-intelligence-personality which controls thoughts, emotions, attitudes, feelings and judgments. Anything we speak or do first starts in the mind as thought. These *are* positive, negative and waste thoughts. The intellect judges or balances the pros and cons driven by thought and it guides words and determined actions. The key we have used in practicing value based medicine is empowering the mind daily by morning meditation a 30-minute sitting in silence and giving positive direction to the thoughts using powers of love, happiness and peace looking at the brighter side of every difficult situation, and maintaining a positive attitude.

Many complaints, conflicts and situations challenging our values come up in real life. The empowered mind is able to handle these difficult situations with relative calmness, confidence and compassion looking at the situation holistically Dadi Janki, President of the Janki Foundation, a former nurse at 90 years of age still sustains herself and others so well that she is in constant demand as a speaker around the world.

"When the mind learns how to sustain peace, and the heart knows love and happiness, healing takes place. This healing can be shared because feelings of peace and happiness also reach others."

WHY WORLD CONGRESS ON CLINICAL & PREVENTIVE CARDIOLOGY?

Preventive Cardiology & Cardiac Rehabilitation - The only hope to combat the epidemic of Coronary Artery Disease (CAD).

Dr. Satish Kr. Gupta,
Sr. Consultant Preventive Cardiology & Cardiac Rehabilitation,
JW Global Hospital & Research Centre, Mount Abu, (Raj)
Secretary General, WCCPC 2007 & WPCHC 2007
Principal Investigator & Co-ordinator, CAD Research Project, GHRC

The theme of World Heart Day 2007: "TEAM UP FOR HEALTHY HEARTS"

"Preventive Cardiology represents an inter-disciplinary approach to scientifically evaluate the burden of disease due to cardiovascular disease (CVD), determine the multifactorial aetiolgy of the various disorders and evolve an integrated strategy to promote the requisite biological and social milieu to reduce the risk of CVD to the individual and to prevent the loss of valuable manpower and economic resources to the community."

Prevention is absolutely essential, if the fruits of our development are not to be engulfed and devoured by the epidemic of CAD. The diagnosis and therapy of CAD is often technology oriented and costly. Many of our people will not even have access to such facilities. The loss of young and productive lives, including many of the best and the brightest, due to premature CAD results in a colossal loss of manpower and economic resources to the nation and in deep personal tragedy for the bereaved and burdened families.

The Indian Ocean Tsunami killed 2.9 lac people and received extensive media coverage. In contrast, the Tsunami of CAD is killing 4 lac people every two months in India alone without any coverage in media or due attention from Health authorities.

At present the country lacks a comprehensive plan for CAD control. An urgent need of the future is to formulate a national CAD control programme. Such a programme should aim at primordial prevention of cardiovascular diseases related to children, primary prevention of CAD, hypertension diabetes and obesity through modulation of life style and early diagnosis and effective management. The national Programme should also plan to provide adequate facilities for disability limitation and rehabilitation to improve the quality of life.

The community based preventive strategies are effective is clear from the experience of several developed countries, where mortality from CAD has shown a decline over the past two decades. This has principally been due to an altered lifestyle (in fact a return to sanity), with reduction in tobacco consumption, a healthier diet and an emphasis on physical activity. There is no reason why we should not initiate measures to promote a healthy lifestyle, as CAD epidemic has already become a horrendous reality in our country. In fact, we cannot afford to delay efforts aimed at evolving appropriate strategies, initiating community based campaigns and effectively implementing an enlightened public health policy that places greater value on human lives than on the vested interests of countervailing forces like the tobacco industry. In the long run, prevention of CAD will be more cost-effective, in terms of both direct and indirect benefits, than medical management of disease that has been allowed to develop. It will also save far more money than the revenue earned by tobacco exports. What we need are policy makers who are conscious and conscientious in their commitment and health professionals who will constantly focus the attention of these policy makers on the priorities of prevention.

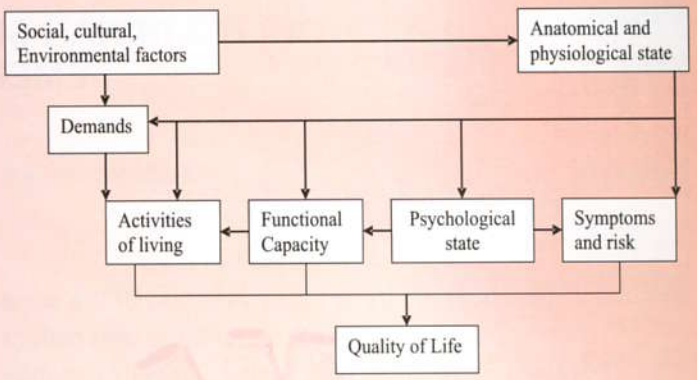
The paramount task of the medical profession is to project this felt need for preventive cardiology to the policy makers, to make them more conscious of the problem and recognize the public health policy imperatives. For this, an informed consensus amongst scientists is necessary so that valid recommendations are evolved, dejargonized and appropriately 'packaged' for the easy comprehension of both the policy makers and the community at large. Valid scientific evidence needs to be transformed into powerful public health policy.

This effort needs to bring together cardiologists, physicians, pediatricians, epidemiologists, biostatisticians, nutritionists, behavioral scientists and policy makers in common effort to make valid recommendations for appropriate public health action. To motivate clinicians towards active involvement in

preventive programmes is not an easy task because the gains of prevention are 'anonymous' unlike the clearly identifiable patient whose therapy provides immense satisfaction. The message of prevention, both at the community level and at the level of the individual patient, however requires collective action of forces committed to prevent CAD in India and a purposeful coalition will have to be forged in order to evolve and implement appropriate preventive strategies.

The need of the hour is preventive cardiology: implementation of preventive programmes for CAD, diabetes, hypertension and obesity.

The country must gear itself up to plan and implement such a programme. A dedicated commitment from policy makers, politicians, statesmen and physicians is essential to enable initiating and implementing a National Programme for Prevention of Cardiovascular Diseases in India.



Cardiac rehabilitation- physical exercise or a comprehensive discipline?

In order to emphasise the multifactorial approach to cardiac rehabilitation, it is worth noting the European Society of Cardiology definition of cardiac rehabilitation, which is:

"The rehabilitation of patients with coronary heart disease is defined as the sum of interventions required to ensure the best possible physical, psychological and social conditions so that patients with chronic post-acute cardiac disease may, by their own efforts, preserve or reserve the proper place in society."

The role of cardiac rehabilitation

Early mobilisation is now considered essential after myocardial infarction; the rehabilitation programme should begin as soon as the patient leaves the coronary care unit Increasing importance is being given to psychological counselling, lifestyle modification, stress management, and exercise programmes following myocardial infarction Traditionally, patients with angina pectoris have not been included in rehabilitation programmes, but exercise and stress control may alleviate symptoms and reduce the need for drugs After angioplasty, patients are not usually entered into rehabilitation programmes, but it is likely that many would benefit Depression can be a major problem after coronary artery bypass surgery and should be addressed by a rehabilitation and/or specialised psychiatry team Prior to surgery for valvular heart disease, patients may become seriously deconditioned and benefit from a suitable postoperative exercise programme Although congenital heart defects are usually corrected in childhood, later counselling on training, employment, pregnancy, etc, is of great value Heart failure patients have traditionally been considered unsuitable for rehabilitation programmes, but lifestyle modification is important and tailored exercise programmes can be of benefit

The goals of cardiac rehabilitation

Medical goals

- Prevention of sudden death
- Decrease in cardiac morbidity, infarction, and graft closure
- Relief of symptoms: angina, breathlessness
- Increase in work capacity

Psychological goals

- Restoration of self confidence
- Relief of anxiety and depression
- Improved adaptation to stress
- Restoration of enjoyable sexual activity
- Relief of anxiety and depression in partners or carers

Social goals

- Return to work, if appropriate
- Independence in the activities of daily living in the elderly and in those with severely compromised left ventricular function

Health service goals

- Reduction in direct medical costs
- Early discharge and early rehabilitation
- Fewer drugs
- Fewer readmissions

WORLD & INDIAN SCENARIO OF CAD, CONVENTIONAL & EMERGING RISK FACTORS.

Dr Mohit Dayal Gupta
Assistant professor, Dept. of Cardiology, GB Pant Hospital, New Delhi

Risk factors of CAD

"For every affection of the mind that is attended with pain or pleasure, hope or fear, is the cause of agitation whose influence extends to the heart"
William Harvey

The prevalence of coronary heart disease (CHD) is approximately one-third to one-half that of total cardiovascular disease. VD. The lifetime risk of CHD was illustrated in the Framingharn Heart Study. The lifetime risk for individuals at age 40 was 49 percent in men and 32 percent in women. Even those who were free from disease at age 70 had a lifetime risk of 35 percent and 24 percent in men and women, respectively. An overview of the established and emerging risk factors for cardiovascular disease is presented here.

Established Risk Factors For CHD

General principles - Atherosclerosis is responsible for almost all cases of CHD. This insidious process begins with fatty streaks that are first seen in adolescence; these lesions progress into plaques in early adulthood, and culminate in thrombotic occlusions and coronary events in middle age and later Life. A number of major risk factors for atherosclerotic cardiovascular disease have been delineated and their importance confirmed. Because cardiovascular disease risk factors usually cluster and the cardiovascular disease risk imposed by any particular risk factor varies widely in relation to this, multivariable cardiovascular disease risk assessment has become a necessity.

1. Sex and age - Cardiovascular risk factors promote coronary disease in either sex at all ages but with different strengths. Diabetes and a low high density lipoprotein (HDL) operate with greater power in women. Cigarette smoking has more of an impact in men, is noncurnulative, and loses its adverse impact shortly after the cessation of smoking.
2. Family history - Family history is a significant independent risk factor for coronary heart disease, particularly among younger individuals with a family history of premature disease. A history of paternal MI at an age <60 years was associated with a greater risk of cardiovascular disease than infarction at a later age; in comparison, any maternal history of infarction was associated with a greater risk.
3. Lipids - the serum total cholesterol concentration is a clear risk factor for coronary disease with the risk increasing progressively with higher values for serum total cholesterol. The concentrations of lipid fractions, such as low density lipoprotein (LDL) and HDL, are also important.
   The following lipid abnormalities are associated with increased coronary risk.
   Elevated LDL-cholesterol
   Low HDL-cholesterol
   Increased total-to-HDL-cholesterol ratio
   Hvpertriglyceridernia
   Increased Lp(a)
   Increased non-HDL-cholesterol
   Increased apolipoprotein B (apo B; found primarily in LDL and decreased apolipoprotein A-I (apo A-I; found in HDL)
   Small, dense LDL particles

   In the worldwide INTERHEART study of patients from *52* countries, dyslipidernia (defined as a raised apo B to apo A-1 ratio) accounted for 49 percent of the population attributable risk of a first ML Disturbances in lipoprotein metabolism are often familial.
4. **Hypertension**-- Hypertension is a well-established risk factor for adverse cardiovascular outcomes, including CHD mortality and stroke, In the worldwide INTERHEART study of patients from 52 countries, hypertension accounted for 18 percent of the population attributable risk of a first MI. Systolic blood pressure is at least as powerful a coronary risk factor as the diastolic blood pressure, particularly in older patients, and isolated systolic hypertension is now established as a major hazard for coronary heart disease and

stroke.

5. **Diabetes mellitus** -- Insulin resistance, hyperinsulinemia, and elevated blood glucose are associated with atherosclerotic cardiovascular disease. A significant number of patients with an acute MI have previously undiagnosed diabetes. In the worldwide INTERHEART study of patients from 52 countries, diabetes accounted for 10 percent of the population attributable risk of a first MI There is compelling evidence of the value of aggressive therapy of serum cholesterol (goal LDL-cholesterol <100 mg/dL [2.6 mmol/L]) and hypertension in patients with diabetes (goal systolic pressure less than 131) rnmHg.
6. **Hypoglycemia**- - Low plasma glucose levels may also be associated with an increased risk; there may thus be a U shaped relation between fasting plasma glucose and mortality

7. **Obesity**- Obesity is associated with a number of risk factors for atherosclerosis, cardiovascular disease, and cardiovascular mortality. These include hypertension, insulin resistance and glucose intolerance,
hypertriglyceridemia, reduced H DL-cholesterol, and low levels of adiponectin.

8. **Metabolic syndrome**-Patients with the constellation of abdominal obesity, hypertension, diabetes, and dyslipidemia are considered to have the metabolic syndrome (also called the insulin resistance syndrome or syndrome X). Individuals with the metabolic syndrome have a markedly increased risk of coronary artery disease.
9. **Chronic kidney disease** -- The increased coronary risk in patients with end-stage renal disease has been well described, but there is now clear evidence that mild to moderate renal dysfunction is also associated with a substantial increase in CHD risk.

10. **Lifestyle factors**-A diet rich in calories, saturated fat, and cholesterol contributes to other risk factors that predispose to coronary heart disease. As noted above, weight gain promotes the major cardiovascular risk factors and weight loss improves them.

II. Exercise -- Exercise of even moderate degree has a protective effect against coronary heart disease and all- cause mortality. In the worldwide INTERHEART study of patients from 52 countries, lack of regular physical activity accounted for 12 percent of the population attributable risk of a first MI.

12. **Cigarette smoking** -- Cigarette smoking is an important and reversible risk factor for CHD. The incidence of an MI is increased six fold in women and threefold in men who smoke at least 20 cigarettes per day compared to subjects who never smoked. In the worldwide INTERHEART study of patients from 52 countries, smoking accounted for 36 percent of the population attributable risk of a first ML
13. **Diet** -- There is growing evidence suggesting that fruit and vegetable consumption is inversely related to the risk of coronary heart disease (CHD) and stroke. The worldwide INTERHEART study of patients from 52 countries found that lack of daily consumption of fruits and vegetables accounted for 14 percent of the population attributable risk of a first MI. High fiber intake is also associated with a reduction in the risk of CHD and stroke compared to low intake.
14. **Psychosocial factors** -- There is ample evidence of association between a number of psychosocial factors (including depression, anxiety, hostility, social networks and support and occupational stress) and cardiovascular morbidity and mortality. Adverse psychological characteristics tend to cluster with traditional biologic and behavioral risk factors. The link between psychologic stress and atherosclerosis may be both direct, via damage of the endothelium, and indirect, via aggravation of traditional risk factors such as smoking, hypertension, and lipid metabolism. Depression, anger, stress and other factors have been correlated with cardiovascular outcomes. In the worldwide INTERHEART study of patients from 52 countries,
Psychosocial stress accounted for 28.5% of the population attributable risk of a first MI.
Various clinical trials involving psychosocial and behavioral interventions to reduce cardiovascular disease risk have shown favorable results. Recurrent coronary prevention project in 862 patients included personality counseling and at follow up of 4.5 years, there was reduced occurrence of nonfatal myocardial infarction,

higher self efficacy and satisfaction. Similar1y Ischemic heart disease life stress monitoring program in 461 patients included monthly stress monitoring and home based visits for highly distressed. At 7 years follow up, these patients had fewer MI, readmissions and better general status.

15. **C-reactive protein** -- It predicts the long-term risk of a first MI, ischemic stroke, or peripheral vascular disease.
17. **Microalbuminuria** -- Microalbuminuria reflects vascular damage and appears to be a marker of early arterial disease. A number of studies have shown that microalbuminuria is an important risk factor for cardiovascular disease and early cardiovascular mortality.

Possible Risk Factors for CHD

Most patients with CHD have at least one established or borderline risk factor other than age and gender. However, **it** is clear that there are other risk factors, not all treatable, that may be important. The additive value of screening for these risk factors has not been firmly established.

1. **Coronary artery calcification** -- Coronary artery calcification can be used to quantify the amount of calcium present in the coronary arteries of a given patient. The coronary calcium score correlates with the risk of cardiovascular events in both asymptomatic and symptomatic patients.

2. **Left ventricular hypertrophy** -- Left ventricular hypertrophy (LVH), which is associated with hypertension as well as with age and obesity is a risk factor for CHD. Echocardiography evidence of LVH is more sensitive than the ECG and is predictive of cardiovascular risk.

3. **Heart rate**-- Resting and peak exercise heart rate may be predictive of cardiovascular and CHD mortality. A lower than expected peak heart rate during exercise, known as chronoscopic incompetence, is also predictive of CHD and all-cause mortality.

4. **Vitamins and homocysteine** -Recently published studies have put a question mark on homocvsteine as a novel risk factor or even marker in CAD.
5. **Endothelial dysfunction** -- Endothelial dysfunction induced by dyslipidemia and oxidative stress is an initial step in atherosclerosis.
6. **Endothelial progenitor cells** -- Decreased numbers of EPCs may have prognostic importance in patients without and with known CHD. The mechanisms by which EPCs might be reduced in patients with or at risk for CHD are not well understood.
7. **Arterial intima-media thickness** -- Intima-media thickness is a noninvasive marker of early; preclinical atherosclerosis in high-risk children and adults. An association has been noted between increased carotid artery and femoral IMT and the risk for cardiovascular disease and MI
8. **Other factors** -- Arterial stiffness, Collagen vascular disease, higher values for the white blood cell count, erythrocyte sedimentation rate, decrease in the serum albumin concentration, raised plasma interleukin-6 concentrations, plasma fibrinogen levels, thrombornodulin, elevated plasma von Willliebrand factor, brain natriuretic peptide, air pollution, socioeconomic factors, cysteine, leptin etc are emerging or postulated risk factors for coronary artery disease.

Potential Benefits of Risk Factor Modification

The importance of identifying people at risk is that many of the important risk factors for cardiovascular disease are modifiable by specific preventive measures. In the worldwide INTERHEART study of patients from 52 countries, nine potentially modifiable factors accounted for over 90 percent of the population attributable risk of a first MI. These included smoking, dyslipidemia, hypertension, diabetes, abdominal obesity, psychosocial factors, daily consumption of fruits and vegetables, regular alcohol consumption, and regular physical activity

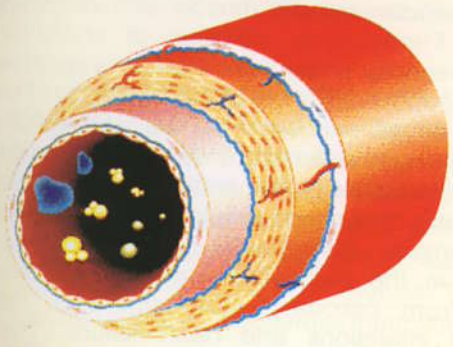
Conclusion: The knowledge of proven and new emerging risk factors for coronary artery disease highlights the importance of intervening early in these cases. This approach besides including pharmacotherapeutic approach also includes various life style modifications and interventions. These include diet, exercise, personality and behavioral changes. These are not only cost effective but have significant benefit in preventing and controlling the epidemic of coronary artery disease.

PROCESS OF ATHEROSCLEROSIS

Dr Ratan Rathod
MBBS, MD, DM (Cardiology)
Consultant Cardiologist, Vashi, Navi Mumbai.

It is characterized by internal lesion called atheromas" or fibro fatty Plague that protrude into the lesion, weakens the media and undergo **Series of complications.** American heart association classified human arthrosclerosis lesion

NORMAL CORONARY ARTERY



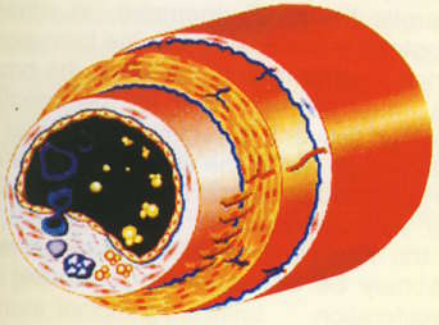
Into six types.

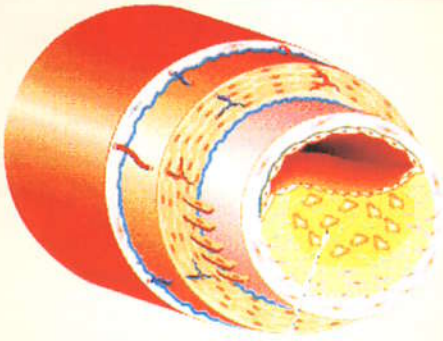
Type I	- lesion	(fatty dot)
Type II	- lesion	(fatty streak)
Type III	- lesion	(Intermediate)
Type IV	- lesion	(atherorna)
Type \T	- lesion	(tibroatheroma)
Type \TJ	- lesion	(complicated lesion)

TYPE 1 lesion is characterized by Isolated macrophages and foam cells.

TYPE 2 (FATTY STREAK)
Lesion is not significantly raised, it is composed of lipid filled foam Cells with T-lvmphocytes and extracellular lipid in small amount. Fatty streak appear in aorta even below one year of age and in all Children above 10 years of age.

PARTIALLY BLOCKED ARTERY





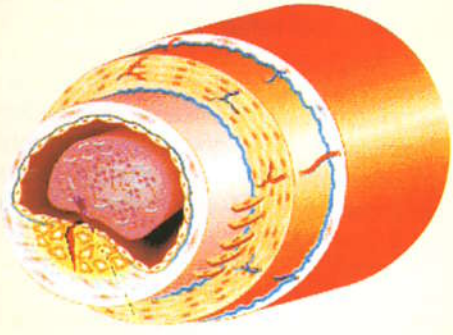
ANGINA

TYPE 3 (INTERMEDIATE)
Type 2 changes and small extracellular lipid pools.

TYPE 4 ATHEROMA)
It consists of raised, focal plague within intima having core of lipid and covering fibrous cap. Plagues have ***3*** components - a) Cell component b) connective tissue & extracellular matrix c) intracellular & extracellular lipid deposits.

TYPE 5-lesion has lipid core and fibrotic layer.

TYPE 6- lesions have haemorrhage, thrombus and ruptures.



HEART ATTACK

Endothelial injury increase the endothelial permeability); increase leukocyte and rnonocyte adhesion and emigration inside the intima. It altered the expression of endothelial gene product(1 CAM I and V CAM 1)

Lipoprotein also enters the cell vall. Monocyte which are migrated into the intima from the circulating blood transferred into macrophages and foam cells. Release of activated factors from platelets and macrophages migrate smooth muscle cells from medial wall to intima. Macrophages and smooth muscle cells engulf the lipid and it causes the deposition of lipid inside the arterial wall thereby causing obstruction to the arterial lumen.

APOPTOSIS

Basic Concepts and Implications in Coronary Artery Disease

Patricia J. M. Best; David Hasdai; Giuseppe Sangiorgi; Robert S. Schwartz; David R. Holmes, Jr. Robert D. Simari; Amir Lerman.

From the Department of Internal Medicine and Cardiovascular Diseases (P.J.M.B., D.H., G.S., R.S.S., D.R.H., Jr, A.L.) and the Department of Biochemistry and Molecular Biology (R.D.S.), Mayo Clinic and Mayo Foundation, Rochester, Minn.

Correspondence to Amir Lerman, MD, Department of Internal Medicine and Cardiovascular Diseases, Mayo Clinic, 200 First St SW, Rochester, MN 55905.

Abstract:

Apoptosis is an active form of cell death that is intricately regulated and distinct from necrosis. Data suggest that apoptosis may play a role in the pathophysiology of coronary atherosclerotic disease. Anatomic evidence of apoptosis has been observed in coronary atherosclerosis, restenosis, and transplant arteriopathy, accompanied by an increase in biochemical and genetic markers of apoptosis. Vasoactive substances such as nitric oxide and angiotensin II also regulate vascular smooth muscle cell apoptosis; vasodilating factors may induce apoptosis, whereas vasoconstricting factors may inhibit apoptosis. The aim of this article is to review key points regarding the detection of apoptosis, its regulation, and its possible role in the pathogenesis of coronary artery disease.

Key Words: apoptosis cell death atherosclerosis restenosis coronary disease

Introduction

In the past 3 decades, 2 distinct forms of cell death, necrosis and apoptosis, have been defined in terms of mechanism, sequence of events, biochemistry, and morphology. Necrosis refers to a range of morphological changes resulting from the enzymatic digestion of the cell, the disruption of cellular membranes, and the denaturing of proteins that accompanies cell death. Apoptosis, in contrast, is a programmed, active, highly selective mechanism of cell death allowing for the removal of cells that are redundant or excessively damaged. Apoptosis is initiated by a number of different stimuli, including DNA damage, intracellular damage, toxins, and extracellular signals. In multicellular organisms apoptosis is an essential component of development and cellular regulation. Abnormal regulation of apoptosis can lead to disorders such as cancer, lymphocyte depletion in AIDS, and atrophy or degeneration of tissues. Apoptosis in both excessive and reduced amounts has pathological implications. Thus, control of the apoptotic mechanism may have significant therapeutic implications.

In the cardiovascular system, apoptosis has been recently found in association with ischemic and idiopathic dilated cardiomyopathies, myocardial cell death after infarction, arrhythmogenic right ventricular dysplasia, long-QT syndrome, and other conduction system disorders. Apoptosis has also been implicated as a prominent feature in coronary artery disease associated with advanced atherosclerosis and transplant arteriopathy. These finding are supported by evidence of the increased expression of molecular markers of apoptosis in atherosclerotic tissue. Additionally, vasoactive mediators that are altered in atherosclerosis, such as nitric oxide, endothelin, and angiotensin II, regulate vascular smooth muscle and endothelial cell apoptosis. Furthermore, inhibition of endothelin-1 by endothelin receptor antagonists increases apoptosis. The exact role of apoptosis in the pathophysiology of coronary disease is as yet unknown, but the association of the cardiovascular risk factors, hypertension and hypercholesterolemia, with increased apoptosis suggests that apoptosis may play a role in the pathophysiology of atherosclerosis. Additionally, apoptosis has been implicated in the pathophysiology of syndromes that develop from coronary atherosclerosis, including myocardial infarctions and heart failure. The exact understanding of cellular growth and apoptosis in these disorders will likely further our understanding and ability to regulate the progression of these diseases.

Apoptosis in Coronary Diseases:

Cell loss in atherosclerosis has been known since 1858, when Virchow described atherosclerosis as a process of replication of cells within the plaque followed by the death of these cells. More recently, with the further understanding of the mechanisms of apoptosis, there has been resurgence in the interest in the mechanisms governing cell death associated with atherosclerosis.

Multiple studies in both animals and humans have found apoptosis in atherosclerotic coronary, carotid, and aortic arteries. These studies have shown that smooth muscle cells principally located in the intimal fibrotic portion of the atherosclerotic plaque and macrophages located in the intima, especially the lipid-laden core of the atheroma, show increased evidence of apoptosis compared with normal vessels. Apoptosis is also found in smooth muscle cells of the media underlying atherosclerotic lesions and in conjunction with the vasa vasorum and perivascular cells of the adventitia in human atherosclerotic tissue. Furthermore, in atherosclerotic tissue apoptosis is associated with the formation of matrix vesicles rich in calcium and has led to the proposal that apoptosis may be important in the calcification of atherosclerotic tissue. It is yet unclear whether apoptosis is a late finding as part of the end stage of this disease or whether i ncreased apoptosis is associated with the early stages of atherogenesis. In atherosclerosis, evidence supports the role of apoptosis in vascular remodeling; apoptosis may be beneficial by preventing excessive cellular proliferation.

A HEART ATTACK IS NOT A DEATH SENTENCE!

- Dr. Ashok Seth
FRCP(LOND), FRCP(EDIN), FRCP(IREL), FACC, FSCAI, DSc (HONORIS CAUSA), AWARDED 'PADMA SHRI'
President, Caridological Society of India-Delhi Branch

A heart attack is a 'feared' disease, which often strikes without a warning and leaves dreadful consequences - both physical and psychological. However, a heart attack does not have to be a death sentence. It can be the beginning of a new and even more productive life if unhealthy lifestyle practices can be substituted with healthier ones along with the development of a positive attitude towards life.

A heart attack occurs when a clot in a coronary artery blocks the supply of blood and oxygen to an area of the heart muscle. While it seems to occur suddenly and often without warning, the process underlying the event has been probably going on for many years. *It occurs when a clot in a coronary artery blocks the supply of blood and oxygen* to an area of the heart muscle. The scientific term for a heart attack is "Myocardial Infarction myocardial infarction."

The factors that may lead to a heart attack include cholesterol deposition in the artery wall, high blood pressure, diabetes, sedentary lifestyle, obesity, family history of the problem, stress and smoking which damages the lining of the arteries, promotes the clotting of blood, lowers the level of "good" cholesterol in the blood, and spurs the contractions of the blood vessels, tending to keep them closed.

After a heart attack we have noticed two broad reactions: Some people learn to value life more, while some others develop an ongoing fear of another attack. It is a fact, that about ten *per cent of those who have a heart attack will experience another one within a year. This risk, however, gradually drops to three to four per cent, every year...(**this statistic needs to be confirmed)***

In order to prevent a second heart attack, some leading heart centers prescribe a rehabilitation programme, which includes making changes in one's life style. At Max, Heart and Vascular Institute, New Delhi we offer rehabilitation guidance, which not only treats the patient medically, but takes care of both - the mind and body, since they are, after all, one. I really believe in that it is equally important to know who the patient is and what makes him tick rather than what just what the disease is. In fact, it is a well-established fact that 50 percent of cardiac problems stem from physiological reasons and 50 per cent lie elsewhere, including the mind.

Rehabilitation ***(More can be put in if you want...)***

Recovery begins only 48 hours after a heart attack. Within a few days, the tissues of the heart begin to heal and, if there are no complications, you may be discharged from hospital after five to seven days.

As the weeks pass, the damaged muscle is replaced by scar tissue. During this period, one should be careful to increase physical activity levels only gradually.

Exercise helps to speed recovery. A gradual increase in exercise helps the heart to get back in shape and adapt to any scars left behind. It also improves general well being and encourages good quality and regular sleep. It helps test out the heart so the patient and doctor become aware of any residual problems, such as angina or breathlessness.

In uncomplicated cases, you should be back to your normal routine after 4-6 weeks.

Exactly when you return to work depends on your job and how serious the heart attack was. Take it in stages and rest when you feel tired. Some physically strenuous work may be avoided in the immediate post-recovery period.

Avoid long journeys and stressful driving situations, such as in a city or in the rush hour, for at least 4 weeks.

Many people worry that sexual activity may be too strenuous after a heart attack. But research shows these fears are generally unfounded. Like all exercise, take it slowly at first, especially for the first 4 weeks.

In order to eliminate the risk of repeated attacks, one has to stick to the medication prescribed by the treating cardiologist and bring meaningful and committed changes in one's lifestyle.

Making healthy lifestyle choices would include taking care of the major risk factors, which lead to heart problems. These include:

- Family history
- Diet - balanced meal, what we eat and adherence to meal timings

- Any substance abuse e.g. cigarettes, alcohol, pan masala
- Exercise whether regularly followed or not
- Stress

Of these, family history is non-modifiable and coronary artery disease is known to have a strong genetic component. A family history, having a first-degree family member (parent or sibling) with the disease predisposes a person towards a cardiac problem. As they say, history can repeat itself and if we want a history different from that of our parents or grandparents, we need to change our history by living and thinking differently from the way they did. The risks lie essentially in our lifestyle and our belief system. For example, a basic belief that could either motivate us to continue with our lifestyles or adopt a change would be: Is health wealth or is wealth health.

Belief system would also take into account priorities such as am I living for my children. And living for my children would include the concomitant worrying for my children and forgetting ourselves in the process. Then where do we end up: worrying ourselves sick about the children and the future and ending up in hospital. So what are we really achieving distress and chaos both for the children and ourselves. What we need to understand is that our first responsibility is to ourselves only if we are mentally and physically well can we do something for others.

Cardiac problems, both in women and men, can beprevented and even reversed in most people by making comprehensive lifestyle changes. These include effective stress management techniques, moderate exercise, group support, and a low-fat nutritious diet. Most people experience substantial improvements in weight, cholesterol, blood pressure, vitality, and quality of life, once they follow this regimen.

Giving up smoking is the single most effective way of reducing cardiac risks by almost half. A heart attack is a powerful motivation to stop smoking - 50 per cent of those who try at this time succeed. It is important to monitor one's blood pressure regularly.

Emotional stress plays an important role in just about all illnesses, both directly and indirectly. Thus, stress management is an important part of what I recommend. Professional help from a psychologist as well as learning relaxation techniques such as yoga, meditation etc, are known to be effective in dealing with stress, anger, frustrations, all triggers for potential heart attacks.

Medication/Drug Therapy: to be included

The medications after heart attack are given for two purposes:

a. Improving the tissue healing and decreasing long-term complications after a heart attack.

For control of the risk factors leading to a heart attack.

a) Certain medications medication which improves the healing of the heart muscle after a heart attack and thereby improve the prognosis include Beta Belablockers, ACE-inhibitors, Spironolactone diuretic and, then in some cases, nitrates. Your cardiologist These will prescribe these be prescribed by your cardiologist in the appropriate tolerated doses.

b. b)For control of these factors leading to heart attack.

Risk factor control to prevent future heart attacks is achieved by decreasing cholesterol levels (the target values for CAD patients: Cholesterol. <200mg/dl; HDL Cholesterol. >40mg/dl; LDL Cholesterol <70 mg/dl; Triglycerides <150 mg/dl Cholesterol).. For achieving these desirable ranges, this statins may be needed,; good diabetic control is necessary and medication for diabetes need to be adjusted accordingly. Blood thinners like aspirin and/or Clopidogrel help to prevent future heart attacks attack and are given to in all patients unless there are contra indications.

A constant monitoring is kept on symptoms of chest pain on exertionexhaustion, heart function by Echo Doppler and regular ECG at follow up. An exercise test or on Exercise Thallium Scan is usually done between 4-6 weeks to see the progress. In many cases, either based on symptom

Psychological Issues post Heart Attack

In fact the toughest problem that we often encounter that even if physically the incident and the interventions are left behind, mentally, the patients it still with the trauma. According to the August issue of the *Harvard Heart Letter*, Post-traumatic stress disorder (PTSD) is often noticed after a heart attack, a stroke, or heart surgery. It not only causes emotional and psychological distress, it may also slow recovery and hasten the progression of heart disease.

Max Heart and Vascular Institute, is one of the few hospitals in India where psychological counseling is done at every stage of a patient's journey through the hospital. Handling anxiety regarding hospitalization, stress management, post-surgery depression, de-addiction as well as motivating the patient to adopt and sustain healthier lifestyle options are part of the regular protocol. We also ensure that the caregivers are also counseled on how to cope with the stress they themselves undergo because ofas well as the cardiac patients.

A special problem of heart-related PTSD is that the trauma comes from within. Sufferers are constantly on

the alert for signs of an impending heart attack, such as a racing heart or shortness of breath. The trouble is, these are also normal responses to physical activity or stress.

Some people with heart-related PTSD go to great lengths to avoid these reminders they stop climbing stairs, making love, or doing other activities that make the heart beat faster. Some also stop taking medications that remind them of the heart attack.

Psychological counselling has an important role to play here. Treating PTSD starts with talk therapy that aims to help a person come to terms with a traumatic event by conjuring up memories of it in a safe situation. Reconnecting with people, interests, and activities also helps is another goal of therapy.

Depression affects one in four people after a heart attack. It is It's critical to address any depression you may be suffering - it won't just go away on its own and it can make it more difficult harder for you to make any necessary lifestyle changes or follow the treating doctor's advice. on particular treatments. Without specific help, those who become depressed don't recover as well as they might. Some may otherwise. Some such patients also benefit from anti-depressants.

Anxiety about leading a "normal" life, after an attack is also an important concern of patients.

If you take part in a cardiac rehabilitation programme, they'll be able to offer treatments ranging from medication to group therapy and stress management (stress and anger may contribute to a heart attack by producing changes in they our body that increase the your risk for blood clots).

Symptoms of a heart attack

The classic symptoms of a heart attack include:

Pain in the chest, neck, jaws, back, shoulders, or arms. The pain may be severe, or moderate in intensity. The pain may be described as "crushing", "heavy" or "pressure-like". These same sensations can occur in the other locations just mentioned.

This pain can be accompanied with intense sweating, a key sign that a heart attack is occurring.

Shortness of breath, nausea, or vomiting are also common.

There is, often, a distinct feeling that something is really wrong. The pain does not always involve the left arm. It could be the right or both or no pain in the arms at all.

Have taken it from a website, can be modified if thought appropriate

Management Plan Post heart attack

- Angioplasty, surgery or just medication: The fact that someone has had a heart attack is no absolute indication that they require one of these invasive therapies (called "revascularization procedures").

Some factors that favor the need and benefit of a revascularization procedure include:

- The continued recurrence of chest pain after the heart attack has initially "completed".
- Evidence that there is still muscle in the distribution of the diseased artery, which is at risk of dying if the vessel, should totally occlude again. That is, it is suspected that although the artery did close at the time of the heart attack, it reopened enough to let some blood through and "salvage" some of the muscle in its distribution.
- Moderate, but not minimal or huge amounts of muscle damage.
- The vessel causing the heart attack being large with more than minor but less than total blockage.

Some factors, which would tend to favor a "less aggressive" approach (that is, treat with medicine alone) include:

A totally blocked vessel. Quite simply, this vessel cannot get any worse. A 100% blockage is less of a threat in most cases than those that are blocked from 90-99%, which have a high

- Incidence of, repeat closure and another heart attack.
- A blockage of less than 50-70%.
- Vessels where there is a lot of blockage, but where it appears that all of the damage has already been done. For example, if all of the muscle in the distribution of an artery has died, there is no need to bypass that vessel, since it will only supply a scar. Remember, it is the muscle that's important -- the only point of an artery is as a conduit to that muscle.

It is also not unusual to find out that other heart arteries have blockage, and this will also influence whether bypass or balloon procedures are required.

ECHOCARDIOGRAPHY IN ACUTE MYOCARDIAL INFARCTION IN WHOM, WHEN, AND WHY? WHERE DO WE STAND TODAY?

Dr. (Col.) S.K. Parashar
President, Cardiological Society of India
Chairman, Scientific Core Committee, WCCPC 2007 & WPCHC 2007
Senior Consultant Cardiologist, Metro Group of Hospitals, New Delhi

The impact of echocardiography, together with Doppler and color flow mapping and the recent advances in quantitative tissue Doppler imaging, on the clinical practice has continuously grown to such an extent that it has now emerged as the most integrated tool in day to day clinical cardiology. This article, due to constraint of space, will cover only few practical points about the role of echo in acute myocardial infarction (AMI). The current mainstay of management of AMI by either thrombolysis or primary angioplasty depends upon early diagnosis. The benefits of early reperfusion include (a) improved rate of coronary artery patency (b) increased myocardial salvage (c) improved patient survival.

How is echo useful in AMI? It has been well appreciated that acute myocardial ischemia results in a cascade of biochemical and physiological/contractile abnormalities of myocardial tissue. The earliest abnormalities, due to perfusion defect, are impairment of diastolic relaxation followed by systolic regional wall motion abnormalities. These abnormalities precede the development of typical ECG changes and symptoms and well before the release of detectable amounts of cardiac enzyme markers. The earliest changes of perfusion defects are diagnosed by myocardial contrast echo, while diastolic and systolic abnormalities are readily picked up by echo and form the basis for the early diagnosis and evaluation of ischemia.

Problems in the diagnosis of AMI: The diagnosis of AMI is traditionally made on the basis of clinical history, ECG, and serum cardiac enzyme levels. Though they are diagnostic in large group of patients, but each has its own limitations. The clinical presentation of chest pain may be quite variable. A patient with classical chest discomfort may turn out to be a non ischemic pain, while some patients with atypical chest pain may have an ischemic origin.

Moreover there can be several other causes of cardiac and non cardiac chest pain like MVPS, Pericarditis, Aortic dissection, HOCM, Pulmonary embolism, GI causes, Pleurisy, Psycho-somatic pain etc. Similarly, within the vital period of first 1-2 hours of ischemia almost one third of patients may have a non-diagnostic ECG. Various cardiac enzymes like CK-MB, cTnT, cTnI may not be elevated until several hours of AMI, hence sole reliance on these markers may delay the early vital management. As such echo, on several occasions, proves to be a life saving diagnostic tool.

Role of echocardiography in AMI: (a) diagnosis (b) detection of any other associated defect (c) triage in chest pain units (d) assessment of complications (e) assessment of hemodynamic status (f) post MI risk stratification/prognosis (g) assessing effectiveness /change of therapy (h) role of new technologies like quantitative tissue Doppler imaging.

Who should undergo early echocardiography? Ideally one would prefer to have an echo done on admission but has logistics, man power and financial implications and hence may not be practicable. However certain indications of a priority echo, generally accepted, are (a) doubtful diagnosis/early detectionthe hallmark of diagnosis being abnormalities in systolic thickening and regional wall motion abnormalities. A normal myocardial segment thickens by more than 40-50% in systole, while an ischemic segment shows decreased or no systolic thickening (b) hypotensionto determine the cause, whether it is cardiac or non cardiac (c) heart failureto assess the cause, prognosis, guide to management (d) unexplained dyspnoeato differentiate between cardiac vs. non cardiac dyspnoea (e) chest pain with LBBB (f) suspect other complications.

Who should undergo second echo during hospitalization?

There are subsets of patients who should undergo a repeat echo on a priority basis (a) change in clinical status to get insight for any incipient failure, an extension of ischemic process, diastolic abnormalities like

reversible restrictive physiology, development of any other new complication etc. (b) recurrence of chest painfew common clinical situations encountered are reocclusion of infarct related artery, ischemia at a distance, development of pericarditis, any other non-ischemic cause of chest pain (c) new murmurs during hospitalization (d) restrictive filling pattern seen in first echo which reflects increased LV filling pressure, and echo can be a guide to prognosis and management (e) first echo done within 24 hours of admission and the second echo usually determines the progress of the patient.

Assessment of complications: The various complications of AMI can be readily diagnosed by transthoracic echo. These include LV systolic dysfunction, LV aneurysm/thrombus, pericarditis, myocardial rupture, acute MR, concomitant RV dysfunction etc. Only a minority may need transesophageal echo. For the various complications, no hemodynamic confirmation is needed, as a well performed echo provides complete information.

Post AMI risk stratification/prognosis: This is an important goal in AMI because it has a bearing on the management strategies. The various complications mentioned earlier are not included. Few predictors of guarded prognosis, as assessed by echo, are as follows, only some of which would be highlighted: (a) degree of wall motion abnormality and hence the systolic function (b) infarct extension (c) infarct expansion and degree of LV dilatation (d) more than mild valvular regurgitation (e) right ventricular function (f) LA volume. In the last couple of years, the prognostic value of RV dysfunction in cases of AMI with LV dysfunction has been realized. In a study of 416 patients of AMI with LV ejection fraction of <40%, 79 patients were found to have RV dysfunction. The overall cardiac events including death, heart failure was much higher in patients with RV dysfunction. As such RV evaluation should now be routinely performed in AMI especially those with LV dysfunction . Doppler diagnostic variables.- In recent years,some of the Doppler variables have emerged as important adverse prognostic indicators. Some of them include: (1) Mitral valve Doppler flow pattern: The mitral deceleration time, which indirectly reflects LA and LV pressure relationship, of less than 140 msec. predicts an adverse prognosis (2) Pulmonary vein diastolic deceleration time of less than 160 msec. has an adverse prognostic sensitivity and specificity of 97% and 96% respectively (3) Tissue Doppler Imaging (TDI): TDI velocities, recorded at various annular sites, reflect global and regional systolic and diastolic functions in both longitudinal and radial axis. A systolic and early diastolic velocities of <3.0 cms/sec. and a late diastolic velocity of <4.0 cms/sec. carries a very poor prognosis (4) Velocity ratios: The ratio of mitral Doppler 'E' velocity and TDI early diastolic velocity of >15 indicates an increased LVEDP. As such, all the above Doppler variables should be an integral part of all AMI studies. LA volume- It has been shown that an increased LA volume (> 32 ml/m.sq) determined echocardiographically within first 48 hours of acute MI carries a guarded prognosis with increased 1 and 5 year mortality rate. These patients also have increased incidence of moderate to severe MR, cardiogenic shock and increased LV systolic volumes.

Pre-discharge stress echocardiography: This appears to be less popular test now with the widespread use of coronary angiography and early intervention. However the importance of this test lies in the fact that short term event rates, long term mortality, re-infarction rates, and overall cardiac events are much more in those with a positive stress echo in comparison with those with a negative test (81% vs. 18%). Usually a dobutamine echo is preferred as the test can be controlled and continuous echo monitoring is possible. One of the main indications of low dose dobutamine echo is to demonstrate myocardial viability. This group of patients have excellent prognosis following revascularization rather than medical therapy which carries an adverse prognosis.

Echocardiography for guiding therapy: Echo can play a significant role in assessing the effectiveness and/or change in therapy based on clinical status, complications and specific Doppler findings. These include (a) assessment of LV dysfunction or degree of LV expansion guides treatment with ACE inhibitors (b) persistent LV dysfunction with viability will need revascularization procedure (c) Doppler parameters of reversible restrictive physiology helps in guiding therapy with diuretics and inotropes (d) occasional patients continue to be hypotensive despite treatment with dopamine /dobutamine whose doses may be unnecessarily increased to get a desired effect but paradoxically leads to more worsening.

Echo demonstrates that these patients develop significant LVOT gradients due to dopamine exacerbated dynamic LVOT narrowing. As such it is withdrawal of these drugs and substituting with vasodilators which leads to

significant improvement. Similarly, an anteroseptal MI can lead to compensatory hyperkinesias of basal septum again leading to LVOT gradient which would be exacerbated by dopamine (e) detection of mechanical complications warrant surgical intervention.

Role of new technologies: Myocardial contrast echo (MCE), Tissue Doppler Imaging (TDI), and Strain imaging have emerged as excellent techniques for the diagnosis of AMI especially in its early stage. They have high diagnostic sensitivity and specificity. MCE is diagnostic in >95% cases as it detects myocardial perfusion defect in its earliest stages. As regards TDI, experimental studies have shown that following ischemia, there is rapid reduction of systolic and diastolic velocities to the extent of 46% within 5 seconds of ischemia. A good correlation between decrease in velocities and regional blood flow has been shown. Strain imaging is a non-invasive quantitative TDI technique to quantify regional myocardial deformation of LV which occurs within seconds of ischemia. The diagnostic sensitivity and specificity is more than 85%.

Pitfalls of echocardiography in AMI: Like any diagnostic technique echo has certain limitations in AMI mainly pertaining to fallacies in regional wall motion assessment.

Some of them include (a) suboptimal image quality despite harmonic imaging. However, an attempt should be made to obtain as many imaging planes as possible (b) transient myocardial ischemia- what echo picks up is ischemia or injury at the time of study. As such echo may be normal unless ischemia is induced during study (c) chronic, old MI presenting with wall motion defect. However, fibrosis, scar, aneurysm are pointers to old infarct (d) focal myocarditis/dilated cardiomyopathy presenting with wall motion abnormalities (e) conduction/rhythm disturbances like LBBB, AF which distort the contraction pattern (f) volume loaded ventricles producing abnormal IVS motion (g) overestimation of infarct size due to myocardial stunning, reperfusion injury, and 'tethering' effect.

Summary: Echo plays a significant role in AMI from the day of admission to the time of discharge. It is very valuable in the early diagnosis when other parameters are noncontributory. The hallmark of diagnosis is decreased systolic thickening and wall motion abnormalities of affected segment. Its role in post MI risk stratification/prognosis is unmatched. It can guide the clinician at various stages for therapeutic strategies. Refinements in imaging resolution, use of Doppler and color flow mapping have enhanced its role in all aspects of MI. Newer technologies like MCE, TDI, and Strain imaging; have provided a major impetus in diagnosis and prognosis of AMI. Finally it is strongly recommended that every emergency room resident should be trained to at least detect regional wall motion abnormalities, so that early diagnosis and management is not missed.

BE POSITIVE

At a nursing home in Florida, a group of senior citizens were sitting around talking about their aches and pains. 'My arms are so week, I can hardly lift this cup of coffee,' said one.

'I know what you mean. My cataracts are so bad, I can't even see my coffee,' said another.

'I can't turn my head because of the arthritis in my neck,' said a third.

'My blood pressure pills make me dizzy," another contributed, 'I guess that's the price we pay for getting old,' winced an old man.

Then there was a short moment of silence. Thank God we can all still drive, or we would have been stuck at one place, 'said one old woman cheerfully.

ROLE OF ECHOCARDIOGRAPHY IN EVALUATION OF A HYPERTENSIVE PATIENT

Ravi R Kasliwal, Manish Bansal
Director, Echocardiography, ESCORTS Hospital, New Delhi

Hypertension is a widely prevalent health problem and is associated with considerable morbidity, mortality as well as tremendous economic burden on the health care system. The adverse outcomes associated with hypertension result mainly from its deleterious effects on various organ systems in the body, notably the cardiovascular system, brain and the kidneys. Detection of target organ damage therefore has considerable diagnostic, prognostic and therapeutic significance in the evaluation of hypertensive patients. Echocardiography being easily available, relatively inexpensive, safe and versatile is widely used for this purpose and provides valuable information about various cardiovascular effects of hypertension.

Role of echocardiography in evaluation of hypertensive patients

Detection of left ventricular hypertrophy (LVH)

Presence of LVH is known to confer 1.5-3.5 times increased risk of adverse events in hypertensive subjects. The predominant pathophysiological disturbance seen in LVH is diastolic dysfunction which manifests as exertional dyspnea, heart failure and an increased risk of atrial arrhythmias. In addition, LVH also causes impairment of coronary flow reserve which, in association with concomitant atherosclerotic diseases, may result in both systolic and diastolic dysfunction of the left ventricle. Not surprisingly, regression of LVH with therapy has been shown to result in benefit in both short-term and long-term outcome in these patients.

Echocardiography is a sensitive and accurate technique for detection of LVH. Using echocardiography, LVH can be found in nearly 30% patients with hypertension whereas ECG can detect it in only 5% patients. The prevalence of LVH is much higher in patients with severe HT with almost 90% of them having evidence of LVH on echocardiogram.

Echocardiographic detection of LVH is based on calculation of LV mass-index. LV mass-index >95 g/m^2 in women and >115 g/m^2 in men are indicative of presence of LVH. The American Society of Echocardiography recommends the following formula for calculation of LV mass-

LV mass = 0.8 X {1.04[(LVIDd + PWTd + SWTd)^3 - (LVIDd)^3]}+ 0.6 g, -where PWTd, SWTd and LVIDd are posterior wall thickness, septal wall thickness and LV internal dimension measured at end diastole, respectively. These linear measurements can be made directly from 2D images or using 2D-targeted M-mode echocardiography in the parasternal long-axis view.

Apart from just the presence of LVH, the pattern of hypertrophy also influences the prognosis. The risk is highest in patients with concentric hypertrophy, less in eccentric hypertrophy and the least in concentric remodeling. The distinction between the different patterns of LVH is based on LV mass index and relative wall thickness (2PWTd/ LVIDd) (figure 1).

Detection of LVH by echocardiography helps in confirming the diagnosis of hypertension, guiding selection of anti-hypertensive agents and in monitoring response to treatment. Although blood pressure reduction is the most important factor involved in regression of LVH, independent effects of various drugs also play an important role. Angiotensin converting enzyme inhibitors, angiotensin receptor blockers and calcium channel blockers have been shown to be more effective than other anti-hypertensive agents in inducing LVH regression.

Diastolic dysfunction

Diastolic dysfunction is present in over 1/3rd patients with hypertension and is a common cause for shortness of breath in these patients. Echocardiography is considered to be the most preferred technique for assessment of diastolic function in the clinical practice. On the basis of mitral inflow pattern, pulmonary vein flow pattern and mitral annular tissue velocity, diastolic dysfunction can be categorized into impaired relaxation, pseudonormal pattern and restrictive pattern. Impaired relaxation is the commonest form of diastolic dysfunction associated with hypertension. Restrictive pattern, on the other hand, is uncommon in hypertension in absence of other concomitant pathologies. However, when present, restrictive pattern is associated with worse outcome.

Left atrial size

Since left atrium (LA) is exposed to LV pressure during diastole, any increase in LV pressure results in concomitant rise in LA pressure and subsequently LA size. LA size is therefore considered to be 'the HbA1C of LV diastolic function'. Numerous studies have demonstrated strong association between LA size and the risk of adverse cardiovascular outcomes in diverse population subgroups.

Echocardiographically the LA volumes are best calculated using either an ellipsoid model or Simpson's rule. The biplane area-length method which is based on the ellipsoid model is the preferred method for this purpose. LA volume by this method is calculated as-LA volume= 8 (A1) (A2)/3 (L), where A1 and A2 represent the maximal planimetered LA area acquired from the apical 4- and 2-chamber views, respectively, and L is length. The

length is measured in both the 4- and 2-chamber views and the shortest of these 2 length measurements is used in the formula (figure 2). All measurements are taken at the end-ventricular systole when the LA chamber is at its greatest dimension. Normal LA volume has been reported to be 22±6 ml/m^2 and most studies have used 32 ml/m^2 as the upper limit of normal.

Systolic dysfunction

LV systolic dysfunction in hypertensive subjects is usually a result of concomitant coronary artery disease but may also occur secondary to hypertension itself. Echocardiography not only provides comprehensive information about LV systolic function, it also gives clues to the underlying mechanism by showing regional wall motion abnormalities.

Coronary flow reserve

As hypertension is a risk factor for atherosclerotic vascular disease, early detection of these complications plays an important role. Whereas detection of pre-clinical atherosclerosis is usually carried out in peripheral vessels, assessment of coronary flow reserve can also be performed using trans-esophageal echocardiography guided Doppler study of left-anterior descending artery. With the development of intravascular myocardial contrast agents, detailed evaluation of coronary flow reserve with echocardiography has become a reality.

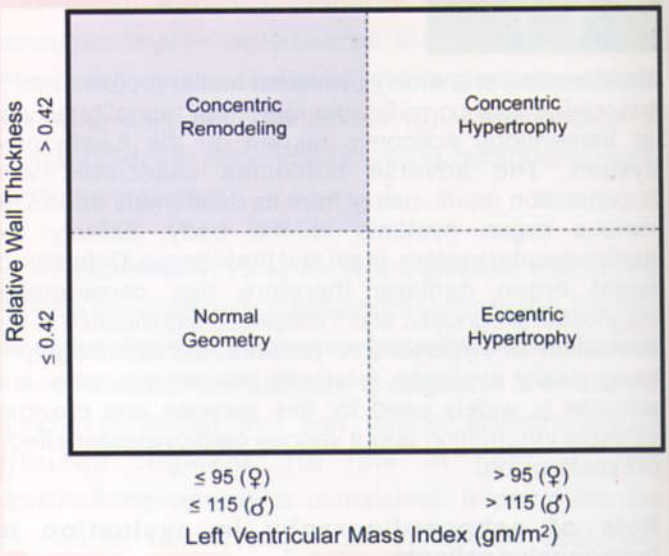
Vascular disease

In addition to echocardiography, vascular ultrasound also plays an important role in evaluation of hypertensive subjects. As already mentioned, atherosclerotic vascular disease is a common cause of complications associated with hypertension. Several reliable non-invasive techniques such as carotid intima-media thickness and brachial artery flow mediated vasodilatation have been developed for early detection of atherosclerosis. Large amount of evidence base supports the role of carotid intima media thickness in risk stratification of patients deemed at intermediate risk (e.g. hypertensives) of cardiovascular events on the basis of conventional cardiovascular risk factors.

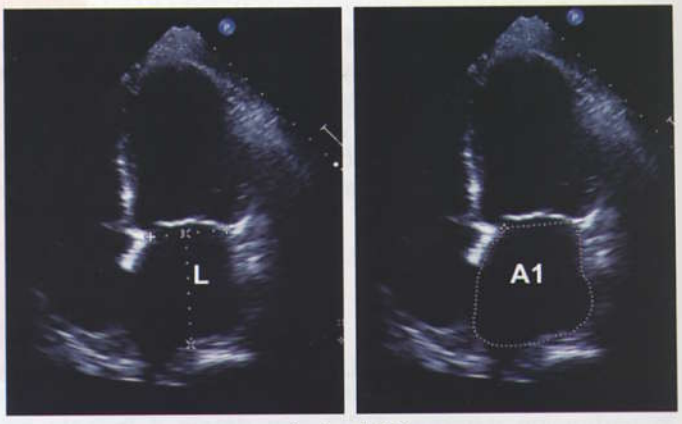
Finally, renal ultrasound and Doppler examination not only helps in recognition of underlying etiology in patients suspected of having secondary hypertension, it also provides valuable information required for deciding about the need for percutaneous intervention.

Suggested reading:

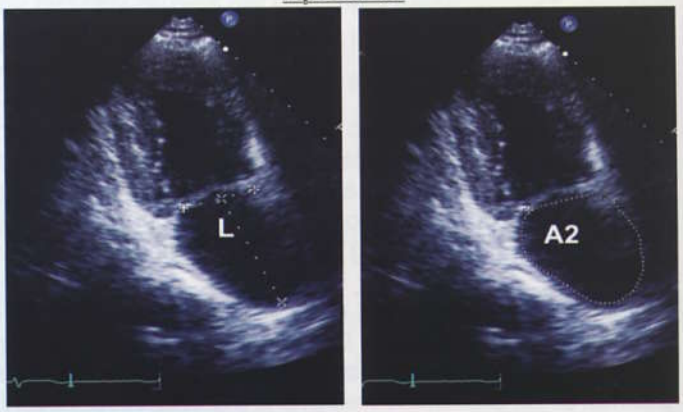
1. Devereux RB, Roman MJ. Ultrasonic techniques for the evaluation of hypertension. Curr Opin Nephrol Hypertens 1994;3:644-51.
2. Phillips RA, Diamond JA. Ambulatory blood pressure monitoring and echocardiography--noninvasive techniques for evaluation of the hypertensive patient. Prog Cardiovasc Dis 1999;41:397-440.
3. Lang RM, Bierig M, Devereux RB, et al. Recommendations for chamber quantification: a report from the American Society of Echocardiography's Guidelines and Standards Committee and the Chamber Quantification Writing Group, developed in conjunction with the European Association of Echocardiography, a branch of the European Society of Cardiology. J Am Soc Echocardiogr 2005;18:1440-63.
4. Agabiti-Rosei E, Muiesan ML, Salvetti M. Evaluation of subclinical target organ damage for risk assessment and treatment in the hypertensive patients: left ventricular hypertrophy. J Am Soc Nephrol 2006;17:S104-8



Classification of different left ventricular hypertrophy patterns on the basis of left ventricular mass index and relative wall thickness



Apical 4C



Apical 2C
Measurement of LA volume by biplane area-length method.

TOTAL ARTERIAL REVASCUALARIZATION OF THE HEART USING BILATERAL INTERNAL THORACIC ARTERY GRAFTS

DR. SUDANSHU BHATTACHARYYA, MS, MCH, FIACTS
DR. C. S. HIREMATHDNB, MCH

INTRODUCTION

The ultimate achievement in coronary artery bypass surgery is to have all patients undergoing the operation survive free from coronary events, angina & reoperations for as long as possible. Knowing that the greatest cause of failure of the operation is obstruction or occlusion of the vein bypass grafts, 60% of these vein grafts close by 10 years which results from intimal hyperplasia or atherosclerosis. Selection of an ideal bypass graft that remains free of obstruction appears to be one of the most important factors in achieving this goal.

The internal thoracic artery (ITA) is an almost ideal & dynamic bypass conduit. It has been shown to remain relatively free from intimal hyperplasia & atherosclerosis, and from obstruction caused by spasm. It has the potential to meet the increased demand of blood flow & grow in size with time. Another advantage of the ITA is that only one incision is required, thereby avoiding the discomfort & potential complications of additional incisions. Since bypassing the left anterior descending artery (LAD) with Left internal thoracic artery (LITA) increases 10-year survival, bypassing more, or preferably all, diseased coronary arteries with ITA grafts may extend longevity, minimize coronary events, & reduce the need for reoperation.

In most cases, patients with three-vessel coronary artery disease can be operated by total arterial revascularization with ITA grafts using the Y-graft technique to all the coronary arteries even in enlarged hearts by using the tandem/sequential technique.

OPERATIVE PROCEDURE

The heart is exposed through a median sternotomy. The right & left pleural spaces are entered & the ITA's are examined for adequacy of pulse. High power magnification is used for dissection, preparation & anastomosis of the ITA grafts.

Dissection of LIMA & RIMA; Chest wall is retracted with a mammary retractor, left internal mammary artery is dissected and it is used as a pedicle graft & is lengthened by excising its surrounding muscles, fat , fascia & semi-skeletonizing it. Arterial & venous branches are secured with hemostatic clips.The ITA is examined for adequacy of pulse, size, injury, dissection & the presence of atherosclerosis.

The Right internal mammary artery (RIMA) is dissected similarly; way near the thoracic inlet it is dissected free from the thymus gland to increase the available length. RIMA is taken out as a free graft and joined to the LIMA pedicle over the antero-lateral surface of LIMA with an oblique incision and made as a 'Y ' graft using 8-0 monofilament suture. The ITA is dilated by spraying 1;20 papaverine saline solution on the lumen of the conduit and inspected for adventitial haematoma or dissection.

For the last 8 years we have been using Octopus as a stabilizing device with less than 1% conversion rate to on pump surgery. However if the patient is unstable our next choice is to do a beating heart surgery with a introduction of an Intra aortic ballon pump (IABP).

The LIMA is used to bypass the anterior vessels mostly the diagonals and left anterior descending artery (LAD) in a sequential manner, & the RIMA is used to graft the obtuse marginals & the posterior descending arteries in a sequential manner using 7-0 monofilament suture.

Whenever the disease is diffuse we make no hesitation in doing an endarterectomy on a beating heart. Many Redo surgeries have been done by the same procedure as well. Whenever LIMA is patent from the earlier surgery, RIMA is taken out as a free graft & joined to LIMA (old graft) & converted to LIMA, RIMA 'Y' graft.

In the last 14 years we have operated more than 7500 cases. Excellent results have been obtained with total arterial grafts with a very few requiring repeat surgery. From the year 1999 onwards we are operating on a beating heart and before that cases were done on pump.

We advocate this surgery even in females, overweight & diabetes mellitus patients. In closure of the sternum we use 2-3 sternal bands & feel that a proper immobilization of the sternum is of utmost importance to avoid postoperative sternal dehiscence.

There is no statistical difference in infections in either diabetes or non-diabetes mellitus patients.

CONCLUSION

Total arterial revascularization with the ITAs, the most ideal bypasss graft, has the potential to significantly increase long term event-free survival & dramatically reduce the need for reoperation in patients with three-vessel disease. The procedure can be performed with acceptable mortality in patients of all ages, males & females, diabetes mellitus , non diabetes mellitus, obese patients & including those with poor ventricles or left main disease & even in some patients requiring re-operation. Dedication to impeccable precision of technique in the preparation & anastomosis of ITA grafts is paramount to the success of this procedure.

It is always recommended to the Cardiovascular surgeon with extensive experience & interest in ITA grafting.

"HEALTHY HEART : IN A HOLISTIC WAY" (PREVENTIVE CARDIOLOGY IS THE ONLY HOPE IN THE FUTURE) RELEASED ON THE OCCASION OF WORLD HEART DAY

Dr. H. K. Chopra
Chief Cardiologist, Moolchand Medcity
Organising Chairman, WCCPC & WPCHC 2007
Vice President, CSI Delhi Branch
Secretary General, IMSA World HQ

The prevalence of coronary artery disease is rising rather steeply in our country, in general, and Delhi, in particular. Cardiovascular Disease (CVD) is assuming epidemic proportions in India. To a very large extent, heart attack is self-inflicted by our faulty lifestyle, which we adopt right from the childhood. **The prevalence of Coronary Artery Disease in adults was 1% in 1960, 11% in 2003, 14% in 2007 in India in the urban population.** CAD is four times higher in Indian in all age groups. To be an Indian is itself a risk factor for premature CAD. Risk for CAD is twenty times higher than Japanese. CAD is more extensive, more diffuse and multivessel and more premature in Indians as compared to its counterparts in Western and European World. CVD mortality is decreased by 60% in Japan and Finland, by 50% in Australia, Canada and USA and by 25% in Europe. According to WHO Projections there will be 100% rise in mortality from CAD in India by year 2015 if drastic step for lifestyle optimization are undertaken. Rapid urbanization, globalization, industrialization and health transition are the main factors for premature CAD in our country. Dr. Dudley White Johnson, from San Francisco once said, "*Anybody getting a heart attack below the age of 80, it is his or her own fault; after the age of 80, it is God's will*". One should not have heart attack in the prime of his/her life when he/she is important not only to the family, but also to the community, society and nation. In fact, we are the cause and we are the cure of this malady of Coronary Artery Disease by the lifestyle we have, which should be in accordance with the laws of nature. A healthy heart is an expression of our own perception, thoughts, interpretations and choice making. Thus, a healthy heart is not a matter of chance, but it is a matter of choice. We should know the fact that wisdom is what we are, and not what we have. Women are fortunate to have lower prevalence of coronary artery disease before the age of 45 i.e. menopause. After menopause, the prevalence of CAD is same as men. **Over 25 Lac people die of Heart Attack in our country every year. Out of these, 16 lac die within an hour of Heart Attack before even the medical aid is available.**

What is Heart?

Heart is a hollow organ of the size of a fist, situated in the center of the chest behind the breastbone. It beats 60-80 times/minute and almost one lac times in a day and pumps about 5 liters of blood/minute to different parts of the body including brain, kidney, lungs and other tissues. Infact it works like a double pump. The right cell of the heart pumps blood into the lungs where it is filled with oxygen and the left side of the heart pumps this oxygen rich blood throughout the body providing oxygen to 60 trillion cells in human beings. It has four chambers named as right atrium and left atrium, right ventricle and left ventricle. The blood ejected from the left side of the heart from left ventricle goes to different organs and tissue of the body through the major artery of the heart called as aorta and its branches. The blood from the left side of the heart is purified and oxygenated while the blood from the right side of the heart from the right ventricle goes to the lung and is not purified and is deoxygenated and gets purified in the lung before going into left atrium through pulmonary veins. The right atrium of the heart receives deoxygenated blood from the veins, which drain into two major veins called as inferior venacava, and superior venacava, which opens into right atrium. The heart has four valves named as (a)mitral valve has two leaflets and is situated between the left atrium and left ventricle (b)aortic valve has three leaflets and is situated between the left ventricle and aorta (c)tricuspid valve has three leaflets and is situated between right atrium and right ventricle d)pulmonary valve has three leaflets and is situated between right ventricle and pulmonary artery. Heart has two major arteries namely right coronary artery (RCA) and left coronary artery (LCA). They arise from aorta and supplies blood to the heart muscle. The two major branches of left coronary artery are named as left anterior descending artery (LAD) and circumflex artery (CX). Besides these there are many branches of right coronary artery, LAD and CX. Heart has its own physiological pacemaker, the electrical impulses originate from SA node (Sinoatrial node), this node is the "heart's brain" which is the center and sources of its neural energy and then propagates to AV node (Aterio ventricular node) and then propagates to right and left bundle and the perkinje fibers etc. like a bank cashier the heart handles vast sum and earns relatively a very small salary for its survival.

The survival of the heart and the life of its owner depend on the patency of these coronary arteries. According to Ayurvedic teaching healthy human body is

like freely flowing river. Whenever there is stagnation of blood flow what we call as stasis then the healthy circulation is replaced by accumulation what we call as atherosclerosis (hardening of the arteries with plaque formation, ulceration leading to plaque rupture and thrombus formation leading to angina (heart pain) or heart attack.

What are the Risk Factors for Heart Attack?

The major risk factors responsible for heart attack can be classified as modifiable and non-modifiable. The modifiable risk factors are smoking, high cholesterol, unmanaged negative stress, obesity central obesity (pot-belly), lack of physical activity, faulty diet, uncontrolled high blood pressure, uncontrolled diabetes, excessive homocysteine levels in the blood, etc. The non-modifiable risk factors, on the other hand, are advancing age, male sex, post-menopause state in women and a strong family history of Coronary Artery Disease in the first-degree blood relatives of the person.

Tobacco, in any form, chewable or non-chewable, such as cigarette, bidi, hookah, cigars and passive smoking are equally injurious, and are major predisposing factors for a premature heart attack and sudden death. Smoking, by virtue of various chemicals such as nicotine, carbon monoxide and various other chemicals, narrows the coronary arteries, thereby reducing the blood flow to the heart muscle. This hardens the coronary arteries and oxidizes the cholesterol Low Density Lipoprotein (LDL Bad Cholesterol). It also increases the stickiness of the blood by increasing platelet aggregation and adhesiveness, thus increasing clot formation. Coronary Artery Disease has been seen in 80 percent of smokers.

Today, if we smoke cigarettes, then tomorrow, cigarettes will smoke us. Today, if we chew tobacco, then tomorrow tobacco will chew us. If we really want to bypass the bypass surgery, tobacco crops should be replaced by vegetable crops. We can halt the menace of heart attack by eradicating the habit of tobacco consumption from our society. From mind body perspective smoking is vata related activity and use smoking as an attempt to reduce anxiety or stress.

Elevated levels of total cholesterol, LDL (Bad Cholesterol) and triglycerides are associated with high risk of premature Coronary Artery Disease. The risk is especially high when elevated triglyceride levels are more than 150 mg%, cholesterol levels of more than 150 mg%, high LDL (Low Density Lipoprotein) of more than 70 mg% and low HDL (High Density Lipoprotein Good Cholesterol) of less than 40 mg% in males and less than

50 mg% in females. Oxidation of LDL cholesterol is also one of the crux of premature hardening of coronary arteries. Total cholesterol and high density cholesterol ratio of more than 4.5 is a powerful predictor of Coronary Artery Disease. Doctor Larry Sherwitz of the University of California at San Francisco has shown in a study Multiple Risk Factor Intervention Trial, that men aged 35-57 with cholesterol counts over 300 over more than four times as likely to die from coronary heart disease as compared to men with the cholesterol levels of less than 180 mg%. It has been documented in one of the studies done in Finland, where the heart attack rates are highest amongst the people in the world. It is due to their faulty lifestyle. Remain cholesterol fit, if you really want to prevent Coronary Artery Disease.

Behavioral patterns, including negative emotions such as aggression, competitiveness, hostility, jealousy, anger, cynicism and other negative emotions multiply the risk of Coronary Artery Disease by many folds. Acute unmanageable negative emotional stress can precipitate plaque rupture in coronary arteries due to sudden release of catecholamines, which may cause a massive heart attack. Our thoughts have a tremendous influence on the health of our heart. **Tranquility of mind and positive emotions such as love, compassion, humility, harmony, peace, altruism and magnanimity can prevent Coronary Artery Disease. Yoga and Primordial Sound Meditation also play a tremendous role in preventing Coronary Artery Disease.**

Mind Body concept and Heart attack

According to Mind Body concept we exist on many levels such as physical, mental, emotional and spiritual. Positively based lifestyle changes have a positive influence on the health of the heart. Mind body medicine teaches us that the healthy heart is an expression of dynamic stream of intelligence and the consciousness give rise to this reality. By changing your perception in the presence you can change your life for tomorrow. You can

experience in the beating of your heart, in your breathing, in your digestion, in your thinking and flow of energy in your muscles etc. The quantum mechanical body is comprised of our existence in three ways. Mind body refers to these as the physical body, the subtle body and the causal body. These are all software of our existence. Matter and energy are components of physical body. It is born, lives and then disappears at our death, when the atoms and molecules disperse. Infact the atoms of our bodies are constantly dispersing and are being replaced. The subtle body comprises of thoughts and feelings that exist beyond the limits of physical body. This is also a space and time event and its self life is little longer. Beyond the subtle body is the causal body, which is a unit of perfect order, and it encompasses all the space time events. In a way it is analogous to the genetic programming from which the nature of each individual derived. It is a greater field of energy and intelligence from where everything begins. It is both subjective and objective. It is the knower, the process of knowing and the known. Mind body calls this as a vast interconnecting network of energy and information, which is constantly flowing and changing. The heart is not just a pump whose welbeing depends on the fuel that is put into it. Every aspect of your perception, thoughts, interpretation and experience and choices have their influence on the health of the heart. It is therefore necessary to have the self awareness to maintain a healthy heart and recognize heart disease in early stages so that they can be reversed. Diagnosing a coronary artery disease to an Ayurvedic Physician means knowing and understanding the patient and not the disease. When the true nature of the patient is know and only then and illness can be understood and treated at the most fundamental level. Thus understanding of patient's mind body system can prevent imbalance from ever reaching the point where symptoms become manifest. Thus mind body intervention for a healthy heart is such an approach so that illness of coronary artery disease is prevented at a primary level first and then at secondary level. It also help us in analyzing the unique physical, emotional and spiritual makeup of an individual, so that an individualistic approach of a lifestyle such as work plan, exercise plan, diet plan, stress management protocol, sleeping profile, meditation, massage therapy and other modes of therapy can be instituted according to individuals mind body constitution.

According to Mind Body Medicine each of us is born with a unique proportion of three doshas, which creates us physical, intellectually and emotionally. If an individual has balance in these doshas then they remain healthy. Any fluctuation in the proportion of doshas because of the negative stress may increase the vulnerability to physical illness and emotional instability. These threes dosahs are know as vata, pitta and Khapha. Vata dominant persons mind body system if in balance then he or she may be creative, vibrant and enthusiastic and if the vata imbalance exceeds the normal then and individual is very anxious, sleepless, restless, irritable with lot of negative emotions which directly influence the health of the heart and increase the tendency for palpitation and arrhythmia and has less significant coronary artery disease than pitta and kapha imbalance. On the contrary if a person is pitta dominant then imbalance when exceeds the normal give rise to jealousy, negative competition, resentfulness, revengefulness, anger impatience and irritability which may influence the health of the heart by premature atherssclerosis of coronary arteries and by inflammation of the arterial wall producing premature heart attack. Kapha imbalance when exceeds the normal give rise the lethargy and overweight and thereby affecting the heart by increasing the tendency for hypertension dyslipidemia and wide range of destructive emotion such depression procrastination and self pity. Our heart both literally and figuratively if congested with anger doubt, fear hostility, cynicism, irritability, repression due to dosha imbalance may produce premature coronary artery disease. It is therefore necessary that all the doshas should remain in balance to have a healthy heart. One should identify the emotion, be mindful of the physical sensation in your body, take the responsibility of what your experiencing, express what you have feeling in private and let go of the negative emotion through some personal ritual and then share your feeling with another persona and celebrate and rejuvenate.

Mind Heart Connections:

The mind and the heart both are directly and indirectly connected. Direct connections exist through the autonomic nervous system, which can influence the heart rate and rhythm as well as blood pressure. Indirectly, negative emotions such as fear, jealousy, hostility, cynicism, negative competition, hard driving person, dead line oriented, highly demanding individuals, frequently angry individual so called type A personality release hormones such as adrenaline and nor-adrenaline and increase the vulnerability to heart attacks. This causes aggregation of platelets and activates clot formation. *Every thought in the mind, either pain or pleasure, hope or fear, love or hate, influence the heart. A four years study of middle aged men who expressed hopelessness about their future had 20% greater increase in narrowing of the coronary arteries as compared to those who were more optimistic. Negative psychological factors produce stress hormones, which precipitate pre mature angina and heart attack.* Loss of social support such as divorce, death of the spouse, loss of job or retirement, loneliness and frustration may all precipitate heart attack has been well documented in the research data.

Central obesity (pot-belly) has been documented as one of the risk factors for premature Coronary Artery Disease. A in hospital data (MMMSStudy 2007) published in Indian Heart Journal by choprahketal 2007 showed that prevalence of metabolic syndrome is 65% and it is 70% in females and 60% in males. Central Obesity or Pot-Belly is the most powerful predictor of metabolic syndrome with highest prevalence between the age of 40-60 yrs of age. A pot belly more than 36 inches in male and 32 inches in females increases the vulnerability for premature coronary artery disease (heart attack and stroke (paralysis by many folds). **"Longer the waist line, shorter the lifeline and vice-versa".** Morbid obesity is a higher risk for many illnesses such as heart attack, hypertension, diabetes, cancer etc. Perfect weight management may halt the menace of morbid obesity by regular exercise, yoga, dieting and meditation and mind body balance strategies.

Physical inactivity lack of exercise is also one of the risk factors for Coronary Artery Disease. It has been documented in one of the studies in U.K that the incidence of Coronary Artery Disease is higher in postmasters than in postal clerks, and it is higher in bus drivers than in bus conductors. Regular physical exercise, especially aerobic exercises such as walking, wogging, jogging, cycling, swimming, dancing and skiing, increases the myocardial efficiency, reduces blood pressure, improves cardiac output, decreases peripheral vascular resistance and produces new collateral vessels (natural bypass), thus help in bypassing the bypass surgery. **Exercise, especially walking for twenty minutes every day, keeps heart attack away.** Exercise also reduces bad cholesterol, increases good cholesterol and reduces obesity. One should never do any unaccustomed exercise, as it may carry a risk of premature heart attack. The best exercise after the age of 40 is brisk walking, on a daily basis, in a beautiful, lush green garden, which will energize you. One should avoid anaerobic exercises such as weightlifting, push-ups, etc. as they increase the tendency for hypertension. **I firmly believe in "use your body or lose it".**

Diet - A diet rich in saturated fats and cholesterol can raise blood cholesterol. These foods include oils rich in saturated fatty acids, such as palm and coconut oils, fatty foods of animal origin such as beef, pork and lamb, and high fat dairy products such as butter, whole milk, hard cheese, egg yolk, etc. It is recommended that one should consume a lot of vegetables, fruits, cereals and pulses, and for a non-vegetarian diet, one can have chicken without skin, and fish, which contains Omega-3 fatty acids, which are protective for the heart, low fat dairy products such as skim milk, and low fat yogurt, etc. Olive and Canola oils are monounsaturated oils and may be even more beneficial in reducing blood cholesterol than polyunsaturated oils. **Eating the right food at the right time, in the right place, in the right manner and in the right dose, makes the heart healthy.** We are what we eat! Avoid saturated fats and take more of monounsaturated fats (MUFA) and polyunsaturated fats (PUFA). Refined oils are better cooking media than saturated fatty acids. Eating healthy food at a right time, at right place can influence our body metabolism, According to Mind body medicine, eating is a holy experience in which energy and information from the environment are converted to life energy. We must eat when we are settled in our mind and we should experience not only the taste but also the sight, smell, texture of the meal. "**We are what we eat. What we eat is important, but what is eating us is much more important."**

Uncontrolled diabetes increases the risk of Coronary Artery Disease by virtue of increasing the oxidation of low density LDL cholesterol, and hence it enhances hardening of the arteries. Adequate control of diabetes prevents Coronary Artery Disease.

Hypertension is a medical term for high blood pressure, which threatens not only coronary arteries but also brain, eye and kidney arteries. Blood pressure increases the load on the heart muscle, which has deleterious effect on the circulation in the coronary arteries. Both systolic and diastolic hypertension is equally hazardous for premature coronary artery disease. Uncontrolled high blood pressure may increase the thickness of heart muscles and reduce coronary circulation. 80 percent of uncontrolled, moderately hypertensive patients have definite Coronary Artery Disease. Thus, blood pressure, both systolic and diastolic, should be adequately controlled.

"Hypertension is a silent killer."

The common predisposing factor for accelerated hypertension are stress, excess of salt consumption, obesity, uncontrolled diabetes, indiscriminate use of nasal drops containing ephedrine, excessive smoking, excessive consumption of alcohol may precipitate hypertension. Mind body interventions such as yoga, meditation, exercise, massage therapy, sattvic diet, weight management, stress management, adequate sleep may help in managing the hypertension.

Homocysteine : Recently, it was documented that homocysteine, which is derived from a diet high in animal proteins, can increase the chances of heart attack by three folds. In 1969 Dr Kilmer McCully of Harvard first documented that homocysteine might play a key role in development of coronary artery disease. In a study of 15,000 of healthy doctors, it was determine at high levels of homocysteine corelate with three folds increase in the

risk of heart attack. Other research has shown that in young women high homocysteine levels doubles the risk of heart attack. Interestingly, the rise in coronary artery disease in women coincides with the use of birth control pills, which lower vitamin B6 levels. Smoking also lowers B6 and folic acid etc. A diet high in meat protein, eggs or cheese and low in green leafy vegetables and whole grains may result in vitamin B deficiencies and high levels of homocysteine. Diet supplements rich in folic acid, vitamins B6 and B12 and antioxidants reduce homocysteine levels and help preventing heart attacks.

Various non-modifiable risk factors for Coronary Artery Disease include **advancing age**, which causes hardening of coronary arteries. Male **sex** has higher vulnerability for premature coronary artery disease because of there faulty lifestyle including sedentary habits, faulty eating habits such as consuming junk food, high levels of stress at work. Post-menopause states in women are equally at risk for a heart attack as men due to depletion of the oestrogen hormone. The higher risk group for women includes post menopausal, diabetic, smokers and obesity. **Family history** is also a very important factor for all people before the age of 50. However, modifiable risk factors are much more important then genetic predisposition. Fear of a coronary artery disease motivates many people to change their lifestyle but I must emphasized the fear motivated behaviour cannot be successful on long term basis. Fear of eating, exercising should not create any king of anxiety which has more deleterious effect on our system. We must always consider the physiological benefits of a lifestyle change by considering its emotional and spiritual origins.

What are the Clinical features of Heart Attack?

CAD may manifest clinically as silent myocardial ischemia, stable angina pectoris, unstable angina, heart attack and sudden cardiac death. Silent myocardial ischemia refers to blockage of coronary arteries that does not produce any symptoms. It is often diagnosed by electrocardiogram or stress test. It is common in diabetics. It is more dangerous as it does not produce any symptoms. Severe heart attacks can occur with no pain whatsoever and the damage to the heart muscle can be detected when the disease is quite advanced. Data from the long term Framingham heart study revealed that approximately 15% of all heart attacks were "silent" and equal numbers of attacks were diagnosed wrongly as indigestion, gas or atypical upper abdominal discomfort. Angina pectoris of effort is chest pain on exertion which is also produce by partial / subtotal blockage of coronary arteries due to hardening of the arteries and atherosclerotic plaque etc. any kind of exertion physical, mental or sexual may provoke angina of effort. The characteristic presentation of angina is pain in the center of the chest which is diffuse and not pin point radiates to the left arm or right arm or back or in the jaw which is usually associated with choking sensation, tightness across the chest, heaviness or sinking feeling associated with fatiquability and sweating etc. A large number of medication are prescribed for stable angina pectoris such as nitroglycerine in the form of a pill (sorbitrate), spray (nitrolingual spray) or a patch (transdermnitro) which dilate the coronary arteries and eliminate the pain. Other drugs, which are commonly used in angina effort, are beta blockers, calcium channels blocker which slows the heart and reduce the blood pressure. Other adjuvant therapy includes aspirin, clopidogrel which reduce the stickiness of platelets and prevent platelet aggregation. Besides these lipid-lowering drugs are also given to the patient of angina pectoris. It has been well documented that drugs like aspirin alone may reduce risk of heart attack by more than 40% if taken regularly 150 mg daily it not only the risk of heart attack but also reduces risk for stroke. Unstable angina is characterize by increase in frequency and worsening of intensity and duration of angina with more episodes of angina at rest, not responding adequately to the conversational treatment of angina. Usually the cause is a blood clot formation in subtotal blocked coronary arteries. These patients require hospitalization for medical treatment investigation such as EKG, Trop I, Echocardiography, 24 hours holter monitoring, angiography, angioplasty or bypass surgery and whatever is required.

Heart attack occurs with the coronary artery is completely blocked and the area of the heart muscle nourished by the coronary artery is damaged and becomes necrotic. This is what happens during heart attack. Myocardial infarction is the medical term for the same. Most of the heart attacks occur when a blood clot is lodged in a narrow coronary artery and cut off the flow of blood completed. The patient usually complains of severe unbearable pain in chest with radiation with the left arm, right arm or jaw. It is usually associated with nausea, sweating and shortness of breath. 60% of the people they die before reach the hospital in one hour before seeking any medical help. They need emergency care in the hospital.

How do we Diagnosis Coronary artery disease?

Early diagnosis of coronary artery disease may reduce the morbidity and mortality. Various diagnostic tools which utilized to diagnose various coronary artery disease syndromes are electrocardiogram (ECG), enzymatic markers such as Trop I, CPK-MB, Myoglobin, SGOT, LDH etc., Echocardiography, ambulatory holter monitoring, treadmill stress test, Dobutamine stress echocardiography, Dipyradamole stress echocardiography, stress thallium scan 64 slice CT coronary angiography and conventional cath coronary and left ventricular angiography etc.

I firmly believes that 95 percent of diseases all over the world including premature heart attack, hypertension, stroke (Paralysis), metabolic syndrome, obesity, high cholesterol, diabetes mellitus, anxiety states and even cancers and recurrent infections are caused by faulty lifestyle, which is an expression of imbalance of the mind and body. Faulty lifestyle includes inability to cope with the stresses of daily life, such as meeting deadlines, work stress, negative competition, lack of productivity in the corporate world, ego, arrogance and anger, etc. He quoted recent data published by WHO report suggesting that nearly half of India suffer from anxiety giving rise to panic reactions, fit of anger, worrisome behaviour, sadness, memory disorders and frequent absentmindedness because of underlying chemical imbalance by increased levels of epinephrine, nor epinephrine, cortisol and altered dopamine, dehydroergotamine, endorphins and serotonin levels. I firmly believe that lack of exercise or no exercise, eating the wrong food, at a wrong time, at a wrong place, in a wrong manner, in a wrong dose, in a wrong environment, consumption of junk food, tobacco in any form, excess of alcohol, drugs, mental and environmental pollution, lack of communication, miscommunication or no communication, lack of understanding, misunderstanding or no understanding, false imagination, feeling of hopelessness, helplessness, suppression, repression, frustration and depression amongst fellow beings are the main components of a faulty lifestyle. My main emphasis is on the rising incidence of metabolic syndrome, which is also called as Insulin-Resistance Syndrome or New World syndrome or Chaos Syndrome or Obesity Syndrome.

The optimisation of lifestyle in a holistic way by spiritual practices is the need of the day. By spirituality I mean that act from the eye of the soul, which is the field of silence, infinite possibilities and pure potentialities, and not from the eye of the body or the eye of the mind which materialistic and full of negative stress. The spiritual practices include regular meditation 20 minutes morning and evening, regular practice of yoga including all the eight limbs yama *(do's & dont's), niyama (self-discipline), asana (various yogic postures of exercise), pranayam (breathing exercises), pratihara (contemplation), dharna (concentration), dhyana (meditation) and samadhi (transcendence).* This helps in stress management, anger management, anxiety management, ego management, arrogance management, sleep management, choice management such as abstinence from tobacco, excessive alcohol, excess of salt, fried food, fat-rich food such as red meat, yellow of egg, liver, kidney, brain, etc. He strongly recommends that one should consume fruits, vegetables, nuts especially almonds, which are healthy-heart nuts, on a daily basis. Almonds reduce bad cholesterol and increase magnesium levels. That is why it is called as a "superstatin", which helps in reducing premature hardening of the arteries, thereby reducing the incidence of coronary artery disease. He said, ***"What you eat definitely matters, but what is eating you matters much more!"*** He also opined that "***how long you live is alright, but how well you live definitely matters".*** He said, "***We are busy, busy, busy in earning money at the cost of losing health, and then we are busy, busy, busy in losing that money and trying to earn health!"***

I am of the firm opinion that "Time has come to market Healthy Heart in a Holistic Way Now. Practice Spirituality, Optimize lifestyle, Make Perfect Choices, Act Locally and Impact Globally". Holistic Lifestyle by spiritual practice in scientific way is the need of the day to combat anxiety related problems in nearly half of India and whole of the world including heart attacks.

I firmly believe that Medical Tourism with Holistic approach has tremendous potential to attract people from all over the world to come to India for medical treatment, with a healing touch, which is missing in the Western part of the world. I believe that, ***"Chat Scan"*** is the need of the day, i.e., to devote more time to interact with the patient to understand the underlying problem and its root cause, and solve it in a very subtle manner and not unjustified CAT Scan. These days, doctors all over the world hardly give any time to chat with their patients, by the time patient starts speaking, the prescription of the doctor is ready. Prescribing a sleeping pill is not the answer! Hearing with patience with a lot of compassion and holistic approach is the need of the day.

The most famous **"Inter-Heart Study"** data conducted in 52 countries of the world and published recently, which has shown new emerging factors for the premature heart attacks in Asians because of negative stress such as hostility, cynicism and negative competition. The study has also shown that healthy heart can be enhanced by consumption of fruits and vegetables, practice of regular exercise and stress management. Indian data from my own study published in Indian Heart Journal, (MMMSStudy, chopra etal 2007) that 65 percent of Indians are suffering from Metabolic Syndrome (Pot Belly, Hypertension, Diabetes, High Bad Cholesterol and Low Good Cholesterol) which is the major cause of premature heart attack/stroke (paralysis) in our country. The Metabolic Syndrome with significant morbid obesity is touching epidemic proportions in India, due to faulty lifestyle and poor mindset. The lifestyle optimization in Holistic way from Dr. Dean Ornish (USA), Dr. S.C. Manchanda (Delhi) and Dr. Satish Gupta and Dr. W. Selvamurthy (Mt. Abu), which has shown very clearly that CAD can be prevented, regressed and reversed which has

been documented by coronary angiogram and reduction of bad cholesterol, increase of good cholesterol and reduction of stress hormones such as epinephrine, norepinephrine and cortisol levels and increase in the levels of happy chemicals such as serotonin and endorphins, etc.

"The health of the world is an expression of our own perceptions, our own thoughts, our own interpretations, our own experiences and our own choices. Thus the health of the world is not by chance, but it is by choice".

I quote Albert Einstein who once said, ***"We are not the packages of flesh and bone with wisps of memory and desire, but we are a web of information and energy interwoven with intelligence and emotions."*** We can enliven our prana (vital force), enliven ojas (glow), enliven tejas (intelligence) by practicing perfect lifestyle in a holistic way, right from childhood and not after we fall victim to diseases.

The good news is heart attack (CVD) is preventable. If main risk factors including high blood pressure, high blood sugar, high blood cholesterol, tobacco use, over weight and obesity (metabolic syndrome), inadequate intake fruits and vegetables, physical inactivity and negative stress levels are reduced by optimization of lifestyle in a Holistic Way. The title for the World Heart Day is "**Team up for Healthy Hearts**". **Lifestyle optimization in a Holistic Way right from childhood, timely medicalization with poly pill (containing Aspirin, Ramipiril, Atorvastatin and Betablocker such as Metoprolol or Atenolol) as secondary prevention at the age of 50 may definitely halt the rising menance of coronary artery disease, which is need of the hour and postpone the**

need of relatively expensive coronary mechanical intervention.

28 Point Programme for Healthy Heart

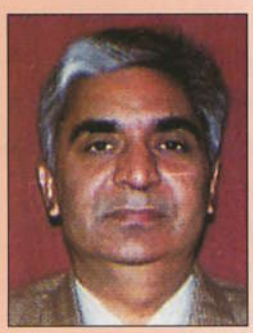
- Drink two glasses of water daily empty stomach and about 2 litres of water in a day.
- Exercise daily for 30 minutes.
- Do not smoke or chew tobacco.
- Meditate for 20 minutes in the morning and evening.
- Maintain optimum body weight.
- Take a body massage daily, only for 5 minutes (Self-Massage "Abhyanga").
- Eat the right food, at the right time, at the right place, in the right manner, in the right dose, in the right environment. Eat only when you are hungry, eat freshly cooked food in a quiet relaxed atmosphere and eat slowly and don't eat when you are upset and avoid overeating.
- Have sattvic vegetarian food and not tamsic or rajsic food. All 6 tastes including sweat, sour, salty, bitter, pungent and astringent should be included in every meal. As most of the coronary artery disease are pitta or kapha imbalances.
- Eat more natural foods such as vegetables, fruits, salads and nuts - Almonds, etc. have atleast four to five servings of fruits and vegetables daily.
- Do not eat junk food such as fried food or sweets, etc.
- Don't consume excess salt especially through processed food.
- Keep away from TV or Computer as much as possible and devote more time for physical activity.
- Avoid a "pot-belly" abdomen.
- Avoid unaccustomed exercise.
- Remain cholesterol-fit.
- Remain balanced in life.
- Have adequate rest for 6-8 hrs everyday.
- Don't burn both the ends of the candle at the same time.
- Avoid lust, anger, greed, ego and attachment.
- Be honest, truthful and dedicated for work.
- Have good social support system.
- Work with self-referral and not with object referral.
- Don't feel lonely.
- Have perfect choices to achieve any goal in a very peaceful manner.
- Develop intimate relationship.
- Become an embodiment of positive emotions such as love, compassion, humility, faith, confidence, peace, harmony, bless and happiness.
- Have planned daily routine and set weekly, monthly and yearly plans.
- Take antioxidants such as lycored containing lyocpene, folic acid and natural vitamins

"Eighty Potential Benefits of Healthy Lifestyle in a Holistic Way (Proved Scientifically)

1. Be Holistic and enhance your intelligence
2. Being Holistic and enhance your decision taking power.
3. Be Holistic and enhance your perfect choices.

4. Be Holistic I and blossom your youth.
5. Be Holistic and grow younger and live longer.
6. Be Holistic and enhance your perception.
7. Be Holistic and enhance your positive thoughts.
8. Be Holistic and enhance your perfect interpretations.
9. Be Holistic and enhance your perfect experiences.
10. Be Holistic and get rid of addictions such as smoking and alcoholisum.
11. Be Holistic and get rid of metal pollution.
12. Be Holistic and be happy.
13. Be Holistic and be successful.
14. Be Holistic and be prosperous.
15. Be Holistic and be at peace.
16. Be Holistic and be a perfect leader.
17. Be Spiritual and be a perfect professional.
18. Be Holistic and be perfect businessman.
19. Be Holistic and be perfect architect of your life.
20. Be Holistic and be beautiful.
21. Be Holistic and be lovable.
22. Be Holistic and be sublime.
23. Be Holistic and enhance your wisdom.
24. Be Holistic and enhance your richness.
25. Be Holistic and have tranquility of mind.
26. Be Holistic and have perfect lifestyle.
27. Be Holistic and get rid of anger.
28. Be Holistic and get rid of lust.
29. Be Holistic and get rid of jealousy.
30. Be Holistic and get rid of arrogance.
31. Be Holistic and get rid of hatredness.
32. Be Holistic and get rid of lurking grief.
33. Be Holistic and enhance your potentials.
34. Be Holistic and get rid of vindictiveness.
35. Be Holistic and enhance your vengenance.
36. Be Holistic and become more tolerant.
37. Be Holistic and be truthful.
38. Be Holistic and be honest.
39. Be Holistic and get rid of bigotry.
40. Be Holistic and be a perfect being.
41. Be Holistic and enjoy the gift of life.
42. Be Holistic and experience heaven here.
43. Be Holistic and get rid of negative emotions.
44. Be Holistic and get rid of cyncism.
45. Be Holistic and nurture love and compassion.
46. Be Holistic and nurture altruism.
47. Be Holistic and have perfect environment within you and outside you.
48. Be Holistic and have perfect sleep.
49. Be Holistic and perfect digestion.
50. Be Holistic and be in the present moment.
51. Be Holistic and have perfect time management.
52. Be Holistic and have perfect self management.
53. Be Holistic and have perfect organisational management.
54. Be Holistic and have perfect family management
55. Be Holistic and have perfect society, community, corporate and national management.
56. Be Holistic and have perfect world management.
57. Be Holistic and be selfless.
58. Be Holistic and be hopeful.
59. Be Holistic and be creative
60. Be Holistic and get rid of irritability.
61. Be Holistic and get rid of hostility.
62. Be Holistic and have contentment.
63. Be Holistic and have humility.
64. Be Holistic and experience divinity, eternity.
65. Be Holistic and be flexible.
66. Be Holistic and be simple.
67. Be Holistic and be polite.
68. Be Holistic and be new.
69. Be Holistic and equipoise.
70. Be Holistic and be intuitive.
71. Be Holistic and be kind.
72. Be Holistic and have perfect will power.
73. Be Holistic and have perfect knowledge.
74. Be Holistic and be humours.
75. Be Holistic and be strong.
76. Be Holistic and have faith.
77. Be Holistic and be in harmony.
78. Be Holistic and be a master.
79. Be Holistic and experience the treasure of silence within you.
80. Be Holistic and be healthy, physically, mentally, socially, psychologically and emotionally.

We are fulfilling the theme of World Heart Day "Team up for Healthy Hearts" by organizing a mammoth event World Congress on Clinical and Preventive Cardiolology for more than fifteen hundred doctors from India and abroad on Sept 28-29, 2007 and a World Public Conference on 3D Heart Care for more than five thousand eminent persons from different walks of life, organizing "Walk for Healthy Heart" on Sept. 30, 2007 at Brahma Kumaris Shantivan, Abu Road, Rajasthan, India.



CARDIAC RESYNCHRONIZATION THERAPY FOR HEART FAILURE

DR. T. S. KLER, DR. APARNA JASWAL
Executive Director, Cardiac Sciences
ESCHORTS Heart Institute & Research Centre, New Delhi

The syndrome of congestive heart failure is responsible for substantial morbidity and morality. Patients with heart failure have shortness of breath and a limited capacity for exercise, have high rates of hospitalization and rehospitalization, and die prematurely. The primary mode of therapy for this syndrome is based on antagonism of neurohormonal pathways activated in the failing cardiovascular system. Drugs that antagonize these pathways decrease mortality and morbidity and in some cases improve the underlying structural abnormalities of the heart, a process termed "reverse remodeling". On the basis of a large number of clinical trials, a regimen comprising up to six classes of drugs has become the cornerstone of therapy of heart failure. Mechanical support with left ventricular assist devices and heart transplantation are reserved for the minority of patients who have severely decompensated heart failure. Despite these therapeutic advances, it is generally accepted that current therapies do not adequately address the clinical need of patients with heart failure, and additional strategies are being developed.

Cardiac Dyssynchrony and the Rationale for Resynchronization

The heart relies on a coordinated sequence of electrical impulse generation and conduction that allows repeated filling and emptying of the atria and ventricles. Cardiac electrical activity depends on the integrity of the sinoatrial node, the atrioventricular node, and the specialized conducting tissue of the His-Purkinje system. In approximately 30% of patients who have CHF; aberrant electrical conduction is noted on surface electrocardiogram as QRS prolongation of 120 ms or greater. The delay in ventricular electrical activation causes abnormal ventricular contraction, termed dyssynchrony. In the setting of CHF, the consequences of this electromechanical abnormality are abnormal ventricular filling, reduction in the left systolic output, and worsening of mitral regurgitation. Several studies have shown that intraventricular conduction delay is an independent risk factor for mortality in heart failure.

The aim of Cardiac Resynchronization Therapy (CRT) is to improve electromechanical coupling in the heart by generating a more efficient sequence of impulse generation and conduction. CRT involves atrial synchronized biventricular pacing. The immediate hemodynamic benefits of the procedure include improved diastolic filling and more efficient systolic contractility. Mortality from CHF is a result of either progressive pump failure or sudden death caused by arrhythmia. CRT can slow the progression of pump failure and, when combined with an implantable cardioverter defibrillator (ICD), prevent sudden cardiac death.

Technique

Dual chamber pacing is accomplished by placing pacing wires in the right atrium and right ventricular using subclavian or cephalic vein access. In CRT, an additional wire is inserted via the right atrium through the coronary sinus into a cardiac vein on the lateral wall of the left ventricle. The left ventricular lead can also be placed surgically via thoracotomy or laparoscopic thoacostomy. Left ventricular lead placement is technically difficult; however, the complication rate has dramatically decreased as experience with this procedure has increased. The presence of a pacemaker lead in the left ventricular free wall allows for simultaneously pacing of both ventricles and more physiologic atrioventricular timing. The result is more effective left ventricular contraction and improvement in stroke output.

Indications

Eligibility criteria for treatment with CRT are adapted from published studies. Briefly the two most important criteria are severe symptomatic heart failure despite optimal medical therapy, and QRS prolongation.

Table 1. Indications for Cardiac Resynchronization Therapy

- New York Heart Association (NYHA) functional class III or IV heart failure despite optimal medical therapy.
- QRS duration greater than 120 ms
- Systolic heart failure with ejection fraction less then 35%
- Left ventricular end-diastolic dimension greater than 55 mm

The major limitation of all trials was that they used only the QRS width, i.e., an electrical parameter, as a parameter to assess left ventricular dyssynchrony although it is the mechanical dyssynchrony, which is the main correctable cause of reduced pump function in these patients. The correlation between electrical and mechanical dyssynchrony is weak. This is underscored by data showing that despite the dependence of the acute hemodynamic improvement to CRT on baseline QRS width shortening of the QRS complex is not correlated to the hemodynamic effect, especially in LV pacing. In addition, baseline QRS width in the MIRACLE trial did not appear to correlate well to clinical improvement. Therefore, it must be assumed that it is not only the width of the QRS complex alone but also they type of conduction delay that influences the mechanical dyssynchrony which is the true cause of in-efficient systolic left ventricular contraction in these hearts.

Methods For Assessing Left Ventricular Dyssynchrony

There are principally two methods that have been used in clinical studies for assessing left ventricular

dyssynchrony: magnetic resonance imaging (MRI) and echocardiography. Early experimental data suggest that cardiac MRI may be a suitable tool for quantifying systolic contractile dyssynchrony. However, whereas cardiac MRI may be regarded as the gold standard for assessing left ventricular wall motion, it is expensive, not generally available and cannot be repeatedly performed in patients with an implanted device. Thus the assessment of left ventricular mechanical dyssynchrony and its correction by CRT has emerged as an intense area of research for echocardiography.

Table 2: Echocardiographic Parameters for assessment of Left Ventricular Dyssynchrony

Table 2. summarizes the echocardiographic methods that have been described in the literature for characterization and quantification of left ventricular mechanical dyssynchrony. According to the imaging modality used, the parameters used in the assessment of left ventricular dyssynchrony may be classified into parameters derived from M-mode, conventional Doppler, two-dimensional echocardiography and tissue Doppler Imaging (TDI).

Technique	Measured Parameter	Predicted response
M-mode	Septal to posterior wall motion delay	EF, LV size
Conventional Doppler	Interventricular mechanical delay LV pre-ejection delay (onset of QRS- onset of aortic flow)	EF, LV size N.A.
2 D echocardiography	Quantification of septal to lateral wall motion delay	Increase in +dp/dt
Tissue Doppler	Percentage basal LV with systolic longitudinal contraction standard deviation of the time to peak systolic contraction of 12 left ventricular segments.	EF EF, LV size

The role of Cardiac Resynchronization Therapy (CRT) without an ICD in reducing mortality from heart failure is still unresolved. A recent meta-analysis from a randomized trials using CRT alone (2 trials) and CRT-ICD (2 trials) suggests that cardiac resynchronization reduces mortality from progressive heart failure by 51%. Although CRT alone clearly improves symptoms of heart failure, the addition of a defibrillator appears to confer significant improvement in survival. The Comparison of Medical Therapy, Pacing, and Defibrillation in Heart Failure (COMPANION) trial enrolled patients to medical therapy, medical therapy plus CRT, and medical therapy plus CRT-ICD. This study, the first to directly compare CRT and CRT-ICD in patients without established criteria for defibrillator therapy, confirmed that the addition of a defibrillator to CRT has a significant impact on reducing heart failure-related mortality.

CRT represents an important adjunct to existing medical therapies, and patients in reported trials were continued on angiotensin converting enzyme inhibitors/angiotensin receptor blockers, B-blockers, diuretic agents, and aldosterone antagonists as appropriate.

Limitations

The most important limitation of CRT as a modality of treatment for CHF is a relatively high nonresponder rate. Lack of response to CRT is explained by suboptimal patient selection and technical questions relating to placement of the left ventricular lead as well as timing of the atrioventricular interval delay. Several studies have suggested that Tissue Doppler and magnetic resonance imaging may be superior to QRS prolongation as a marker of cardiac dyssynchrony. Further experience in patient selection, lead placement, and pacemaker programming will hopefully maximize patient benefit from CRT and reduce complications.

Complications

Complications of CRT are shown in **Table 3**

Table 3: Complications of Cardiac Resynchronization therapy in Patients with Heart Failure

In a recent multicenter trial (the Multicenter InSync ICD Randomized Clinical Evaluation (MIRACLE ICD) trial involving more than 400 patient, the overall complication rate was approximately 28%; however, most complications were minor and no mortality was reported.

omplication	Incidence (%)
Lead placement failure	11
Coronary Sinus Dissection	3
Lead Dislodgement	1.6
Ventricular tachycardia/fibrillation	1
Cardiac perforation	0.8
Heart Block	0.7
Pericardial effusion	0.5

Failure of lead placement was the most frequent complication, and cardiac perforation and coronary sinus dissection were the most serious adverse events. Complication rates appear to be lowest in centers where the procedures are frequently performed and where the physicians have a large number of patients.

Conclusion

Over the last 10 years, the rate of hospitalization for CHF has increased by more than 150%. This trend will most likely continue because of an aging population and increased survival after acute myocardial infarction. Currently, an estimated 10% of patients with CHF are eligible for CRT: these patients have a low ejection fraction, evidence of dyssynchrony, and severe symptoms of CHF despite optimal medical therapy. For a treatment modality that is free of compliance issues and appears to be well tolerated, CRT should be considered for all patients who have advanced CHF and meet existing criteria.

In patients with CHF, CRT has the potential to improve exercise capacity and patient well being, reduce rehospitaliation, and most likely, reduce mortality. When combined with an ICD, CRT also reduces the risk of sudden arrhythmic death. Several ongoing large randomized trials will shed more light on patient selection, technical issues of lead placement, role of CRT in atrial

IMPACT OF CARDIAC REHABILITATION ON QUALITY OF LIFE IN INDIAN CARDIAC PATIENTS

Kirti Nigalye, Stephen Fallows, Mike Morris & Kevin Sykes
Centre for Exercise & Nutrition Science,
University of Chester
Chester, CH1 4BJ, England

- ***Background:*** Previous studies have evaluated the individual effects of coronary heart disease (CHD), diabetes mellitus and obesity on health related quality of life outcomes. Due to the rising incidence of these co-morbid conditions, it is important to study the impact of cardiac rehabilitation on quality of life on those with combinations of these conditions.

- ***Objective:*** The purpose of this was to determine the impact of four weeks of cardiac rehabilitation on patients with either myocardial infarction (MI) or who had undergone coronary artery bypass graft (CABG) in an Indian population.

- ***Subjects:*** The study was conducted in Asian Heart Institute, a Mumbai based hospital. 100 patients participated, 73 males and 27 females aged between 40-60 years. The mean age for males was 53.97 ± 4.56 and mean age for females was 55.63 ± 4.49. At baseline the mean height of the participants was 1.63 ± 0.09m. Of the 100 participants 32 participants were identified as Type 2 diabetic patients, 34 as obese patients and 34 participants were both Type 2 diabetic and obese.

- ***Methods:*** A general assessment questionnaire and a generic Short Form-36 (SF-36) questionnaire was used pre and post cardiac rehabilitation programme to test the potential effect of cardiac rehabilitation on quality of life. A multivariate analysis was performed to examine the eight scales of SF-36 and two summary measures of physical (PCS) and mental (MCS) components.

- ***Results:*** All the four groups i.e. diabetic, obese, diabetic and obese & control had similar baseline characteristics, but the mean pre weight was 82.60 ± 14.91 kg and the mean post weight was 79.69 ± 12.97 kg. While the mean body mass index (BMI) pre and post was 31.18± 6.35 kg/m2 and 29.42 ± 5.40 kg/m2 respectively. Over quality of life measures significant difference ($p<0.01$) between four groups were found in physical function, role function, vitality, social function, role emotional, general and mental health. Also a significant difference ($p<0.1$) was observed between physical and mental component summary. However mental health, mental component summary and general health showed strong differences pre and post cardiac rehabilitation for all groups and bodily pain showed the least differences pre and post cardiac rehabilitation.

- ***Conclusion:*** This study provides information about impact of cardiac rehabilitation on quality of life in Indian population. But there is still need of researching the pathological and physiological effects of cardiac rehabilitation and focusing the need of cardiac rehabilitation on patients with coronary heart disease (CHD). Continued research on identifying patients with chronic conditions and providing cardiac rehabilitation as primary prevention would benefit in reducing further morbidity and mortality in such patients and also ensure a better quality of life.

Your best friend and your worst enemy is your way of thinking.

THE ROLE OF PSYCHOLOGICAL STRESSORS IN PATHOGENESIS OF CORONARY ATHEROSCLEROSIS AND CORONARY EVENTS

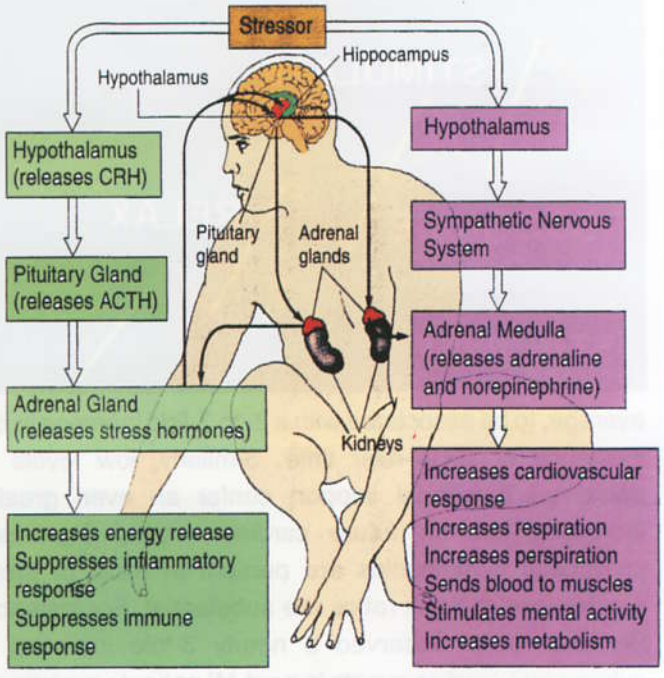
Vinod Kumar Gupta
MD, FACC Interventional Cardiologist
Chief of Cardiology, The Heart Center, Bakersfield, California
Director, Cardiac Cath Laboratory, San J Hospital, Bakersfield, California
President, American Heart Association, Kern Chapter, California

Heart disease is the number one killer in America and the developed world including India. Although the importance of psychosocial factors in the development and expression of coronary artery disease (CAD) has been debated, recent literature now establishes that psychosocial factors contribute significantly to the pathogenesis of CAD. However, because the literature relating psychosocial factors to CAD is multidisciplinary, there may be an under appreciation of the strength of some of the epidemiological and patho-physiological observations that have been reported.

We will review the relationship between psychosocial stress and CAD development, with emphasis on the following psychosocial factors:

(1) Depression
(2) Anxiety
(3) Social isolation
(4) Chronic and sub-acute life stress

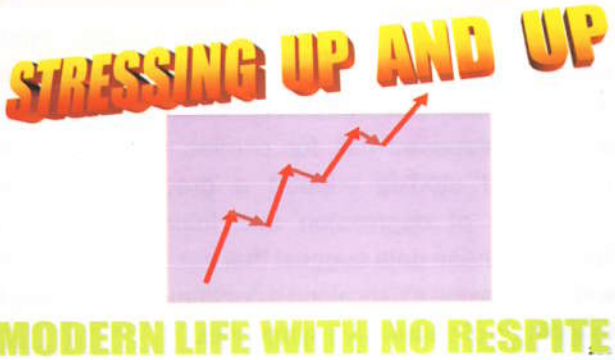
Although these domains can overlap, epidemiological data for each domain will be reviewed separately, emphasizing studies that have used the "hard" cardiovascular end points of myocardial infarction and cardiac death as outcome variables. The implications of these findings relative to the prevention and treatment of CAD will be discussed.



How does psychosocial stress contribute to heart disease?

Let us look at an example. When we are faced with great stress like a tiger, we respond with the fight or flight reaction. For this, as illustrated here, God has provided us with tools of stress hormones like adrenaline and nor-adrenaline. To fight or flight, we need stronger muscles in our body and legs. For this, we need more energy provided by higher level of blood sugar, higher level of blood circulation (provided by higher heart rate and blood pressure), higher level of oxygen (and thus higher respiratory rate).

With tiger we either face it or run and then the



stress is over. With modern society the stress becomes chronic, as for example when we deal with an angry boss all day, and then traffic and then 2nd shift, etc. the stress really never goes away. This reaction becomes maladaptive when it becomes chronic and our body is used to a higher level of blood sugar (ie., Diabetes), higher level of blood pressure (Hypertension) and higher respiratory rate and thus chronic psycho-somatic disorders.

This neuro-hormonal response of our body is thru ANS (automatic nervous system)Two Parts to the ANS: It all happens automatically!

1. **Sympathetic** NS - Stress Response (helps us respond to the stress)
2. **Parasympathetic** NS Relaxation Response (helps us recover from the stress)

We need more of parasympathetic and less of sympathetic responses to achieve a peaceful mind and body.
Let us now examine some of the major psychostressors:

Episodes of major depression are characterized by the presence of a depressed mood and markedly decreased interest in all activities, persisting for at least 2 weeks and accompanied by at least 4 of the following additional symptoms: changes in appetite, sleep disturbance, fatigue, psychomotor retardation or agitation, feelings of guilt or worthlessness, problems concentrating, and suicidal thoughts. Although community based occurrence of depression is around 5% that number increases to around 15% for those with some form of CAD. Recent epidemiological studies evaluating the relationship between depression and CAD among healthy and CAD populations consistently demonstrate a significant prospective relationship between the occurrence of major depression episodes and the incidence of cardiac events.

Two additional findings are notable. First, the presence of depressive symptoms, in the absence of diagnosed major depression episodes, is also associated with an increased risk for cardiac events. Second, a number of studies support a gradient between the magnitude of depression and future cardiac events. Together, these data suggest that risk for CAD associated with depression exists along a continuum, according to the magnitude of depressive symptoms.

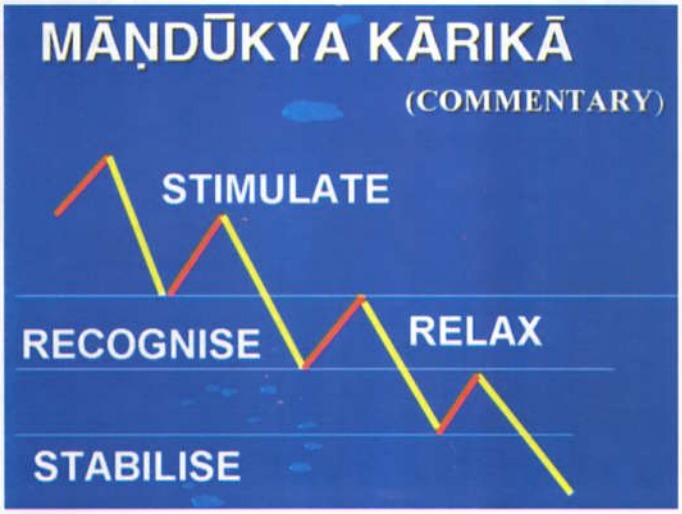
One particular aspect of depression, the absence of hope, has received particular attention. **Hopelessness has been linked to sudden death**, both in observational studies and in animal models of hopelessness. Recently, prospective epidemiological studies have also reported a relationship between symptoms of hopelessness and the development of CAD. In one study, for example, a "yes" answer to the question "(During the last month) have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?" more than doubled the risk of CAD.

A study looked at whether anger increased risk of heart attacks. They tracked 1623 heart patients. They looked at "What happened the two hours before your MI?" and found that anger increased risk of MI by 230%.

Until recently, evidence linking anxiety to CAD was limited to demonstrations of elevated mortality rates among psychiatric patients with anxiety disorders. Increasing evidence now links anxiety disorders to development of cardiac events in general populations. Most notably, 3 large-scale community-based studies, including one involving 34,000 men, have now reported a significant relationship between anxiety disorders and cardiac death.

Since the late 1970s, a series of prospective community-based studies have examined the influence of social factors on the development of CAD. Initial studies focused on quantitative aspects of social support, such as the presence of family affiliations, number of friends, and the extent of one's participation in group and organizational activities. This domain of measurement has been called one's "social network." Within this domain, some studies evaluated the influence of partner status (living alone, marital status, and/or marital disruption), and others have assessed aspects of "instrumental" (ie, tangible) support, such as access to guidance and practical community services. Over time, however, the qualitative nature of one's social support system (eg, amount of perceived emotional support) has also been increasingly subject to study.

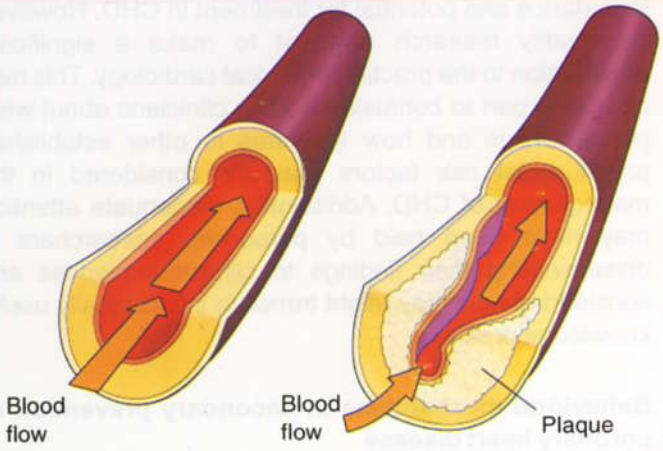
A relatively small network has been found, on



average, to be associated with a 2- to 3-fold increase in the incidence of CAD over time. Similarly, low levels of perceived emotional support confer an even greater increased risk for future cardiac events. Significant prognostic relationships are present in most of these studies, and the risk ratios are substantial. For instance, Berkman et al observed a nearly 3-fold increase in subsequent cardiac events in post-MI patients reporting a

low level of emotional support, and Williams et al observed a similar 3-fold increase in mortality over 5 years among CAD patients who were unmarried or had no significant confidant in their life.

Work-related stress is the most widely studied chronic life stress relative to CAD. Although many aspects of one's work environment relative to the development of CAD have been studied, much interest has focused on models of inherent "tension" at work. One such model has been the "job strain" model, defined by Karasek et al as jobs with high demand but low decision latitude. In one prospective study of 1928 male workers followed up for 6 years, job strain was associated with a 4-fold increase in the risk of cardiovascular systemrelated death.



Solutions:

We have to reverse the cycle of stress related increase in neuro-hormonal imbalance. The parasympathetic nervous system (PNS) needs to be stimulated and have a control over sympathetic nervous system. But since these systems are automatic, we don't have a control over these so we have to go deeper and deeper and practice over mind and thus a control can be achieved.

In a recent study; "Retardation of coronary atherosclerosis with yoga lifestyle intervention" featured in Journal of the Association of Physicians of India, Yoga effects were evaluated on retardation of coronary atherosclerotic disease. In this prospective, randomized, controlled trial, 42 men with angiographically proven coronary artery disease (CAD) were randomized to control (n = 21) and yoga intervention group (n = 21) and were followed for one year. The active group was treated with a user-friendly program consisting of yoga, control of risk factors, diet control and moderate aerobic exercise. The control group was managed by conventional methods i.e. risk factor control and American Heart Association step I diet. At one year, the yoga groups showed significant reduction in number of anginal episodes per week, improved exercise capacity and decrease in body weight. Serum total cholesterol, LDL cholesterol and triglyceride levels also showed greater reductions as compared with the control group. Revascularisation procedures (coronary angioplasty or bypass surgery) were less frequently required in the yoga group. Coronary of an interdisciplinary nature. By encouraging research and collaboration that span across disciplines, the future development of interventions for angiography repeated at one year showed that significantly more lesions regressed (20% versus 2%) and less lesions progressed (5% versus 37%) in the yoga group. Compliance with the program was excellent and no side effects were observed.

The following image represents coronary atherosclerosis:

In the real world, biobehavioral interventions are not undertaken in the absence of other medical regimens. Thus, a useful practical design for future studies is one that incorporates effective medical treatment (eg, lipid-lowering therapy) and conventional lifestyle modifications (eg, dietary recommendations) with stress reduction techniques such as Yoga and meditation in all patients.
Most techniques effect the PNS. eg.,
Gentle stretching decreases muscle tension;
Deep relaxation activates the PNS; improvement in immune function through repair and restoration;

Breathing techniques- help increase the lung capacity and improve oxygenation abdominal breathing quick and easy way to manage stress and activate the PNS any where and anytime reverse the effects of stress.,
Guided imagery positive imagery has a positive effect on the physiology;

Meditation increased awareness and focus shown to have an effect on the physiology- PNS effect.
Other examples: Body can't distinguish between something actually happening and imaging that something is happening LEMON or WORRY (the most common form of imagery) OR image one hand in one water vessels will constrict and cold water they constrict and that relates directly to your heart.

Scientists from a wide variety of backgrounds have contributed to the observations noted in this article. The American Heart Association and American College of Cardiology have tremendous potential for spurring more formal communication and cooperation psychosocial risk factors could derive the synergistic benefit represented by the maxim "the whole is greater than the sum of its parts."

ROLE OF PERSONALITY IN CORONARY HEART DISEASE : IMPLICATIONS FOR BEHAVIORAL CARDIOLOGY

Gerard J. Molloy
University College, Psychobiology Group,
Department of Epidemeology & Public Health
Torrington Place, London, UK

Psychologists make the temporal distinction between traits and states in describing psychological phenomena. Traits refer to enduring psychological characteristics of an individual in terms of their action, emotion and thought. The combination of these characteristics constitutes an individual's personality. States refer to transient psychological experiences such as anxiety or happiness. The current consensus is that there are five broad personality dimensions. These are extraversion versus introversion, neuroticism versus emotional stability, conscientiousness versus unreliability, agreeableness versus antagonism and openness to experience versus closed mindedness. Personality traits have been associated with a range of physical, psychological and social outcomes with moderate consistency. In the case of coronary heart disease (CHD), personality has been linked to both physiological responses and health and illness behaviors, and there is some evidence for the independence of these mechanisms. This work has demonstrated plausible biological and behavioral mechanisms underpinning the observed associations between personality and health outcomes in CHD. The use of patient personality data in clinical cardiology, however, has yet to be established.

Why is it important?

How can understanding personality help cardiologists improve the treatment of their patients? This is the question that needs to be answered by any area of personality research hoping to get the attention of practising cardiologists. Researchers in this area often point to the fact that it was a team of cardiologists that was largely responsible for laying the foundation for over four decades of research into the role of personality in CHD. The formulation of type A behavior pattern (TABP) was mainly in response to clinical observations of CHD patients behavior during consultation by US cardiologists Meyer Friedman and Ray Rosenman. TABP was characterized by hostility, impatience, competitiveness and dominance. Although the concept was responsible for initiating the development of a systematic body of work looking at the links between personality and health outcomes in CHD, and some early research detected hypothesized associations with CHD morbidity and mortality, subsequent studies did not confirm that TABP was reliably linked to CHD. Nevertheless in the Recurrent Coronary Prevention Project, a randomized controlled trial of a TABP behavior-health outcomes in CHD, and some early research detected hypothesized associations with CHD morbidity and mortality, subsequent studies did not confirm that TABP was reliably linked to CHD. Nevertheless in the Recurrent Coronary Prevention Project, a randomized controlled trial of a TABP behavior-change intervention, the intervention reduced overt type A behaviors and also reduced the rate of recurrent coronary events by nearly 50%. Further analysis demonstrated that among patients with a mild previous infarction, the behavior change intervention reduced the occurrence of cardiac death. These compelling results indicated that changing the overt pathogenic behaviors associated with particular personality types may have considerable importance and potential for treatment in CHD. However, personality research has yet to make a significant contribution to the practice of clinical cardiology. This may be due in part to confusion among clinicians about what personality is and how it relates to other established psychosocial risk factors that are considered in the management of CHD. Additionally, inadequate attention may have been paid by personality researchers in disseminating their findings to clinical audiences and considering how they might translate into clinically useful knowledge or skills.

Behavioral mechanisms in secondary prevention of coronary heart disease

A focus on the behavioral mechanisms may offer a particularly promising avenue for future personality research aiming to influence clinical practice for a number of reasons. First, personality by definition cannot be easily changed itself to any significant degree. Second, there are a range of behavioral-change techniques that have been developed and used with some success to change specific behaviors relating to CHD, for example, planning for physical activity and self-monitoring of blood pressure to manage hypertension. These simple behavioral-change techniques can be used by those involved in the treatment of CHD patients to encourage patient self-management of CHD. This approach would allow both a scientific and practice agenda for personality research to be addressed simultaneously. Third, after acute clinical intervention, symptom stabilization and discharge, CHD patient's health outcomes are largely determined by appropriate secondary prevention and self-management behavior in the community. Patients must adhere to increasingly complex regimens of medication, initiate and maintain appropriate levels of regular physical activity to promote health and in many cases resume productive economic

activity. Achieving these behavioral goals may be more or less likely for particular personality types. Understanding how personality relates to achieving these benchmarks in the recovery process can help cardiologists to more accurately assess risk of poor self-management and consequent morbidity.

Future perspective: personality & behavioral cardiology

In response to the strong evidence demonstrating that adverse lifestyle behaviors, self-management behavior, emotional factors and chronic stress can promote atherosclerosis and adverse cardiac events, behavioral cardiology has gained some recent prominence. Behavioral cardiology involves incorporating these factors into the practice of cardiology and attempting to modify these factors to enhance patient outcomes. While the use of personality data has not figured widely in recent discussions about behavioral cardiology, future studies should examine the relevance of personality data for this approach to clinical practice. If personality data can predict which patients may be more likely to engage in adverse lifestyle behaviors, have poorer self-management, experience emotional distress, have low social support and chronic family or work stress, then cardiologists could quickly identify those patients that may be at risk and facilitate the modification of these risk factors. The development of the type D or the distressed personality type may be a step in the right direction as this personality type aims to identify patients that are both prone to experiencing negative affect and who are socially inhibited. These two factors appear to act synergistically in predicting CHD morbidity. Recent work has linked this personality type to the consultation behavior of patients with heart failure. This study demonstrated that heart failure patients with type D personality experienced more cardiac symptoms and more often appraised these symptoms as worrisome compared with patients with a non type D personality. Paradoxically, patients with a type D personality were less likely to report these symptoms to their cardiologist or nurse. Seeking appropriate medical attention following symptom onset is critical for the successful management of conditions related to CHD. If patients with type D personality are less likely to get a consultation, then knowledge of type D status may be of use to the cardiologist in assessing risk of adverse outcomes. This linking of personality types with potentially modifiable adverse patient behaviors makes a strong case for the role of personality in the clinical management of CHD.

Conclusion

Future work investigating the links between personality and coronary heart disease will have to demonstrate that gathering personality data is an efficient way of capturing most of the well-established modifiable psychosocial risk information. While personality may explain risk that extends beyond these factors, it is unclear what cardiologists can do to reduce this extra risk. It is likely that cardiologists embracing behavioral cardiology will opt to use more conventional direct means of gathering psychosocial risk information than personality tests, unless the data becomes overwhelming such that personality predicts significant risk that extends beyond adverse lifestyle behaviors, self-management behavior, emotional factors, low social support and chronic stress.

Financial disclosure

The authors have no relevant financial interests including employment, consultancies, honoraria, stock ownership

Bibliography

1. Ozer DJ, Benet-Martinez V: Personality and the prediction of consequential outcomes. *Annu. Rev. Psychol.* 57, 401421 (2006).
2. Smith TW, MacKenzie J: Personality and risk of physical illness. *Annu. Rev. Clin. Psychol.* 2, 435467 (2006)
3. Smith TW, Ruiz JM: Psychosocial influences on the development and course of coronary heart disease: current status and implications for research and practice. *J. Consult. Clin. Psychol.* 70(3), 548568 (2002).
4. Friedman M, Rosenman RH: Association of a specific overt behaviour pattern with increases in blood cholesterol, blood clotting time, incidence of arcus senilis and clinical coronary artery disease. *JAMA* 169, 12861296 (1959).
5. Rozanski A, Blumenthal JA, Kaplan J: Impact of psychological factors on the pathogensis of cardiovascular disease and implications for therapy. *Circulation* 99(16), 21952217 (1999).

POWER OF SILENCE

Practice going into silence by packing up your thoughts from all directions and focusing on one powerful thought. Focus your mind on Truth the real self the embodiment of peace and purity. Even one second' experience of the power of silence will help you stay peaceful and efficient throughout the day.

SYMPTOMS OF DEPRESSION, ACUTE MYOCARDIAL INFARCTION, ANTI TOTAL MORTALITY IN A COMMUNITY SAMPLE

John C. Barefoot, PhD; **Marianne Schroll**, MD, DM Sc

(Circulation. 1 996; 93:1976 1980)

From the Behavioral Medicine Research Center, Duke University Medical Center, Durham, NC: the Institute of Preventive Medicine, Copenhagen (Denmark) Municipal Hospital (J.B.); and Glostrup Population Studies, Copenhagen County Hospital (M.S.), Glostrup, Denmark.

Background Depression has been shown to adversely affect the prognosis of patients with established coronary artery disease, but there is comparatively little evidence to document the role of depression in the initial development of coronary disease.

Methods and Results Study participants were 409 men and *321* women who were residents of Glostrup, Denmark, born in 1914. Physical and psychological examinations in 1964 and 1974 established their baseline risk factor and disease status and their level of depressive symptornatology. Initial myocardial infarction (MI) was observed in I 22 participants, and there were 290 deaths during follow-up, which ended in 1991. A 2-SD difference in depression score was associated with relative risks of 1.71 *(F*= .005) for MI and 1.59 *(P*< .001) for deaths from all causes. These findings were unchanged after we controlled for risk factors and signs of disease at baseline. There were no sex differences in effect sizes.

Conclusions High levels of depressive symptomatology are associated with increased risks of MI and mortality. The graded relationships between depression scores and risk, long-lasting nature of the effect, and stability of the depression measured across time suggest that this risk factor is best viewed as a continuous variable that represents a chronic psychological characteristic rather than a discrete and episodic psychiatric condition.

Key Words: depression * epidemiology * mortality * myocardial infarction * risk factors

GENDER, DEPRESSION, AND ONE-YEAR PROGNOSIS AFTER MYOCARDIAL INFARCTION

Nancy Frasure-Smith, Phd, **Francois Lespirance**, MD,
Martin Juneau, MD, **Mario Talajic**, MD, and **Martial G. Bourassa**, MD

Objective: The purpose of this study was to assess gender differences in the impact of depression on 1-year cardiac mortality in patients hospitalized for an acute myocardial infarction (MI).

Methods: Secondary analysis was performed on data from two studies that used the Beck Depression Inventory (BDI) to assess depression symptoms during hospitalization: a prospective study of post-MI risk and a randomized trial of psychosocial intervention (control group only). The sample included 896 patients (283 women) who survived to discharge and received usual posthospital care. Multivariate logistic regression analysis was used to assess the risk of 1-year cardiac mortality associated with baseline BDI scores.

Results: There were 290 patients (133 women) with BDI scores >=10 (at least mild to moderate symptoms of depression); 8.3% of the depressed women died of cardiac causes in contrast to 2.7% of the nondepressed. For depressed men, the rate of cardiac death was 7:0% in contrast to 2.4% of the nondepressed. Increased BDI scores were significantly related to cardiac mortality for both genders [the odds ratio for women was 3.29 (95% confidence interval (CI) = 1.02-10.59); for men, the odds ratio was 3.05 (95% CI = 1.29-7.17)]. Control for other multivariate predictors of mortality in the data set (age, Killip class, the interactions of gender by non-Q wave MI, gender by left ventricular ejection fraction, and gender by smoking) did not change the impact of the BDI for either gender.

Conclusions: Depression in hospital after MI is a significant predictor of 1-year cardiac mortality for women as well as for men, and its impact is largely independent of other post-MI risks.

Key words: depression, myocardial infarction, women, prognosis.

Rain on dry land is an extraordinary thing. Is it not?
It washes away the leaves clean, the earth is refreshed.
And I think we all ought to wash our minds completely clean,
as the trees are washed by the rain, because they are so heavily laden
with the dust of many centuries, the dust of what we call worldly knowledge,
experience. If you and I would cleanse the mind every day, free it of yesterday's
reminiscences, each one of us would then have a fresh mind capable of
dealing with the many problems of existence.

-J. Krishnamurti

PROSPECTIVE STUDY OF A SELF-REPORT TYPE A SCALE AND RISK OF CORONARY HEART DISEASE

(*Circulation.* 1998;98:405.)

Test of the MMPI-2 Type A Scale

Ichiro Kawachi, MD **David Sparrow**, DSc; **Laura D. Kuhzansky**, PhD; **Avron Spiro**, III, PhD; **Pantel S. Vokonas**, MD; **Scott T. Weiss**. MD, MS

Background -- Several methods exist by which to assess type A behavior (TAB). Although the videotaped clinical interview is regarded as the "gold standard," self- report measures have also proved useful in assessing TAB in large population studies. The purpose of this study was to examine prospectively the relationship of TAB to risk of coronary heart disease (CHD) incidence with the use of the revised Minnesota Multiphasic Personality Inventory (MMPI-2) Type A Scale. To the best of our knowledge, this is the first test of this scale in the context of predicting CHD incidence.

Methods and Results-- The study was performed in the VA Normative Aging Study, an ongoing cohort of older (mean age, 61 years) community-dwelling men. A total of 1305 men who were free of diagnosed CHD in 1986 completed the MMPI-2 Type A Scale. During an average 7.0 years of follow-up, 110 cases of incident CHD occurred. Compared with men in the lowest quartile of type A scores, men in the highest quartile had multivariate adjusted relative risks of 2.86 *(95%* CI, 1.19 to 6.89; *P* for trend=O.016) for combined CHD death and nonfatal myocardial infarction (MI) and 2.30 *(95%* CI, 1.32 to 4.01; *P* for trend=0.O01) for combined CHD death/nonfatal MI plus angina pectoris. The relationship of TAB to CHD was independent of measures of anger and cynicism.

Conclusions-- The MMPI-2 Type A Scale predicts CHD incidence. Further research is warranted to examine the correlation, if any, between this scale and the videotaped clinical interview.

IS WORRYING BAD FOR YOUR HEART? A PROSPECTIVE STUDY OF WORRY AND CORONARY HEART DISEASE IN THE NORMATIVE AGING STUDY

Laura .D. Kubzansky, PhD **Ichiro Kawachi**, MD **Avron Spiro**, Iii, PhD; **Scott I Weiss**, MD, MS; **Pantel S. Vokonas**, MD **David Sparrow**, DSc

(Circu1ation. 1997;95:818-824.)

Background-- Worry is an important component of anxiety, which recent work suggests is related to increased incidence of coronary heart disease (CHD). Chronic worry has also been associated with decreased heart rate variability. We hypothesized that high levels of worry may increase CHD risk.

Method and Results--We examined prospectively the relationship of worry with CHD incidence in the Nornmative Aging Study, an ongoing cohort of older men. In 1975, 1759 men free of diagnosed CHD completed a Worries Scale, indicating the extent to which they worried about each of five worry domains: social conditions, health, financial, self-definition, and aging. During 20 years of follow-up, *323* cases of incident CHD occurred: 113 cases of nonfatal rnyocardial infarction (MI); 86 cases of fatal CHD; and .1 24 cases of angina pectoris. Worry about social conditions was the domain most strongly associated with incident CHD. Compared with men reporting the lowest levels of social conditions worry, men reporting the highest levels had multivariate adjusted relative risks of 2.41 (95% CI, 1.40 to 4.13) for nonfatal MI and 1.48(95% CI, 0.99 to 2.20) for total CHD (nonfatal MI and fatal CHD). A dose-response relation was found between level of worry and both nonfatal MI *(P* for trend, .002) and total CHD *(P* for trend, .04).

Conclusions-- These results suggest that high levels of worry in specific domains may increase the risk of CHD in older men.

TEAMWORK

Two entertainers who were out of work found themselves at the same table in a restaurant. After they had made their acquaintance, one of them said he had an idea. "Why don't we team up and present some variety entertainment program?" "Sounds fine," said the other, "What do you have in mind?" "Well. When the curtain rises, I come on stage and sing a few humorous songs. Then the curtain falls. When it rises again, I will regale the audience with jokes, then the curtain falls, and when it rises, I'll be there again to present a juggling act...? "Hey, stop there, where do I come in?'

Depressive Symptoms and Risks of Coronary Heart Disease and Mortality in Elderly Americans

Abraham A. Ariyo, MD, MPH **Mary Haan**, MPH, PhDa Catherine
M. Tangen, PhD **John C. Rutledge**, MD **Mary Cushman**, MD, MS **Adrian Dobs**, MD, MHSa
Curt D. Furberg, MD, PhD; for the Cardiovascular Health Study Collaborative Research Group
(Circulation 2000; 102; 1773-1779)

Background-Several epidemiological studies have associated depressive symptoms with cardiovascular disease. We investigated whether depressive symptoms constituted a risk for coronary heart disease (CHD) and total mortality among an apparently healthy elderly cohort.

Methods and Results-- In a prospective cohort of 5888 elderly Americans (65 years) who were enrolled in the Cardiovascular Health Study, 4493 participants who were free of cardiovascular disease at baseline provided annual information on their depressive status, which was assessed using the Depression Scale of the Center for Epiderniological Studies. These 4493 subjects were followed for 6 years for the development of CHD and mortality. The cumulative mean depression score was assessed for each participant up to the time of event (maximum 6-year follow-up). Using time-dependent proportional-hazards models, the unadjusted hazard ratio associated with every 5-unit increase in mean depression score for the development of CHD was 1.15 (P<O.006); the ratio for all-cause mortality was 1.29 (P<O.000 I). In multivariate analyses adjusted for age, race, sex, education, diabetes, hypertension, cigarette smoking, total cholesterol, triglyceride level, congestive heart failure, and physical inactivity, the hazard ratio for CHD was 1.15 (P=O.006) and that for all-cause mortality was 1.I 6 (P=0.006). Among participants with the highest cumulative mean depression scores, the risk of CHD increased by 40% and risk of death by 60% compared with those who had the lowest mean scores.

Conclusions-- Among elderly Americans, depressive symptoms constitute an independent risk factor for the development of CHD and total mortality.

MENTAL STRESS INDUCES PROLONGED ENDOTHELIAL DYSFUNCTION VIA ENDOTHEIIN-A RECEPTORS

Lukas E. Spieker, MD; **David Hurlirnann**, MD; **Frank Ruschitzka**, MD **Roberto Corti**, MD;
Frank Enseleit, MD **Sidney Shaw**, PhD; **Daniel Hayoz**, MD **John E. Deanfield**, MD
Thomas F. Luscher, MD; **Georg Noll**, MD
(Circulation. 2OO2; iO5:2817282O.)

Background-- Mental stress is a risk factor for atherosclerosis and may precipitate myocardial ischemia and infarction. Because endothelial dysfunction is an early manifestation of atherosclerosis, we investigated the impact of mental stress on endothelial function.

Methods *and Results*-- The effects of a 3-minute mental stress task on endothelium-dependent vasodilation were studied n healthy subjects without cardiovascular risk factors. Flow-mediated (FMD) and nitroglycerin (0.4 mg sublingual)-induced vasodilation were studied before and after mental stress by high-resolution ultrasound of the radial artery. Additionally, FMD was assessed before and 10 to 45 minutes after mental stress during intraarterial infusion of a selective endothelin A receptor antagonist (BQ-123, I nmol/rnin) or saline, respectively. Endothelium-dependent vasodilation was reduced by half for about *45* minutes (8.0± 1.1% versus 4. 1 ± I.0%; *P<0.002),* whereas endothelium-independent vasodilation to nitroglycerin remained unaffected (15.6± 1 .6 versus 14.3 ± 1.3%; NS). Intraarterial infusion of BQ-123, a selective endothelin-A receptor antagonist, but not saline prevented the impairment of endothelium-dependent vasodilation (8.6± 1.2 versus 9.4± 1 .3%; NS). In contrast, intraarterial infusion of nore pinephrifle of similar duration as mental stress did not inhibit FMD.

Conclusions -Menta1 stress induces prolonged endothelial dysfunction, which is prevented by selective endothelin-A receptor antagonism. This represents a novel and important link between mental stress and atherosclerotic vascular disease.

Your best friend and your worst enemy is your way of thinking.

Mind Body Medicine

Mind & Emotions -Body & Disease - Mind Therapy - Body Therapy

Rudolf Klimes,
Phd. (Indiana University), MPH (Johns Hopkin University),
Adjunct Prof. at Folsom Lake College, CA

"The mind steadfastly refuses to behave locally, as contemporary scientific evidence is beginning to show. We now know, for example, that brain like tissue is found throughout the body.... So, even from the conservative perspective of modern neurochemistry, it is difficult if not impossible to follow a strictly local view of the brain." Larry Dossey, MD

Mind/body medicine is based on the recognition of the relationship between mind and body, the body's innate healing potential, and the partnership of patient and healer in restoring the body to health.

Mind/body medicine is an approach to healing that uses the power of thoughts and emotions to influence physical health. As Hippocrates once wrote, "The natural healing force within each one of us is the greatest force in getting well." This is the essence of mind/body medicine.

While phrases such as "mind over matter" have been around for years, only recently have scientists found solid evidence that mind-body techniques actually do combat disease and promote health. In 1989, a landmark study by David Spiegel, M.D. at Stanford University School of Medicine dramatically demonstrated the power of the mind to heal. Of 86 women with late-stage breast cancer, half received standard medical care while the other half received the standard care plus weekly support sessions in which the women were able to share both their grief and their triumphs. Spiegel discovered that the women who participated in the social support group lived twice as long as the women who did not.

"A relaxed attitude lengthens life, jealousy rots it away." Proverbs 14:13, NLT

Mind and Body Medicine is the subject of the Mind/Body Medical Institute:

The Mind/Body Medical Institute is a non-profit scientific and educational organization dedicated to the study of mind/body interactions, including the relaxation response. The Institute will use its expertise to enhance the recognition and understanding of mind/body medicine's role in the practice of medicine, to foster and expand the uses of mind/ body interactions in healthcare and other appropriate settings, and thereby, to advance health and well-being throughout the world. It accomplishes these objectives in a variety of ways, including:

- documenting and furthering the understanding of the scientific bases of mind/body medicine, including the role of belief, and exploring their uses by conducting basic and clinical research, both independently and collaboratively,
- disseminating its knowledge and experience and the results of its findings through medical and general publications, lectures, symposia, continuing medical education programs and other appropriate media,
- quantifying the benefits and costs of mind/body programs,
- teaching medical students and training post-doctoral fellows and other researchers,
- training health care and other professionals and helping them integrate mind/body interactions into their work, and
- fostering the establishment of clinical and research programs in institutions that provide health care.

Note: The mind affects the body and the body affects the mind. Thus it may not be possible to clearly divide Mind and Body Medicine into mind therapy and body therapy. There is an overlap that makes it at times difficult. Thus the areas should be seen as a general aid for the presentation rather than a definite taxonomy.

1. Mind and Emotions

1.1 Positive Emotions and Feelings: joy, interest, contentment, optimism, love, serenity, enthusiasm, laughter, empathy, action, curiosity, etc.

1.2 Negative Emotions and Feelings: anger, fear, anxiety, alienation, hopelessness, apathy, grief, hatred, shame, blame, regret, resentment, hostility, etc.

Emotions Anonymous has been known to work miracles in the lives of many who suffer from problems as diverse as depression, anger, broken or strained relationships, grief, anxiety, low self-esteem, panic, abnormal fears, resentment, jealousy, guilt, despair, fatigue, tension, boredom, loneliness, withdrawal, obsessive and negative thinking, worry, compulsive behavior and a variety of other emotional issues.

1.3 Emotions and Disease.

This story begins as did so many other components of our culture, in Greek and Roman antiquity where medicine first emerged as a secular activity independent of religion. There Hippocrates (ca. 460 B.C.Bca. 370 B.C.) and his followers combined naturalistic craft knowledge with ancient science and philosophy to produce the first systematic explanations of the behavior of the human body in health and illness. Distant ancestors of modern biomedical scientists began to explore the solid and fluid parts of the human organism for keys to unlock the hidden mechanisms of disease. They made the first attempts to understand emotions as mental phenomena which had surprising and complex connections to physiological order and pathological disorder.

Early Western physicians recognized that emotions were of essential significance; however their medical systems were actually weighted more heavily on the body side of the mind-body balance. The dominant theory of Hippocrates and his successors was that of the four "humors": black bile, yellow bile, phlegm, and blood. When these humors were in balance, health prevailed; when they were out of balance or vitiated in some way, disease took over. The goal of an individual's personal hygiene was to keep the humors in balance, and the goal of medical therapy was to restore humoral equilibrium by adjusting diet, exercise, and the management of the body's evacuations (e.g.: the blood, urine, feces, perspiration, etc.). The bedside scene from Walter Ryff's *Spiegel und Regiment* and the diagram from Johannes de Ketham's *Fasciculus Medicinae,* although both from later periods, clearly illustrate these classical themes.

1.4 Coping with Negative emotions

Negative Emotions can be described as any feeling which causes you to be miserable and sad. These emotions make you dislike yourself and others, and take away your confidence.

Emotions which can become negative are hate, anger, jealousy and sadness. Yet, in the right context, these feelings are completely natural. Negative emotions can dampen our enthusiasm for life, depending on how long we let them affect us and the way we choose to express them.

Holding onto negative emotions causes a downward spiral

Negative emotions stop us from thinking and behaving rationally and seeing situations in their true perspective. When this occurs, we tend to see only we want to see and remember only what we want to remember. This only prolongs the anger or grief and prevents us from enjoying life.

The longer this goes on, the more entrenched the problem becomes. Dealing with negative emotions inappropriately can also be harmful - for example, expressing anger with violence.

Emotions are complex reactions

Emotions are psychological (what we think) and biological (what we feel). Our brain responds to our thoughts by releasing hormones and chemicals which send us into a state of arousal. All emotions come about in this way, whether positive or negative.

It is a complex process and often we don't have the skills to deal with negative feelings. That's why we find it hard to cope when we experience them.

How to deal with negative emotions

There are a number of coping strategies to deal with negative emotions. These include:

- Don't blow things out of proportion by going over them time and again in your mind.
- Try to be reasonable - accept that bad feelings are occasionally unavoidable and think of ways to make yourself feel better.
- Relax - use pleasant activities like reading, walking or talking to a friend.
- Learn - notice how grief, loss and anger make you feel and which events trigger those feelings so you can prepare in advance.
- Exercise - aerobic activity lowers your level of stress chemicals and allows you to cope better with negative emotions.

Let go of the past - constantly going over negative

events robs you of the present and makes you feel bad.

2. Body and Disease

2.1 Diseases of the heart, blood vessels, gut, immune system, etc

2.2 Stress reactions via the hypothelmus (CRH), pituarity glands (ACTH) and the adrenal glands (cortisol and epinephrine)

2.3 The stress response via mind or body real or imagined stimulation raises blood pressure, pulse, breathing rate and muscle tension.

2.4 The relaxation response lowers blood pressure, pulse, breathing rate and muscle tension.

2.5 Mind/Body Communication

Our thoughts and feelings influence the body via two kinds of mechanisms: the nervous system and the circulatory system. These are the pathways of communication between the brain and the rest of the body.

The brain reaches into the body via the nervous system. This allows it to send nerve impulses into all the body's tissues and influence their behavior. The brain can thus affect the behavior of the immune system with its nerve endings extending into the bone marrow (the birthplace of all white cells), the thymus, the spleen, and the lymph nodes.

It also reaches into all the glands of the endocrine system, all the bones, muscles, all the internal organs, and even the walls of veins and arteries. It can influence the behavior of the heart with its nerves penetrating the heart tissue, affecting heart rate and other aspects of the heart's functioning. The entire body is literally "wired" by the brain.

The brain is also a gland. It manufactures thousands of different kinds of chemicals and releases them into the bloodstream. These chemicals circulate throughout the body and influence the activity and behavior of all the body's tissues. The brain could be described as the ultimate apothecary, producing many more drugs than science has ever invented.

The cells of the body have receptors on their surfaces that function somewhat like satellite dishes. These receptors receive the chemical messages being released by the brain and respond accordingly.

Finally, the mind/body connection is a two-way street. In addition to sending messages into the body's tissues, it also receives feedback, both in the form of nerve impulses and its own receptors that sense what chemicals are being released by other tissues in the body.

Research into how the brain can influence immune responses has given rise to the new field called psycho-neuro-immunology (PNI). Findings in this field have brought great hope to people dealing with such difficult illnesses as cancer, AIDS, CFIDS (chronic fatigue immune dysfunction syndrome), and other immune-related diseases.

It is only a matter of time before similar acronyms are defined for other fields such as psycho-neuro-cardiology (PNC), the study of the mind-heart connection, or psycho-neuro-hematology (PNH), the study of how the mind can influence bloodrelated disorders, such as clotting problems in hemophilia.

3: Mind Therapy

3.1 Spiritual: Prayer, meditation, spirituality, music, humor, cheerfulness, biblio-therapy, forgiveness.

3.2 Positives: Guided imagery and visualization, positivism, cognitive behavioral therapy, journaling.

3.3 Eastern: Mindfulness, yoga, tai chi, qigong.

Yoga: Effect on Attention in Aging & Multiple Sclerosis,

National Center for Complementary and Alternative Medicine (NCCAM)

Purpose

Changes in visual attention are common among elders and people with multiple sclerosis. The visual attention changes contribute to difficulty with day to day functioning including falls, driving and even finding one's keys on the kitchen counter as well as contributing to deficits in other cognitive domains. Yoga emphasizes the ability to focus attention and there is some evidence that the practice of yoga may improve one's cognitive abilities. Additionally, yoga practice may improve cognitive function through other non-specific means such as improved mood, decreased stress or declines in oxidative injury. We propose a randomized, controlled 6 month phase II trial of yoga in two separate cohorts: healthy elders and subjects with mild multiple sclerosis. We will determine if yoga intervention produces improvements on a broad attentional battery that especially emphasizes attentional control. To further understand the reported beneficial effect of yoga on its practitioners, we will also determine if there is a positive impact on measures directly related to

yoga practice (flexibility and balance) as well as mood, quality of life and oxidative injury markers. The yoga intervention consists of a Hatha yoga class meeting twice per week. The class is taught by experienced yoga teachers who are supervised by a nationally known yoga instructor. There are two control groups. An exercise group will have a structured walking program prescribed by a certified Health and Fitness Instructor and Personal Trainer. The program will attempt to match the Hatha yoga class for metabolic demand. The second control group will be assigned to a 6 month waiting list. The outcome measures are assessed at baseline and after the 6 month period. The primary outcome measures are alertness (quantitative EEG and self-rated scale), ability to focus attention (Stroop) and ability to shift attention (extradimensional set shifting task). Secondary attention outcome measures include the ability to sustain attention (decrement in reaction time) and ability to divide attention (Useful Field of View). Other secondary outcome measures include flexibility, balance, mood, quality of life, fatigue (in MS cohort) and decreased markers of lipid, protein, and DNA oxidative injury.

3.4 Social: Relationships, support groups, talk therapy, connections, friendships.

3.5 Mind-Body Interventions for Gastrointestinal Conditions

The objective of this evidence report was to search the literature on the use of mind-body therapies for the treatment of health conditions and, on the basis of this search, to choose either a condition or mind-body modality for a comprehensive review.

A broad search of mind-body therapies showed that there were sufficient studies regarding their use for gastrointestinal (GI) conditions to warrant a detailed review. GI conditions pose a significant health problem, and they can be challenging to manage.

They also have been the focus of mind-body interventions, including:

- Behavioral therapy.
- Biofeedback.
- Cognitive therapy.
- Guided imagery.
- Hypnosis.
- Meditation.
- Placebo therapy used as an intervention.
- Relaxation therapy.
- Multimodal therapy.

However, no studies of meditation were found that used a comparative treatment design. Therefore, this report reviews the use of behavioral therapy, biofeedback, cognitive therapy, guided imagery, hypnosis, placebo therapy, relaxation therapy, and multimodal therapy for the treatment of GI conditions.

Findings

- The five most common body systems/conditions for which mind-body therapy literature was found are: neuropsychiatric; head/ear, nose, and throat (head/ENT); GI; circulatory; and musculoskeletal.
- The trials that exist on GI conditions are seriously limited by methods problems (small sample sizes, lack of randomization, and clinical heterogeneity).
- The greatest number of trials of a mind-body therapy for GI conditions in trials was biofeedback (n=17).
- There are fewer controlled trials in the GI studies that assess other mind-body therapies: hypnosis (n=8), relaxation (n=8), behavioral therapy (n=8), multimodal therapy (n=4), cognitive therapy (n=4), imagery (n=2), and placebo (n=1).
- The most commonly studied GI conditions were irritable bowel syndrome (n=15), fecal incontinence/encopresis (n=11), constipation (n=10), vomiting (n=8), nausea (n=7), and abdominal pain (n = 5).
- There is no evidence to support the efficacy of biofeedback therapy for children.
- There is limited evidence (i.e., at least one trial whose quality score characterized it as "good" that reported statistically significant benefits and the majority of other studies also report statistically significant benefits) to support the efficacy of the following mind-body therapies:
  - Behavioral.
  - Cognitive.
  - Guided imagery.
  - Relaxation.
- The methodological shortcomings of studies reporting beneficial effects of hypnosis preclude drawing conclusions about its efficacy.
- Results are mixed regarding the use of biofeedback in adults.

Source:
http://www.ahrq.gov/clinic/epcsums/mindsum.htm

OPENING THE MIND

Commentary - Realizing Negativity and Developing Positivities

BK Bala Gupta
Research Associate, CAD Research Project, Global Hospital & Research Centre

What is Mind? Mind is metaphysical. It has four aspects :
T - Thoughts, E - Emotions, A - Attitudes, M - Memories (TEAM)

This world is a drama... that is unique, most wonderful, eternal and complete in all aspects... It's Creator and Director is Almighty, the Father of all Souls, God Shiva who is the benefactor and forever pure and supreme... I, the soul am His creation.... He has created me for without me His creation, this World Drama, is incomplete..... I am the luckiest and most fortunate as the creator of fate has Himself selected me to be part of His creation... though my role is hut a small scene of this huge world drama, it is complete in all respects and so am I... there are no defects, no shortcomings in me.... My part is unique and perfect, which no one else can play.... Without me this world drama, the creation of Supreme Being is incomplete and this cannot be for Almighty Authority is perfect.... The Ultimate Truth. I love the role given to me by Him... for only I am capable of playing this role... I like my Father, and unique, wonderful and complete.... I have to play my part with utmost devotion, and at the same time relish it to the extreme... for it is mine... Only by doing as above, I can do justice to my Father (Supreme Being), myself and my role... The roles and expectations of other souls when imposed on my role, effect my role... The roles and expectations of other souls when imposed on my role effect my performance and fill my life with negative attitude... I am caught in the monstrous waves of jealousy, hatred etc. (the negative attitudes)... whenever I have tried to go beyond the effect of these tendencies, the failure to do so has resulted in the getting more entangled in this vicious web... The reason of this failure is the fact that I have always looked for support and strength in those who themselves crushed my feelings and imposed their never ending desires and opinions on me... and these have become my fate... my freedom i.e. my original nature and virtues (of being peaceful, loving, blissful and happy) were replaced by negatives (like peacelessness, anger, sadness and despair...) the lack of Truth, Support and Love have filled my life with criticism, tension, hurry-sickness, worry and responsibilities which have burdened my life... most natural duties towards family and society seemed to me like a heavy burden.

But now I have the creator, truthful Father, Teacher, Liberator (Sat Guru), Friend and Lover, with Him I am not alone and fully capable of freeing myself from the vicious web of vices or negative tendencies... I am the child of Almighty authority and therefore I too am master Almighty. Now I am the happiest... not even the slightest trace of negativities can touch me... they just cannot affect me for I am protected under the canopy of Almighty... my true form and nature are coming forth... knowledge, purity, peace, love, happiness, bliss and power are flowing out of me like a foundation... every organ of my body, every cell is saturated with vibrations of knowledge and purity... I, the soul, am getting healed... aaha...what bliss I am experiencing in my free original form... Baba... oh sweet Baba... I am blessed with your companionship... Baba you are the greatest magician... how may I thank you... my lost self respect, my destiny, my destiny, my fate, I have got them all back... now I (soul) am completely healthy and full of my strength and vitality... wah Baba wah... Om Shanti.

There are four types of thoughts:

1. *Necessary Thoughts: These thoughts concern our daily routine and are therefore necessary. For example, what time do I go to pick up the kids from school?*
2. *Waste or Superfluous Thoughts: These thoughts are of the worrying and brooding kind; through them you achieve nothing. All they do is to drain your of energy. They are mainly to do with thoughts of the past or future: "If only..." or "I hope so".*
3. *Negative Thoughts: These are thoughts of anger, ego, criticism, greed, prejudice, stress, etc. They can lead to ill-health and mental breakdown.*
4. *Positive Thoughts: These are thoughts that uplift you, bringing you joy and happiness.*

FOOD, MOOD AND HEALTH: A NEUROBIOLOGIC OUTLOOK

C. Prasad
Section of Endocrinology & Metabolism, Department of Medicine, LSU Medical Center, New Orleans, LA, USA

Hippocrates was the first to suggest the healing power of food; however, it was not until the medieval ages that food was considered a tool to modify temperament and mood, although scientific methods as we know them today were not in use at the time. Modern scientific methods in neuroscience began to emerge much later, leading investigators to examine the role of diet in health, including mental wellbeing, with greater precision. This review shows how short- and long- term forced dietary interventions bring about changes in brain structure, chemistry, and physiology, leading to altered animal behavior. Examples will be presented to show how diets alter brain chemistry, behavior, and the action of neuroactive drugs. Most humans and most animal species examined in a controlled setting exhibit a fairly reproducible pattern of what and how they eat. Recent data suggest that these patterns may be under the neurochemical and hormonal control of the organisms themselves. Other data show that in many instances food may be used unconsciously to regulate mood by seemingly normal subjects as well as those undergoing drug withdrawal or experiencing seasonal affective disorders and obesity-related social withdrawal. We will discuss specific examples that illustrate that manipulation of dietary preference is actually an attempt to correct neurochernical make-up.

Key words
Food peptides Dietary carbohydrate and serotonin Neurotransmitter precursors

Introduction

Modem medical science has made imposing progress in understanding the role of dietary nutrients both macro- and micronutrients in the maintenance of normal health and in the prevention of diseases like scurvy, pellagra, marasmus, Kwashiorkor, and many others. In the last few decades, an impressive volume of research has been performed and scholarly articles have been written on the role of nutrition in brain development and mental health. 1 doubt that many scientists today would disagree that nutrition plays a critical role in prenatal and early postnatal development of the brain at all levels, including structural, chemical, pharmacologic, and functional. This review bypasses discussions related to the role of nutrition in the developmental maturation of the brain and focuses instead on the role nutrition may play in the restructuring and functional modulation of the adult brain.

When we speak of nutrition and health, we generally think of nutrition in relation to the prevention or even treatment of cancer or of obesity and related disorders. This is merely a reflection of the fact that not only have we learned a great deal about the role of diet in cancer and obesity, but that such discoveries make for popular reading and that the news media are very interested in them. Most of us, however, rarely relate diet and nutrition to mental health. Only recently have we realized the potential of certain dietary nutrients and supplements (macronutrients, antioxidant vitamins, and minerals) in the control of bodily functions, including mental performance . This is supported by the fact that in the Western world alone, contemporary interest in maintaining and enhancing both body and mind through diet and dietary supplementation has generated a multibillion dollar industry.

However, the use of diet to enhance mental function is not a recent phenomenon. The concept that food can help or hinder health was known and used by physician priests at the time of Aesculapius and centuries before . The use of nutrition in patient care also was a common practice at the time of Hippocrates. This is evident from one version of the physician's oath by Hippocrates, part of which reads as follows: "I will apply dietetic measures for the benefit of the sick according to my ability and judgment; I will keep them from harm and injustice". Medical nutrition was at its pinnacle during the Middle Ages, when it was common to prescribe diet therapy as the sole treatment or as an adjuvant to standard medication and surgery for a disease. Maimonides or Moses ben Maimon *(1135-1204),* the philosopher, rabbi, and physician, advocated that any illness curable by diet alone should not otherwise be treated . In the medieval holistic view of nature, mood was thought to be modulated by foods. The assertive relationship between food and mood is documented in many medical culinary textbooks of the period; unfortunately, most are written in Medieval Latin, Hebrew, Arabic, and early English dialects, with few English translations. For medieval man, every food item was important since it was associated with good or bad effects that might be immediate or delayed. Such effects were related to the food itself rather than to its caloric density and composition. For example, some foods were considered erotic stimulants (eggs, pea- cock, beef, pomegranates, apples); others were used as mood enhancers (quince, dates, elderberries) or tranquilizers (lettuce, purslane, chicory).

Twentieth century literature on the impact of diet and nutrition on mental health and behavior is laced with controversial reports, particularly when they involve investigations on human subjects. The reasons for such controversies are many. Often, overenthusiastic scientists and news-starved media are too eager to jump to far-reaching conclusions based on often soft or preliminary data. Many times, anecdotal data creep into scientific literature and with time come to be viewed as truth. Additionally, it is often expensive and difficult to run well-

designed long-term human nutritional trials, making it difficult to support or refute anecdotal observations circulating in the literature. I must mention, however, that there are some excellent short-term human trials that have examined the role of diet in human behavior. I will discuss some of these studies later in this review. On the other hand, a wealth of information emerging from animal studies unequivocally suggests a role for diet, nutrition and nutritional supplements in modulating not only brain chemistry and behavior but possibly the structural elements of the brain.

Dietary influences on brain chemistry

Neurotransmitters and neuromodulators are basic units of chemical communication within the nervous system. These include a variety of phenethylamines and their derivatives (dopamine, norepinephrine, epinephrine, tyramine, octopamine, and tetrahydroisoquinolines), indoleamines (serotonin, melatonin, and tryptamine), cholinergics (acetyicholine and choline), amino acids and their derivatives (glutamate, aspartate, glycine, taurine, histamine and gamma-amino butyric acid), nucleosides (adenosine and inosine), hormones (prostaglandins, corticosteroids, estrogen, testosterone, thyroid hormone and many others), and peptides (enkephalin, endorphin, substance P, cholecystokinin, somatostatin, cyclo (His-Pro), thyrotropin releasing hormone and many others).

Most of these are synthesized *de novo* using precursors provided by the food that we eat and thus are under direct influence of the diet. As an example, I will discuss the role of dietary protein and carbohydrate in the synthesis of serotonin, a neurotransmitter ubiquitous throughout the nervous system.

A carbohydrate-rich/protein-poor diet increases and a protein-rich diet decreases brain serotonin synthesis. The following is an explanation of the biochemical basis for the dietary control of serotonin synthesis. The synthesis of serotonin in the brain is limited by the availability of tryptophan. The large neutral amino acids (LNAA), tryptophan, valine, leucine, isoleucine, methionine, phenylalanine, and tyrosine, share the same transport carrier across the blood-brain barrier. At physiologic blood amino acid concentrations, there is competition for avail- able carrier sites. Therefore, the transport of blood tryptophan into the brain is proportional to the ratio of its concentration to that of the sum total of other LNAA . Con- sumption of a protein-rich meal raises the blood level of many amino acids. Tryptophan is one of the least common amino acids in dietary protein. Therefore, a protein-rich meal contributes proportionately more competing LNAAs than tryptophan, resulting in reduced entry of tryptophan into the brain and reduced serotonin synthesis.

Conversely, a carbohydrate-rich meal can also alter blood amino acid levels . This effect is mediated by the action of insulin, which promotes the uptake of most amino acids by muscle, which accounts for >*45%* of lean body weight. Muscle metabolizes branch-chain amino acids, thereby lowering their concentration in the blood. Plasma tryptophan levels are unaltered by carbohydrate consumption, and insulin does not promote the net uptake of tryptophan into muscle because this amino acid is largely bound to low-affinity, high-capacity sites on albumin. Normally, *75* to *85%* of plasma tryptophan is bound to albumin. When insulin is secreted, the plasma levels of nonesterified fatty acids (NEFAs) fall because insulin promotes up- take of NEFAs by adipocytes. NEFAs also are adsorbed on circulating albumin, thereby increasing the number of sites available on albumin for binding tryptophan. This rise in bound tryptophan compensates for the slight fall in plasma free tryptophan caused by insulin-mediated uptake of amino acids by muscle. The total amount of tryptophan in plasma (bound plus free) determines the rate of transport of tryptophan into the brain because the affinity of the transport system for tryptophan is much greater than the affinity of albumin for tryptophan. Thus, ingestion of a high-carbohydrate/low-protein meal facilitates entry of tryptophan into the brain.

Once in the brain, tryptophan undergoes a series of enzymatic reactions, resulting in the synthesis ofthe neurotransmitter serotofin. The first (and the rate-limiting) step in the conversion of tryptophan to serotonin is hydroxylation of tryptophan by the enzyme tryptophan hydroxylase, a low-affinity (K_m 0.4 mM) enzyme that is abundant in the brain. Accordingly, whenever the brain tryptophan level rises, more serotonin is pro- duced . Rats fed or injected with tryptophan have higher brain serotonin levels than do controls. Conversely, rats fed a corn diet (tryptophan-poor) have low levels of brain serotonin .

Neuroactive substances in food Many of the neurotransmitter substances discussed above are present in our foods and, therefore, can directly influence brain chemistry. Here I talk about food-borne neurotransmitters/neuromodulators. Long ago, Hippocrates, the father of medicine, said, "Let your food be your medicine, and your medicine be your food". The coming century holds great promise and the opportunities to test the accuracy of this statement. Epidemiologic studies over the last sixty years have clearly linked diet and lifestyle with cancer and cardiovascular diseases . In these studies, the disease-modulating activity of food has generally been associated with caloric density or macronutrient corn- position. For example, a diet high in fat has been associated with an increased risk of breast cancer and atherosclerosis. However, new knowledge, some anecdotal and some scientific, about mental health and foods has just begun to emerge ; antioxidant vitamins and minerals, for example, are thought to attenuate progression of neurodegenerative diseases and seizure. Such effects of foods are more likely to be associated with

the presence of neuroactive substances in foods rather than with their caloric density. This section will provide a very brief over- view of the types of neuroactive substances found in food.

Serotonin

Serotonin is a chemical the brain produces from tryptophan. Where do we get tryptophan? From the protein in our food. Brain serotonin controls many different types of bodily functions, including appetite, body temperature, libido, and mood, to name a few. Some of the foods rich in serotonin and tryptophan include clams, oysters, escargots, octopus, squids, banana, pineapple, plum, nuts, milk, and turkey.

Cyclo (His-Pro)

Cyclo(His-Pro) or CHP has profound effect on satiety, hunger, and behavior . Chemical substances like CHP are common in fermented foods or foods containing hydrolyzed proteins. For example, high levels of CHP are found in nutritional supplements derived from the hydrolysis of casein, a milk protein, and from soy protein. During a search for CHP in food, we found that many pro- tein-derived processed foods contain copious levels of CIIP. These included nutritional supplements (e.g., Ensure Plus and Two Cal RN), shrimp, tuna, and a variety of other food products . Other foods rich in CHP include milk, yogurt, and buttermilk

.

Cholecystokinin

Like CHP, cholecystokinin (CCK) is also found naturally in our brain and gut. Soon after we begin to eat, CCK begins to be released from our gut. When the blood level of CCK rises to a critical level, we feel satiated and stop eating . The release of CCK after satiety has been achieved is term inated by the action of trypsin on gut. For that reason there is now substantial interest in developing CCK as a drug for appetite control. Unfortunately, large doses of CCK act on sites in the brain that control anxiety and panic behavior. One solution to this problem might be the use of food rich in CCK. Unfortunately, to date we know of no such natural food. This does not mean CCK does not exist in natural foods, only that no one has taken time to screen common foods for this peptide. Meanwhile, there are data to suggest that the use of certain foods to increase blood CCK levels may be possible. For example, many animal and human studies show that a diet containing soy protein, a rich source of trypsin inhibitor, may increase circulating level of CCK. Actually, any food rich in trypsin inhibitors should result in increased CCK Secretion and early satiety.

Two other food-derived substances must be mentioned here. The first is peptone broth, a great stimulus for CCK secretion. The second is phenylalanine, a natural amino acid that comes from digestion of protein rich foods such as casein or soy protein. Phenylalanine has been shown to be a potent stimulant of gut CCK release in human and animal studies, as well as a powerful inhibitor of food intake in hungry human subjects.

Exorphins

Exorphins (exo exogenous or from out- side, orphan=morphin, an opium), the opposite of endorphins, are a family of food- derived peptides that act on brain opiate receptors. Dr. Werner Klee of the National Institutes of Health has shown that when pepsin, an enzyme found in stomach, acts on casein (a milk protein), it generates many peptides, some of which interact with opium receptors in the brain; he called these pep- tides "casomorphins" . Today we know of many peptides that come from gluten (a wheat protein), zein (a corn protein) and casein and act as opium antagonists, which, in addition to being appetite suppressants, affect a variety of other central nervous system functions, including mood.

Heterocyclic amines

These amines comprise a family of bioactive substances in food that are not endogenous to food but are produced during its preparation or processing. Earlier I talked about the high levels of CHP in protein- derived nutritional supplements like Ensure Plus that are produced by a combination of enzymatic hydrolysis of proteins and heat treatment. I also must mention two heterocyclic amines that are products of tryptophan pyrolysis and that are present in meat and fish cooked on an open flame; these were identified as 3-amino- 1 ,4-dimethyl-5H- pyridol[4,3-b] indole(Trp-P-1) and 3-amino-1-methyl-5H-pyridol[4,3-b] indole (Trp-P 2) These compounds are related to 13-carbolines with structures similar to 1-meth- yl-4-phenyl- 1 ,2,3,6-tetrahydropyridine (MPTP), a man-made agent known to cause Parkinson's disease. Functionally, however, they are quite opposite to MPTP. Systemic administration of Trp-P- 1 and Trp-P-2 to mice caused a marked increase in the neurotransmitter dopamine (DA) and a decrease in DA metabolites in the brain, suggesting inhibition of enzyme monoamine oxidase in vivo. These data suggest the possibility of altering DA-dependent behaviors following consumption of foods containing these heterocyclic amines.

Human studies - from anecdote to sound science

Since long-term controlled clinical studies on the effects of diet on human behavior are logistically difficult to conduct, most published studies are either anecdotal in nature or epidemiologic and plagued with poor design. Epidemiologic studies generally require subjects or sometimes an acquaintance of the subject to fill out questionnaires that involve recalling past events, a potential source of error. This is the major reason for inconsistencies in the conclusions of different reports. Despite these problems, a careful meta-analysis of such research of- ten yields a fairly accurate idea of the role diet may play in human behavior. Let's take a specific example: much has been written about the alleged

relationship between refined sugars in the diet and hyperactivity in children and criminality in adults. Some of these studies suggest that excessive ingestion of simple sugars (i.e., sucrose and glucose that can be present in granulated sugar, cookies, cereals, chocolates, and sweets) has profound effects on human physiology, behavior, and intellectual functions. Other studies have found no effect on blood glucose regulation, mood, bodily symptoms, or cognitive function in persons reporting two or more years of heavy consumption of refined sugar. The truth probably lies somewhere between these extremes. The behavioral sensitivity to sugar and other dietary constituents may vary from individual to individual, and the effects on behavior may be more subtle than many investigators realize or wish to acknowledge. In contrast, dietary supplements capable of having direct effects on brain neurotransmitter make-up may exert profound effects on human behavior. These include substances that act as neurotransmitter precursors (e.g., tyrosine, tryptophan, choline, and lecithin) or modulators of post-receptor events (e.g., caffeine). The different behavioral effects of diet and dietary supplements on humans involve changes in sleep pat- terns, perception of pain, and mood, to name a few.

Sleep

The amino acid composition of a single meal designed to affect brain tryptophan availability has been shown to modulate sleep behavior in newborns . Similarly, many studies conducted on adult humans receiving various dosages of tryptophan by different routes of administration (10-500 mg/kg, orally, to much lower intravenous doses) show that tryptophan increases drowsiness and feelings of fatigue and lethargy . In healthy female adult humans, one week of daily consumption of a low-carbohydrate diet *(50* g/day) caused a significant increase in REM sleep latency (66 ± 8 to l 1 1 ± 38, P<O.05). In contrast, when the relation- ship between a 5-day self reported dietary history and the response to a sleep questionnaire was analyzed, no link between sleep and diet was found in adults. This suggests that it may be necessary to use high levels of a dietary supplement or to institute major dietary changes to see an effect on behavior.

Pain perception

In a controlled double-blind crossover study, 50 mg/kg oral tryptophan reduced pain sensitivity to moderate but not to very mild or very painful stimuli. In a double- blind study, patients with chronic maxillofacial pain reported a 50% reduction in pain after 4 weeks of a high-carbohydrate diet and 3 g oral tryptophan daily; in contrast, the placebo group reported only a 20% reduction in pain. In another study, tryptophan-treated patients undergoing rhizotomy and cordotomy also reported a reduction in chronic pain. In a preliminary study, tryptophan has also been shown to potentiate electrically induced endorphin analgesia

Mood

The association between food intake or eating patterns and mood is of great interest to scientists and lay persons alike. In addition to an abundance of anecdotal reports in the literature, there is considerable scientific evidence demonstrating that food influences mood and performance. It has been suggested that many patients consume large quantities of carbohydrate-rich food to elevate their mood; these include those diagnosed with conditions with a significant depressive component such as seasonal affective disorder (or winter depression), premenstrual stress syndrome, or nicotine withdrawal. Consumption of carbohydrate-rich food may elevate mood in such individuals by raising brain serotonin levels. Dexfenfluramine, an agent known to facilitate brain serotoninergic activity, is also known to elevate mood state in all of the above mentioned conditions. Incidentally, vitamin D3 has been shown to enhance mood in healthy subjects prone to winter depression. It remains to be seen whether vitamin D3 acts by raising brain serotonin levels or through some other mechanism.

The relationship between food and mood in seemingly normal individuals is not a simple one but instead depends on the time of day, the type and macronutrient composition of food, the amount of food consumed, and the age and dietary history of the subject. For example, while skipping breakfast impairs cognitive performance, a larger- than-normal breakfast improves recall performance but impairs concentration. Furthermore, changes in the macronutrient composition of breakfast have differential effects on mood. For example, changes in mood have been produced most effectively by raising brain serotonin levels by administering tryptophan or by supplementing a carbohydrate-rich/protein-poor diet with tryptophan. I have discussed the theoretical basis for this approach in greater detail earlier.

Dietary influences on animal behavior - a road to human studies

While there is no doubt that our ultimate goal is to understand how diet and nutrition can affect human mood and health, such knowledge is difficult to come by for reasons discussed earlier. Animal studies designed to study the effect of food on mood, then, are the gateway to future human study. Here, I summarize the results of some of the animal studies conducted over the years in my laboratory on the role of dietary macro- nutrients in brain structure, chemistry, and behavior in adult animals. Both undernutrition and overnutrition in preweaning rats result in long-lasting functional changes in the brain. The effects of protein undernutrition on behavior, brain development, and intellectual function are well known. Unfortunately, there are far fewer studies on the effect of long-term excess consumption of any macronutrient particularly protein on the brain. Some reported studies on the effect of protein over- nutrition on behavior are not rigorous in design and data analysis. For example, it has

been reported that adult rats consuming a high-protein diet become more easily frightened and "snappish". A few years ago, we undertook a series of studies to evaluate the effect of long-term(20-36 weeks) consumption of isocaloric high (50% of total calories; HP)-, moderate (20% of total cabries; MP)-, and low-protein (5% of total calories; LP) diets on a variety of behavioral measures. These included the adhesive patch test and negative geotaxis commonly used to evaluate sensorimotor function; locomotor activity and stereotypy as measures of ambulatory and searching behavior; the tail-flick test for nociception, and the elevated plus- maze test as a measure of anxiety and aversive behavior. The HP group was more responsive compared with the MP or LP groups in sensorimotor function, negative geotaxis, and spontaneous locomotor activity. In addition, the HP group exhibited reduced aversion as measured by the elevated plus- maze test of anxiety and hyperalgesia as shown by tail-flick reaction time. These data suggested that long-term consumption of an HP diet may lead to hyperactivity and hyperresponsiveness to the environment, a change that may not always be desirable. In a separate study, we examined whether the HP diet had any effect on learning, memory, and sensory discrimination. The results of these studies showed the following: in the swim cylinder of Porsolt, which tests adaptation to stress, HP rats were significantly less able than was the control group (MP rats) to develop an effective coping strategy; during the recording of auditory-evoked responses to deviant tones, short-term auditory memory traces degraded more quickly in the HP rats, and finally, in the Morris water maze, diet had no significant effect on acquisition and recall of spatial information. These data suggest that a long-term HP diet may precipitate a deficit in short-term but not long-term memory and a diminution in the ability to cope with acute stress.

A review of the literature indicates that a number of food constituents (e.g., dietary macronutrients and neurotransmitter amino acid precursors) as well as food deprivation may modulate development of tolerance and physical dependence and influence self-ad- ministration of several drugs of abuse in animals. In an effort to examine further the nature of neuronal changes responsible for perturbation of spontaneous unprovoked motor behavior in animals consuming the HP diet, we examined the sensitivity of HP, MP, and LP mice to a variety of neurotropic agents such as amphetamine, apomorphine, haloperidol, etc. The following is a summary of our studies on amphetamine. Adult ICR mice were put on HP, MP, or LP diets for 35 weeks. At the end of this period, all mice were tested for spontaneous locomotor activity (SLA) and stereotypic behavior (SB) after administration of vehicle or amphetamine (0. 1 or 1 .0 mg/kg). Both SLA and SB, in the absence of amphetamine, increased with increasing levels of protein in the diet. Mice on the LP but not the MP or HP diets increased SLA and SB on low-dose (0. 1 mg/kg) amphetamine. Mice on HP but not LP or MP diets, however, failed to respond to high-dose amphetamine (1 mg/kg). These data suggest that long-term consumption of an HP diet not only may lead to hyperactivity and hyperresponsiveness to the environment but may attenuate neuronal sensitivity to amphetamine and possibly other drugs of abuse. It is generally accepted that amphetamine-induced locomotion is mediated by mesolimbic DAergic neurons, whereas stereotypy is associated with nigrostriatal neurons. Furthermore, there is abundant evidence that DA alone is largely responsible for the effect of amphetamine on SLA and SB. Therefore, it seems that a long- term HP diet may modulate multiple DAergic pathways in the brain; it is not clear how the HP diet may affect other neuronal systems. To gain further insight into the effect of dietary protein on the neurochemical makeup of the brain, we examined the distribution of DA, DA-metabolites (dihydroxyphenylacetic acid (DOPAC) and homovanillic acid (HVA)), norepinephrine (NE), serotonin (5- HT), and 5-hydroxyindolacetic acid (5- HIAA) in the brains of rats consuming LP, MP, and HP diets for 36 weeks. Here I discuss only the data on DA and its metabolites. In the substantia nigra, the striatum, and the dentate gyrus, DA levels decreased and increased, respectively, with a decrease and increase in dietary protein ($P<O.05$ corn- pared with the MP diet. The nigrostriatal system is important to a number ofbehaviors related to sensorimotor integration and response initiation, including extrapyramidal movement, aphagia and adipsia, emesis, and stereotypy. Ourbehavioral studies have shown that the HP diet produces hyperactivity. These neurochemical data suggest that an increase in DA in the nigrostriatal system may contribute to behavioral hyperactivity in HP rats. In the mesolimbic system, dietary manipulation had the most marked effect on DA metabolism. There was a diminution in amygdala DOPAC/DA and HVA/DA ratios in the rats on the HP diet, suggesting a decrease in the firing of DAergic neurons in this region. DA transmission in this region is implicated in emotion, sexual behavior, and the reward properties of many drugs of abuse (56-59). Therefore, it is conceivable that reduced sensitivity to SLA and SB after amphetamine administration to HP rats may be related to changes in DA metabolism. In addition to its neurochemical and behavioral effects, the level of protein in the diet has also been shown to have a profound effect on food intake, body weight, and body composition. For example, White et al. have recently shown that rats given a low- protein (5%) diet for only 1 1 days, compared with those on a 20%-protein diet, increased NPY gene expression in the hypothalamus, resulting in augmented caloric intake. In rats on 5% protein, while their average daily food intake was increased by 20%, their body weight gain was severely attenuated, and body composition analysis revealed in creased water retention, decreased body protein, and increased body fat. While these studies underscore the effect of a low-protein diet-mediated increase in NPY gene expression on appetite, other behavioral con- sequences associated with increased NPY remain to be elucidated.

Concluding remarks

Proteins, carbohydrates and fats the major constituents of our diet serve not only as an energy source but as precursors to a variety of neuroactive substances. The so- called minor constituents of food minerals and vitamins are just now being recognized for their many nontraditional functions (e.g., as antioxidants) in health maintenance and promotion. In addition, food is a rich source of many bioactive substances like amino acids, peptides, and others. While some of these bioactive substances (CHP, casomorphins, and a variety of other sub- stances capable of interacting directly with neurotransmitter receptors) can have a direct effect on neuronal functions, others serve as precursors (tryptophan, tyrosine, etc.) or modulators (heterocyclic amines, phenylalanine, etc.) of classical neurotransmitters (DA, norepinephrine, serotonin, acetylcholine, endorphin, etc.). Furthermore, the use of neurotransmitter precursors as dietary supplements in both humans and animals has shown profound effects on neurochemistry and behavior.

Food and dietary supplements, if used properly and wisely, may help us live healthier lives. Although ingestion of minute amounts of any given compound through food may not have any good or bad consequences, a variety of foods in combination may indeed affect mood and health. Some of these substances, such as peptides, are naturally present in food (e.g., CHP in shrimp and tuna), whereas others arise from *in vivo* digestion of food (e.g., opiate antagonists from casein in milk) or from the use of protein hydrolysates as food (e.g., Ensure from casein and soy protein).

References

1. Galler JR & Ross R (1993). Malnutrtion and mental development. In: Suskind RM & Lewinter-Suskind L (Editors), Textbook f: Pediatric Nutrition. Raven Press, New York, 173-179.
2. Zeisel SH (1986). Dietary influences on neurotransmission. Advances in Pediatrics, 33: 23-47.
3. Cosman MP (1983). A
lapius: Historical diets
sexual pleasure. Annual
tion, 3: 1-33.
4. Pardridge WM (1977). Regulation of amino acid availability to the brain. In:
Wurtman RJ & Wurtman JJ (Editors), Nutrition and the Brain. Raven Press, New York, 141-204.
5. Adibi SA, Morse EL & Amin PM (1975). Role of insulin and glucose in the induction of hypoaminoacidemia in man: Stud- les in normal, juvenile diabetic, and insulinoma patients. Journal of Laboratory and Clinical Medicine, 86: 395-409.

The influence of diet on cognitive function, appetite and mood

6 March 2007 Sainsbury's Business Centre
Organised by The British Nutrition

Foundation The conference opened with a welcome speech and introductory remarks from **Professor Robert Pickard** from the British Nutrition Foundation. He briefly discussed the work of the British Nutrition Foundation over the past 40 years and the purpose of the day's conference in bringing attendees up to date with the latest information on the topical issue of the influence of diet on cognitive function appetite and mood.
The first presentation of the day was given by **Professor Larry Chistensen** from the University of South Alabama, USA on cravings for sweet carbohydrate and fat rich foods. He began by discussing the current definitions and components of food cravings and the difficulties of measuring them. He then went on to talk about the variability of food cravings, with prevalence typically being greatest in younger people rather than older people and in women rather than men. He discussed how sweet carbohydrate and fat-rich foods e.g. ice cream, tend to be the most commonly craved foods and how most studies in the field have focused on the effect of negative mood as a trigger for food cravings. Finally he discussed the impact of cravings on nutrient intake. Preliminary data indicated at least in older people- that cravers' nutrient intake met or exceeded the recommended daily amount (RDA's) for most nutrients unlike the non cravers who had intakes below the RDA for all nutrients except iron, phosphorous and selenium. He concluded that these studies suggest that cravings and the subsequent increased intake in food may assist in ensuring adequate nutrient intake in cravers, although further research is required.

France Bellisle from the Institut National de La Recherche Agronomique (INRA), France gave the next presentation. She began by discussing the popular idea that sweetness is "addictive" and how this is an area that has been widely studied. She then went on to describe how we are all born with a natural predisposition to accept sweet tasting foods over sour tasting food, but an acceptance, preference or craving for a certain food is not the same as an addiction. The claim that certain foods can be addictive has had implications for obesity-related lawsuits; however at present there is no evidence to suggest that sweetness per se has addictive properties. In conclusion she discussed that although "addictions" to sweet foods may not be the problem, "preferences" for energy dense, sweet and fat rich foods certainly are, and that this is contributing to the prevalence of conditions such as overweight, diabetes and metabolic syndrome.

Dr Diane Bamber and **Caroline Stokes** both from the University of Cambridge, UK gave the next presentation on the role of diet in the prevention and

management of adolescent depression. Dr Diane Bamber began by describing how adolescent depression is a major public health concern. She then discussed how improving the diet could offer an inexpensive, safe and acceptable option for the prevention and treatment of depression, but that a lack of evidence and knowledge has limited current progress. At present, the available evidence suggests that omega 3 fish oils, folic acid and possibly zinc, thiamin and chromium picolinate can offer some benefit. Levels of these nutrients are commonly found to be low in people suffering with depression and studies suggest that supplementation (particularly of Omega 3's and folic acid) may be able to produce some behavioural improvement.

Professor Joanne Salvin from the University of Minnesota, USA then gave a presentation on the role of fibre on satiety (the feeling of fullness). She began by describing how the importance of fibre in the diet has been recognised from as early as 400 BC. She then went on to discuss some of the recognised health benefits of the different forms of dietary fibre e.g. protection against coronary heart disease and obesity. Generally a diet high in fibre tends to be lower in overall energy since it is thought to make foods more filling or satiating, therefore reducing the quantity consumed. Fibre improves the satiation of foods by adding volume (bulk) and viscosity to foods which increases the work and time taken to eat them, all of which are linked to enhancing the feeling of fullness. Not all dietary fibre has an impact on satiety with viscous and non fermentable fibres such as that found inside fruits etc being the most satiating and resistant starches such as that found in whole grains, legumes and seeds (even in high doses) not satiating.

Professor Margriet Westerterp-Plantenga from Maasricht University gave the next presentation on the role of protein in body weight management. She began by discussing how recent findings suggest that an increased protein intake seems to play an important role in bodyweight management through various possible mechanisms. For example, a high protein diet may increase feelings of fullness, therefore leading to lower intake of food (and therefore energy) overall. In addition it is suggested that some proteins may increase the amount of energy used by the body compared with other nutrients. Whatever the mechanism, studies have shown that high protein diets appear to improve loss of body weight and help to ensure more stable weight maintenance after weight loss.

The next presentation was given by **Professor Peter Rogers** from the University of Bristol, UK and covered the topic of the influence of caffeine on mood and mental performance. He began by discussing how caffeine is the most popular drug in the world and is consumed by millions in order to improve attention and performance. However, recent evidence suggests that actually little or no acute benefit is gained from regular caffeine consumption. This is because withdrawal of caffeine (e.g. overnight) lowers alertness, performance and mood, and that consumption of caffeine in the morning simply reverses the effect rather than boost functioning above "normal" levels. Proff Rogers then went on to discuss how new evidence also suggests that caffeine consumption may lower the risk of mental decline and dementia in older age, however further research is required in this area.

Dr Leigh Gibson from Roehampton University, UK gave the penultimate presentation on the topic of carbohydrates and mental function. He began by discussing how despite 25 years of research into carbohydrates and mental function, current understanding is still unclear. In general, it is thought that numerous different factors influence the performance of the brain e.g. age, effort, personality, time of day, type and amount of carbohydrate given and the ability to regulate glucose levels in the body. It is also thought that the release of certain hormones e.g. cortisol can also have a significant impact. For example, studies suggest that high glycaemic index (GI) carbohydrates (rapid release energy sources) cause a greater release of cortisol which can negatively influence brain function, especially memory function. This might also help to explain why studies suggest that low GI carbohydrates (slow release energy sources) provide more benefit to mental function than high GI carbohydrates. He concluded by describing how further research is required to better understand this area.

The last presentation of the day was given by **Dr Harris Lieberman** from the US Army Research Institute of Environmental Medicine USA. In his presentation he discussed how dietary supplements and special diets that supposedly enhance cognitive function e.g. improvements in memory and alertness and relief of stress and depression are widely promoted across the globe. However despite this, there are limited regulatory requirements for marketing dietary supplements in comparison to drugs. This places great responsibility on research scientists to ensure that these products are safe to use. Dr Lieberman suggested that a solution to this problem would be to gain scientific consensus on procedures and methods used to assess efficiency and safety in order to help prevent ineffective or even dangerous products from reaching the shelf.

Conference summary

The BNF conference provided an interesting selection of presentations based upon recent developments in the understanding of the influence of diet on cognitive function, appetite and mood from around the world. This appears to be a complex topic to study due to the many additional factors that influence the way in which the brain functions. As with all areas of science and especially nutrition, further work is required to improve understanding, however knowledge of this area has rapidly expanded in only a relatively short space of time, and the future looks very positive.

SLEEP-DISORDERED BREATHING AND CARDIOVASCULAR DISEASE

Robert Wolk, MD, PhD; **Tomas Kara**, MD; **Virend K. Somers**, MD, PhD
From the Mayo Clinic, Rochester, Minn.
Correspondence to **Virend Somers**, MD, PhD,
Divisions of Cardiovascular Diseases and Hypertension, Department of Medicine,
Mayo Foundation, 200 First St SW, Rochester, MN 55902.

Introduction

Sleep apnea is defined as repetitive episodes of decreased or total cessation of respiratory airflow during sleep, leading to a fall in oxygen saturation of =4% and sleep fragmentation. Sleep apnea can be central or obstructive. Central sleep apnea (CSA) is characterized by apneas secondary to diminution or cessation of thoraco-abdominal respiratory movements (due to dysfunction of central respiratory control mechanisms). Obstructive sleep apnea (OSA) is caused by upper airway collapse during inspiration and is accompanied by strenuous breathing efforts. When defined as >5 episodes of apnea or hypopnea per hour of sleep, OSA is relatively common, affecting 24% and 9% of middle-aged men and women, respectively.[1] CSA is primarily seen in patients with congestive heart failure (CHF), although it occasionally may occur in healthy normal subjects, in people at high altitudes, and in association with central neural lesions. Sleep apnea constitutes a major public health problem because of its high prevalence and its emerging association with cardiovascular morbidity.

Central Sleep Apnea

CSA is especially relevant to CHF. The prevalence of CSA in CHF patients is dependent on various factors, such as heart failure etiology, gender, age, ejection fraction, and hemodynamic status, and has been estimated at 40% to 60%.[2,3] Cheyne-Stokes respiration occurs during CSA and is a distinct pattern of periodic breathing with alternating crescendo-decrescendo sequences of hyperventilation and apnea (ie, complete breathing cessation).

CSA may have an important influence on prognosis, in that its presence is associated with increased mortality in CHF patients.[3] This effect appears to be independent of other known risk factors, such as left ventricular ejection fraction or peak oxygen consumption.

Although the association of CSA with CHF has been recognized for decades, it is unclear whether CSA directly affects CHF pathophysiology and can therefore be causally linked to prognosis, or whether it is rather an index of the severity of CHF. Evidence implicating CSA in CHF progression includes the fact that CSA in CHF is associated, first, with increased sympathetic nerve activity, higher urinary and plasma norepinephrine concentration, and perhaps elevated endothelin. Elevated catecholamine and endothelin levels are associated with poorer prognosis in CHF. Second, CSA may also be highly prevalent in patients with asymptomatic left ventricular dysfunction, where it is associated with impaired cardiac autonomic control and increased cardiac arrhythmias, suggesting that CSA may precede the development of overt heart failure. Third, prevention of CSA by continuous positive airway pressure (CPAP) may contribute to improved outcome in CHF. On the other hand, CHF patients with CSA are characterized by lower exercise capacity and ejection fraction, increased left ventricular volumes, elevated pulmonary capillary wedge pressure, and a higher prevalence of cardiac arrhythmias. Therefore, CSA may indeed also be an index of more severe CHF. The most likely scenario is that CHF predisposes to CSA and, in turn, CSA contributes to CHF progression.

Treatment

Hemodynamic improvement after pharmacological therapy of CHF is often associated with a significant decrease in CSA. However, persistent CSA despite optimal pharmacological therapy (especially if accompanied by severe oxygen desaturation and refractory CHF) should be treated more aggressively. CPAP therapy has been found to improve ejection fraction in CHF patients with CSA and has been associated with a tendency to enhanced transplant-free survival (Figure 1).[4] Other therapies, such as theophylline or nocturnal oxygen supplementation, have been shown to decrease the severity of CSA, but their effects on long-term prognosis are not known.

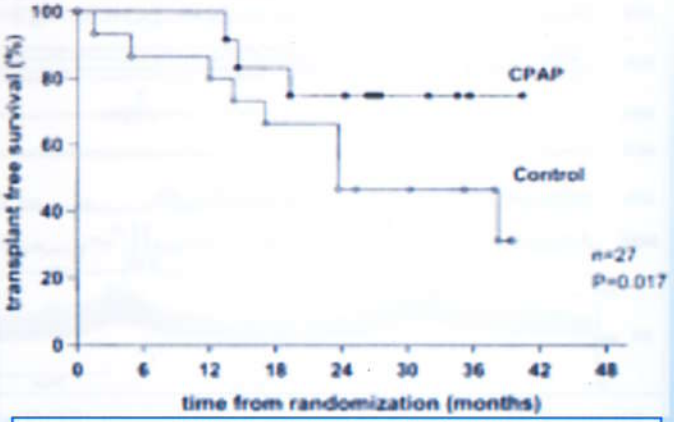


Figure 1. Transplant-free survival in CHF patients with CSA treated (and compliant) or not treated with CPAP. The difference was not significant (P=0.1) in intention-to-treat analysis. CPAP also increased ejection fraction. Reprinted with permission from reference 4.

The efficacy of CPAP in CHF patients with CSA might be

related to a decrease in the obstructive component accompanying CSA or may be due to some direct hemodynamic effects of CPAP. An intriguing finding is that overdrive atrial pacing may decrease CSA in selected patients with symptomatic sinus bradycardia and might perhaps also be related to improved hemodynamics.

Obstructive Sleep Apnea

OSA has been associated with several cardiovascular diseases, most notably hypertension, ischemic heart disease, heart failure, stroke, cardiac arrhythmias, and pulmonary hypertension. With the exception of hypertension, evidence implicating OSA in these disease conditions is presently circumstantial, and cause-effect relationships remain to be proven.

Hypertension

The evidence supporting the causal association between OSA and hypertension is compelling. The Wisconsin Sleep Cohort Study prospectively demonstrated a dose-response association between sleep-disordered breathing at baseline and the presence of hypertension 4 years later.[5] This association was independent of other known risk factors, such as baseline hypertension, body mass and habitus, age, gender, and alcohol and cigarette use.

The mechanisms underlying the hypertensive effects of OSA are multifactorial. Nocturnal chemoreflex activation by hypoxia and hypercapnia, with consequent sympathetic activation and increased blood pressure (Figure 2),[6] might carry over into excessive sympathetic activity and higher blood pressure even during daytime normoxia. Chemoreceptor resetting and tonic

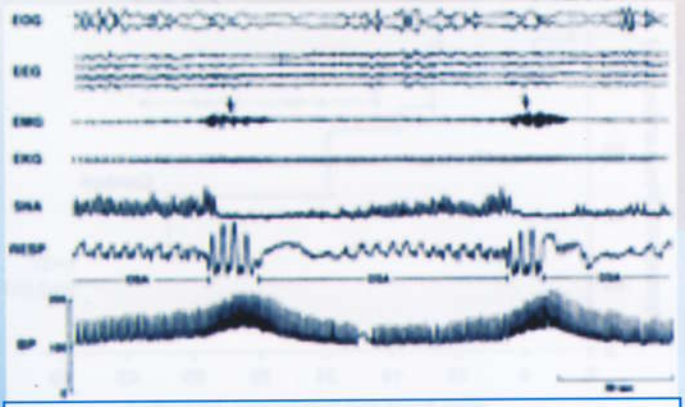


Figure 2. Recordings of the electrooculogram (EOG), electroencephalogram (EEG), electromyogram (EMG), electrocardiogram (EKG), sympathetic nerve activity (SNA), respiration (RESP), and blood pressure (BP) in a patient with OSA during rapid eye movement sleep. BP surges at the end of the apneic periods. Reprinted with permission from reference 6.

chemoreceptor activation may also contribute to daytime increases in sympathetic activity and blood pressure. Patients with OSA also have endothelial dysfunction, increased endothelin, and lower nitric oxide levels, all of which would potentiate vasoconstriction.

Ischemic Heart Disease

The clinical importance of OSA in ischemic heart disease is twofold. First, epidemiological evidence supports the concept of OSA being etiologically linked to the development of atherosclerosis. There is a high prevalence of OSA in patients with coronary artery disease, and several case-control or prospective studies suggest OSA as an independent predictor of coronary artery disease. Although the exact mechanisms of any atherogenic effects of OSA have not been established, one intriguing possibility is the involvement of inflammatory processes. C-reactive protein (CRP), a biomarker of systemic inflammation and of an increased risk for coronary events, may also play a direct role in atherogenesis. CRP is elevated in OSA,[7] a finding that supports the role of inflammation as a mechanism of OSA-related atherogenesis. Consistent with this hypothesis, elevated plasma levels and cell expression of several adhesion molecules, as well as evidence of increased oxidative stress, have also been noted in OSA.

Second, there is evidence that, in patients with or without a history of coronary artery disease, OSA may trigger acute nocturnal cardiac ischemia with ST-segment depression that is often resistant to traditional therapy. Several OSA-related mechanisms, such as oxygen desaturation, high sympathetic activity, increased cardiac oxygen demand (due to tachycardia and increased systemic vascular resistance), and a prothrombotic state, may contribute to the onset of these ischemic episodes. Whether the same mechanisms may also lead to coronary plaque rupture and an acute coronary event remains to be established.

Heart Failure

OSA has also been reported in association with CHF, with a prevalence up to 11%.[2] Soft tissue edema (which would increase while supine during sleep) and consequent increased airway resistance may lead to increased inspiratory force and collapse of the upper airway, thus increasing the risk of new-onset OSA. Conversely, epidemiological data suggest that, independent of other risk factors, OSA is associated with an increased risk for CHF.[8] OSA could predispose to CHF by virtue of its effects on sympathetic drive, endothelin, endothelial function, hypertension, and ischemic heart disease, which are known to be important risk factors for CHF. Moreover, OSA may potentiate acute ventricular dysfunction by increasing transmural pressures and ventricular wall stress. The coexistence of CHF and OSA may therefore create a vicious cycle of progressing CHF, with OSA causing deterioration of cardiac function, and with subsequent exacerbation of OSA.

Stroke

The prevalence of OSA is increased in patients with stroke, but it is debatable as to what extent stroke-induced breathing abnormalities contribute to this association. The factors that may increase the risk of

stroke in OSA include blood flow reduction with individual apnea episodes (caused by negative intrathoracic pressures and increased intracranial pressure), a prothrombotic state, atherosclerosis, and hypertension. From a clinical standpoint, it is an important observation that OSA in stroke survivors may be associated with increased mortality and a worsened long-term functional outcome.

Pulmonary Hypertension

Some preliminary studies have suggested the presence of mild-to-moderate daytime pulmonary hypertension (and even right ventricular failure) in OSA patients in the absence of lung and heart disease. In some studies, pulmonary hypertensive OSA subjects tended to have a greater body mass and lower daytime arterial oxygen saturation compared with those without pulmonary hypertension, so that some contribution of the obesity-hypoventilation syndrome to elevated pulmonary pressures in OSA cannot be excluded.

Cardiac Arrhythmias

The most frequent arrhythmias reported in association with OSA are sinus arrest, sinoatrial block, or atrioventricular block, all of which may lead to ventricular asystole. The mechanism of these bradyarrhythmias is usually a reflex increase in vagal tone triggered by a combination of apnea and hypoxemia (diving reflex). Therefore, before pacemaker therapy is recommended in patients with nocturnal bradyarrhythmias, the diagnosis of OSA should first be considered and, if present, CPAP therapy should be tried. Because OSA patients sometimes fall asleep during the day, even daytime bradyarrhythmias could be attributed to sleep apnea.

Several reports also suggest that OSA may be associated with both supraventricular and ventricular tachyarrhythmias, although the latter are more likely to occur in the setting of other cardiac comorbidities, such as ischemic heart disease or heart failure.

Treatment

Behavioral and lifestyle modifications, such as weight loss, avoidance of sedatives and alcohol, and avoidance of sleeping on the back, will often attenuate OSA severity.

The treatment of choice in OSA is CPAP. Although it is generally accepted that patients with moderate to severe OSA and daytime somnolence should be treated with CPAP, less clear is whether or not to treat mild OSA in the absence of daytime somnolence. In the short-term, effective CPAP treatment (ie, treatment associated with a significant reduction in apnea severity) may reduce systemic (Figure 3)[9] and pulmonary pressures, prevent nocturnal ST-segment depression, improve left ventricular ejection fraction and functional class, and decrease cardiac arrhythmias[10] in patients with CHF. Treatment for OSA has also been shown to reduce the risk for motor vehicle accidents, probably by lessening daytime somnolence. However, no clear data showing long term benefit with regard to cardiovascular end points with CPAP therapy are presently available.

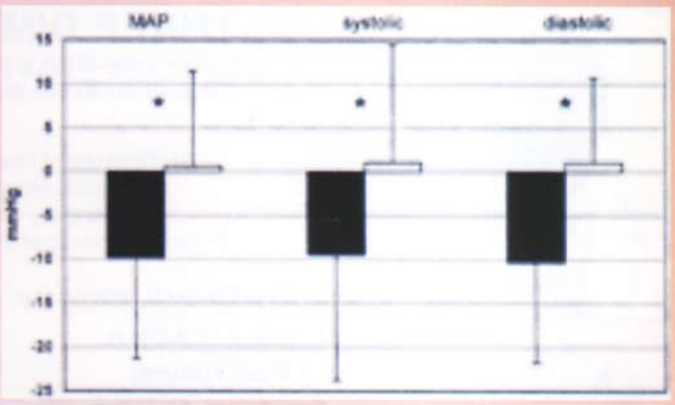


Figure 3. Changes in blood pressure with effective (closed bars) and subtherapeutic (open bars) CPAP in patients with OSA (*P<0.05). MAP indicates mean arterial pressure. Reprinted with permission from reference 9.

Conclusions and Recommendations

There is strong evidence for an association between sleep apnea and cardiovascular diseases, particularly OSA and hypertension. For other cardiovascular diseases, the evidence, although suggestive, remains circumstantial.

Although the comprehensive diagnosis and treatment of OSA and CSA is determined by overnight polysomnography, a history of witnessed apneas during sleep, daytime somnolence, and evidence of oxygen desaturation on overnight oximetry should heighten the index of suspicion for significant sleep apnea.

OSA should be considered in patients with refractory hypertension, particularly in obese subjects without the expected nocturnal decline in blood pressure, and in patients with nocturnal cardiac ischemia, nocturnal arrhythmias, and stroke. Both OSA and CSA should be considered in CHF patients who are poorly responsive to conventional treatment.

References

1. Young T, Palta M, Dempsey J, et al. The occurrence of sleep-disordered breathing among middle-aged adults. *N Engl J Med.* 1993; 328: 12301235.

2. Javaheri S, Parker TJ, Liming JD, et al. Sleep apnea in 81 ambulatory male patients with stable heart failure: types and their prevalences, consequences, and presentations. *Circulation.* 1998; 97: 21542159.

3. Lanfranchi PA, Braghiroli A, Bosimini E, et al. Prognostic value of nocturnal Cheyne-Stokes respiration in chronic heart failure. *Circulation.* 1999; 99: 14351440.

THREE DIMENSIONAL HEART CARE

(HEALTHY & HAPPY LIFE-STYLE (HLS) PROGRAM For Prevention of Angina & Heart Attacks) Based on Revolutionary Concept of Soul-Mind-Body Medicine

Dr. Satish Kr. Gupta,
Sr. Consultant Preventive Cardiology & Cardiac Rehabilitation,
JW Global Hospital & Research Centre, Mount Abu, (Raj)
Secretary General, WCCPC 2007 & WPCHC 2007
Principal Investigator & Co-ordinator, CAD Research Project, GHRC

Angina, Heart attack, coronary artery disease (CAD): A warning from Nature:

Angina and Heart-attacks occur due to blockages produced by deposition of cholesterol in the walls of the coronary arteries that supply oxygenated blood to the heart muscle. The blockage in a coronary artery starts early in the childhood and continues to build with age. When blockages reach a level of more than 70%, the person starts experiencing angina (chest pain in the centre of the chest typically radiating towards the left arm), breathlessness or palpitations on physical or mental exertion. This process of blockage due to deposition of cholesterol in the walls of coronary arteries is called **coronary atherosclerosis or Coronary Artery Disease (CAD).**

Sometimes a block cracks or ulcerates leading to clot formation thereby causing sudden 100% blockage of the artery, leading to heart attack. About 25 to 30% patients die in the first heart attack even before reaching the hospital. If the person who has suffered a heart attack once, does not change his lifestyle (psychological behavior, diet, exercise, sleep habits) he or she gets recurrent heart attacks that lead to many heart-related illnesses and untimely death.

India, the world leader in coronary artery disease!

CAD has assumed epidemic proportions the world over and more so in India. Heart disease is considered the number one killer as it is responsible for about 40% of the deaths all over the world. In India, about 10 to 14% (more than 50 million people) of the adult population suffer from CAD. More than 5 million people suffer fresh heart attacks every year, out of which 1.5 million die even before getting any medical assistance. Moreover, the prevalence of CAD in younger population (the 20-40 years age group) is 10 times more in Indians as compared to Americans and Europeans. 54% of Indians get all three coronary arteries diffusely diseased thus making them unsuitable for coronary bypass surgery or angioplasty as compared to only 21% in Americans and Europeans. Asian Indians living overseas have thrice more prevalence of CAD and 8 times more deaths due to CAD. Immigrant Indian physicians in the United States have 3-4 times more prevalence of CAD than native U. S. physicians. It is estimated that prevalence of CAD in India is 6 times more than the Chinese and 20 times more than the Japanese. CAD is spreading the world over at an alarming rate in both higher and lower economic strata.

Coronary Artery Disease (CAD): A challenging health problem for the 21st century

Over the last three decades the progress in by-pass surgery, angioplasty with stenting and cholesterol-lowering drugs like statins have improved the prognosis of CAD, yet the number of CAD patients remains enormous. Moreover, as India is a developing country not everyone can afford this costly approach. In spite of the best efforts made by medical professionals, the facilities have not yet reached the masses to combat the menace of CAD epidemic.

Also, these approaches do not address the root cause of CAD and are palliative in nature. It is estimated by WHO and other World Health Agencies that by the year 2010, 60% of all the heart patients in the world will be Indians.

Psychological factors: The major risk factor for CAD

Medical scientists throughout the world have been working day in and day out to find the real cause of CAD. Recently, many well designed studies have shown that psychological behavior patterns play a very important role in causation and progression of coronary blockages & formation of clots which in turn lead to angina and heart attacks.

These behaviors are categorized as Type A behavior which include attitudes like 'hurry' sickness, feeling

pressurized by time and work, strong likes and dislikes, perfectionist, idealistic, punctual, aggressive, competitive, polyphasic i.e. trying to accomplish various tasks at the same time, or feeling anxiety, depression, anger, cynicism, hostility, job and family stress. Other sensitive behaviours include feeling of isolation, dependence on social support or emotional support, etc. These psychological behavioral patterns lead to wrong dietary, exercise or sleeping habits and thus reduce control over hypertension, diabetes, smoking, high cholesterol levels, obesity and lack of physical activity etc which are conventional risk factors of CAD. This leads to further increase in the coronary blockages at an early age.

Is regression of CAD possible?

Some of the well-designed studies (Dean Ornish et al, Manchanda et al etc.) have shown that management of stress through Yoga/ Meditation and change to healthy diet & exercise habits can halt the progress of the above mentioned blockages and thereby reduce the frequency of angina and heart attacks. Till today, medical scientists consider CAD to be a progressive disease. This means that if one is able to stop the progression of the disease, it is reversal of the disease process.

We the medical team at J. W. Global Hospital & Research Centre, Prajapita Brahma Kumaris Ishwariya Vishwa Vidyalay, Mount Abu have been able to document a highly significant opening of coronary blockages in groups of patients who sincerely followed the *'Healthy & Happy Lfestyle Program'* in more than 300 repeat angiographies. The angiographies were analyzed by an independent panel of angiographers. It has been observed that in certain cases, even the 100% calcified blockages opened up significantly. These results have given an eye-opening message to medical scientists.

A Multidisciplinary Study on Coronary Artery Disease:

We have developed a unique user-friendly **Healthy & Happy Lifestyle Program** to fight back the epidemic of CAD. Efficacy of this program has been evaluated in two multidisciplinary prospective research studies i.e. the **Mount Abu Open Heart Trial and Abu Healthy Heart Trial** - a randomized controlled study in more than 500 angiographically-documented CAD patients. These studies included psychologists, spiritualists, physiologists, endocrinologists, cardiologists, clinicians, dietitians and

fitness experts, who have been working hand in hand, since February 1998.

We have worked in association with Defence institute of Physiology & Allied Sciences, Defence Institute of Psychological Research, Defence Research & Development Organization (DRDO), New Delhi and the Morarji Desai National Institute of Yoga, New Delhi. This project has been sponsored by Central Council for Research in Yoga & Naturopathy, Ministry of Health & Family Welfare, Govt. of India. The angiographically-documented moderate to severe CAD patients were referred from three tertiary cardiac care centers at Delhi, Mumbai & Ahmedabad.

Scientific presentation of CAD project results:

The report of CAD project was submitted to Ministry of Health & Family Welfare, Govt. of India in September 2004, to the Defence Research & Development Organization (DRDO) in October 2004 and to the Indian Council of Medical Research (ICMR) in March 2005. Ministry of Health, Govt. of India is planning to implement this unique, user-friendly program for primary, secondary and tertiary prevention of CAD. The results of both the trials were presented at Asia-Pacific Congress of Cardiology 2004 that was organized by World Heart Federation at Singapore and Diamond APICON 2005 at Mumbai. These results were accepted and widely appreciated by top cardiologists and clinicians from all over the world.

Brief results:

- Highly significant improvements in symptoms like Angina, breathlessness, palpitations, exercise, tolerance, left ventricle ejection fraction (LVEF)
- Healthy improvement in psychological parameters
- Highly significant reduction in drugs required for

management of angina, hypertension and diabetes

- Highly significant opening of coronary blockages.

Soul-Mind-Body Medicine: A multidimensional model for health management in 21st century. The two main salient features of healthy (heal + thy) & happy lifestyle program are:

A. Self Responsibility through Self Empowerment: Healthy= Heal+ Thy= Heal Yourself through self empowerment.

Self empowerment comes from proper & right information, education & counselling about Soul, Mind, Body & biological clock/ circadian system.

B. Change of consciousness from body/role-consciousness to soul-consciousness:

The practice of primordial state of soul-consciousness in each thought, word and action, at home/office while taking prescribed diet and exercise, is the essence of healthy & happy lifestyle program which has four basic components.

- Stress management through Rajyoga meditation(Brahma Kumaris)
- Moderate aerobic exercise
- Low fat, high fiber vegetarian diet
- Proper sleep

Unique & User-friendly approach of Healthy & Happy Lifestyle (HLS) Program:

A.) *Be Natural:*

Stress Management through Rajyoga Meditation:

Be soul-conscious rather than role or body conscious. Remember, "I am a knowledgeful, pure, peaceful, loveful, happy, blissful & powerful soul. I am the soul, point of light, dazzling in between the forehead, master of this physical body". Be in the remembrance of Supreme Soul. Brahma Kumari's Rajyoga meditation is a science and art of harmonizing spiritual energy (energy of soul), mental energy (energy of mind) and physical energy (energy of physical body), through the connection with ultimate source of spiritual energy i.e. Supreme Soul for enjoying ever healthy, ever-wealthy and ever-happy life.

Rajyoga meditation is purely a mental process which involves interaction between mind and intellect to reach the stage of perfection. No fixed physical postures are required for practicing it. Support is provided by way of daily group sessions and also through individual counselling sessions by clinical psychologists and stress management experts. Sessions on defining causes of stress, importance of tackling stress, time, work, isolation, relationship, depression, fear, anger, insecurity, sleep, disease & disaster management are taught by audio-visual means & practical workshops.

A.) *Eat Natural:*

Low-Fat High-Fibre Vegetarian Diet:

Eat plenty of fresh fruits, vegetables, nuts, sprouts, lemon and low-fat & high-fibre vegetarian diet at proper times and in proper quantity. Avoid fried foods, red meat, egg yolk, refined sugars, maida, tea, coffee etc. Take your food in silence and soul-conscious meditative state rather than while talking, watching television or reading the newspaper.

The benefits of the prescribed diet and assistance in preparation of broad-based menu, is demonstrated practically and by audio-visual means.

B.) *Be in the Lap of Nature:*

Moderate Aerobic exercise:

Have a brisk morning walk with sunrise (the queen of all exercises) and evening stroll before sunset. Exercise in an oxygen-rich open environment (not indoors) in presence of sunlight. Pranayam, physical postures, shavasans etc. are not advised in this exercise schedule. Individual brisk walk is advised as per the baseline TMT levels. The scientific way of walking to get maximum benefit and to minimize risks are taught in detail. Individual counselling sessions are also arranged.

D.) *Enjoy Proper sleep:*

Sleep at 10.00 p.m. and getup at 4.00 a.m. Hormones which creates harmony in our body secrete in balance if we are awake and peaceful at 4.00am. The science of sleep management is taught in detail.

Programs we offer:

This unique, user-friendly Healthy & Happy Lifesytyle (HLS) Program is planned in two types to combat the menace of epidemic of CAD:

For prevention of angina and heart attacks - 1 i) day comprehensive program.

ii) For angiographically-documented CAD patients - 7

days duration in-house program.

Healthy & Happy Lifestyle (HLS) Program for

Prevention of angina & Heart Attacks (7 days duration)

An intense information, education, training and counselling program: *For CAD patients*:

- Who have recently undergone coronary angiography (within last one year) and do not want to undergo bypass surgery or angioplasty due to various reasons e.g. not fit to undergo, do not have resources to undergo or do not want to undergo bypass surgery or angioplasty procedures.
- Who have already undergone angioplasty or bypass surgery (at least three months back and not more than 3 years). Cardiac rehabilitation is aimed at these patients in order to prevent restenosis of coronary artery and there by alleviating the need for repeat angioplasties and redo bypass surgery.

Who can participate?

1. Coronary angiography proven coronary artery diseases. Block in at least one of the coronary arteries should be more than 50%. Coronary Angiography should have been carried out within last one year. CT angio reports are also accepted. (Cartography reports are not accepted)
2. Age: 21 to 70 years.
3. Patient without significant left main stem disease.
4. No myocardial infarction (heart attack)/ unstable angina during the preceding 3 months.
5. Left ventricular ejection fraction > 25% and without left ventricular failure (L.V.F.).
6. Presently not scheduled for bypass surgery/angioplasty.
7. No other co-existing life threatening illness e.g. advanced kidney/liver failure, advanced cancer, etc.

One can not join the program under following conditions:

1. Any intervention procedure eg. Angioplasty or bypass surgery within last three months.
2. Patients suffered from acute coronary syndrome eg. heart attack or unstable angina within last 3 months.
3. Patients suffering from severe osteo-arthritis of knee joints which creates difficulty in walking.
4. Patients suffering from acute or chronic kidney disease (Serum creatinine more than 1.2 mg/dl).

Cartography reports not accepted. Congentional heart diseases, rheumatoid heart **1.** disease, hole in heart, valvular diseases, and dilated cardiomyopathy etc. type of diseases are not addressed in the Healthy & Happy Lifestyle program. For this, patients can take appointment on phone to visit to the OPD.

Note:

- You will be provided accommodation & food during your stay. One attendant (preferably spouse) is compulsory to accompany the participant.
- Your participation in this Healthy & Happy Lifestyle program is totally voluntary
- No formal fee is required for participating in this program but voluntary contribution (in favor of Global Hospital & Research Centre, Mount Abu) is acceptable. Your contribution is income tax deductible u/s.80-G/ 35AC.

Process of Registration:

Patients are required to send their brief case-summary, prescribed treatment, latest serum creatinine, ECG, 2 D echo (Color Doppler) report and recent angiography report (carried out within last one year) along with five rupees stamped self addressed envelope. Reports sent by email or fax will not be accepted.

Permission to attend the HLS program will be given only after your reports are reviewed by the reviewing committee. You will be informed of your participation in due course of time. Please continue to take your treatment as per advice of your physician/ cardiologist.

Prevention & Rehabilitation Program: (One day)

HLS Program For Prevention of Angina & Heart Attacks Program:

Who all can join?

a) Persons with high psychological risk for developing angina & heart attacks e.g.:
   1. Persons engaged in highly stressful jobs eg. Executives, Businessmen, Medical Professionals etc.
   2. Persons prone for type 'A' behaviour, anxiety, anger, depression, isolation, lack of emotional support, lack of social support, cynicism, hostility, sensitive and emotional behaviour etc.

b) Persons who have high conventional risk for developing angina & heart attacks e.g.:
   1. Persons with family history of heart disease.

2. Persons with high blood pressure.
3. Persons with diabetes.
4. Persons with high cholesterol.
5. Smokers.
6. Overweight person.
7. Sedentary persons, who do not have the habit of taking regular morning and evening walk.

Training the Trainers program: (3 day duration)
Intensive In-house Training for Medical Professionals in Healthy & Happy Lifestyle (HLS) Program for Prevention of CAD and their lifestyle related illnesses.

THE WAY AHEAD...

Having achieved and experienced a wealth of knowledge about CAD, where do we go from here?
A number of distinguished medical professionals and scientists have made phenomenal discoveries in intervening and remedying this killer disease, but now what would be logical and appropriate is to use these experiences and wisdom to start an active campaign in

Primary Prevention:

It would be extremely beneficial to educate children in their schools about CAD and teach them how to be smart in protecting their bodies and minds.
Children should be given the skills and techniques of managing their intellectual, physical, emotional and spiritual personalities as they grow and pursue higher studies, careers and family lives. The importance of living by a strong value system should be instilled at a young age.
Benefits of a low-fat and high-fibre diet should be conveyed to children, along with 1) role of exercise and proper sleep.
Young adults should be motivated to go in for regular check-ups so that proper screening of hypertension, diabetes, high blood pressure etc can be carried out, and thus diseases will be diagnosed earlier on.

2) Secondary Prevention:

Adults who have already developed CAD and are to undergo by-pass surgery or angioplasty should be taught Rajyoga meditation, methods of keeping mental and emotional stability, proper diet, exercise and sleep. In this way the challenge of CAD can be faced with courage and recovery would be fast and comfortable.

In patients with border-line coronary artery disease, diffused disease, who are not fit for intervention and who do not have resources for surgery can follow this program for a healthy and happy life.

3) Tertiary Prevention:

Those who have already undergone angioplasty and by-pass surgery may be advised to enter the tertiary program, so that they do not require repeat angioplasty or redo by-pass surgery in the future.

A healthy life can be achieved for all if there is accurate and timely Intervention, intake of medicines and measures of prevention. It is valuable that techniques of the CAD regression program be spread to every nook and corner of India through the media, however personal counselling has proved to be vital in transforming a patient's health and this cannot be compensated in any way. Every person should understand the fundamentals of the disease so that there is active and positive participation in healing mind and body. Science and Spirituality are two dominating powers in our world today; harmony and balance between the two will show wonders time and again in creating healthy & happy society.

Dr. Satish Kr. Gupta
Sr. Consultant Preventive Cardiology &
Cardiac Rehabilitation,
CAD Project Co-ordinator
J. Watumull Global Hospital & Research Centre
Shantivan 307510, Abu Road (Rajasthan), India
E-mail: smbmhealheart@gmail.com
Fax : +91 - 2974 - 228577, 228116, M: +91 94141 54041
Ph: +91 - 2974 -228577, 228101...106

A Mother's Faith

One day a partially deaf four-year old kid came home with a note from his teacher. "Your Tommy is too stupid to learn, get him out of the school" His mother read the note and answered, "My Tommy is not stupid, I will teach him myself." And that Tommy grew up to be the great Thomas Edison. Thomas Edison had only three months of formal schooling and he was partially deaf.

THE DAWN OF HOPE

Praveen Yogi, 35 years, Patan (Gujarat)

I am an Electronics engineer by profession and in those days I had moved with my family to Ahmedabad for earning my living. I found it difficult to adjust myself with the life in a big city. I left my job and started my own business. Due to financial problems I faced in my business, I started working late at night to make more money. I ate nothing except my breakfast and took cup after cup of tea during rest of the day. I had become a victim of fear, worry and lethargy.

I was barely 30 years of age when I had heart problem on 13th November, 2001. On angiography one of my arteries was found 70% blocked. From then I was labeled as a heart patient. My worries multiplied. Anyone I met talked about my heart problem and possible heart attacks --- first, second, third and then the END! I had the fear, every second of my life, about sudden death. I had practically lost all hope of recovery.

I came back to Patan, my native place. It was on the suggestion of an elderly man who is a Brahma Kumar, I started going to Brahma Kumari centre at Patan. I felt peace of mind there and thought that God had become kind to me again. I came to know from the centre about the camps for treatment of heart disease held at Shantivan, Abu Road. My teacher at the centre filled with my heart with courage and motivated me to attend one of these camps.

I found the atmosphere at Shantivan exactly the way my teacher had described it to me, even more so. Dr. Satish Kr. Gupta gave us information in a very simple way about reasons leading to heart trouble, and their solution. All doubts and worries in my mind
were over. I felt I had got a new lease of life.

Now I am lading a very peaceful and happy life. I follow all the four rules taught in the CAD project camp --- high fiber and low fat diet, morning and evening walks with proper rest and sleep, Rajyoga Meditation and taking my medicines regularly.

IT'S WISE TO EDUCATE PATIENTS ABOUT THE DISEASE -*A. V. Meghraj, Kalwa*

In November 1999, I developed chest pain while climbing the hills of Nainital, and this increased in January 2000. I collapsed one day due to a mild attack. The cardiologist took an ECG and advised me for a TMT test, which was positive. The angiography done at Bombay Hospital showed 6 blockages (99%, 90%, 90%, 70%, 70%, 50%). He insisted I go in for by-pass surgery while Jaslok Hospital advised angioplasty for three coronary arteries.

I was unable to walk even 100 metres without experiencing pain and was taking 12-15 tablets daily (worth Rs 150-200). It has been my experience that most doctors never educate the patient about the heart problem, and yet they charge Rs 600 for consulting, Rs 20,000 for the angiography and Rs 2-3 lakhs for surgery, neither allowing the patient to consult other doctors nor suggesting alternative therapies.

A heart patient, who had benefited from treatment in Mount Abu shared his experience which motivated me to visit Dr Satish Gupta at abu and join the "Ever-healthy & Ever-happy" Program for CAD regression. We were educated thoroughly and given expert guidance regarding our health problem. I consider myself very lucky as I learned a lot about the physiological, psychological and spiritual factors connected with the heart. I was introduced to Raja Yoga and Meditation which provide life-support and a strong will to individuals who tread this path.

Now I can walk 10-12 km without any problem. I haven't taken a single day's leave due to chest pain or any other symptoms for the last 4 years. I think it is a miracle! I am able to play games like volleyball, cricket, table tennis, swimming etc.

The students of my school prepared a demonstrative science project on the CAD regression program and have won prizes at School, Ward and Zonal Levels. Medical professionals and scientists have showed interest and appreciation. Many of my friends and relatives have taken benefit from this new lifestyle and rid themselves of heart problems and illnesses like acidity, ulcers, constipation and so on. A few newspapers and magazines in English, Hindi, Marathi and Kannada have published my experience as well.

The CAD regression program should reach large number of heart patients particularly of younger age who are the bread-winners of their families. I humbly request one and all to support and strengthen this noble cause for the benefit of Indians and all humankind.

In the end I express my heart-felt thanks to Dr. Satish Gupta and his team of self-less workers for all they have done for me..

B.K. GYAN
Karnal, Haryana

I am the son of a farmer of district Karnal, Haryana. I had all the evil habits of smoking, drinking, stealing, gambling and quarrelling in my college days. As I failed in my studies, I took to farming. But for that too I had no interest.

I got married in 1987. I have two sons. My wife is of very cooperative and generous nature. She never lost her temper with me and always advised me to mend my ways. But I never listened to her. I had become a terror for my wife and sons.

My two elder brothers died within a span of four years. The entire responsibility of running the family fell upon me. But, instead of shouldering this burden, I took to excessive drinking and taking opium. I became totally dependent on them. I even started distilling illicit country liquor in my own fields as a side business, for which I did some time in jail. My financial status was getting worse day by day. I started a bogus finance company to make easy money.

Once I felt uneasiness and pain in the chest followed by vomiting and breathlessness. I thought that perhaps it was due to gas on account of the food I had eaten or due to some adulteration in the opium I was taking. I never thought that these were symptoms of a heart attack. To ease the chest pain I took another half bottle of liquor that I could lay my hands upon, but with no effect. My folks wanted to take me to the city for treatment but instead of listening to them I became abusive and started quarreling with them. This happened in June 2003. Some days later, I again felt unbearable chest pain followed by vomiting and acute uneasiness. I was immediately rushed to a private hospital in Karnal and kept in the ICU for the day. From there I was referred to Jaipur Golden Hospital in Delhi where I underwent angiography and angioplasty costing me a neat sum of Rs 130,000.

But I did not learn any lesson from all this. I again started smoking and drinking. I tried my best to give up these habits but it seemed impossible. .My health had deteriorated, so much so that I could not even walk without panting for breath,

At this point of time, I happened to meet Suraj Bhai who was our neighbor in the village. This meeting marked a u-turn in my life. I was introduced to the Brahma Kumari centre at Gharounda in Karnal district. There I did one-week course and came to know about the three-dimensional heart care approach for treating coronary artery disease, a project for which was being conducted at Shantivan, Abu Road. I attended the Project camp held in August, 2004. I had a strange experience during the camp. I felt as if my blockages were melting away through some power. That was, in fact, Shiv Baba, acting as the Supreme Surgeon.

I am now a totally new person. Gone are the wild ways of the past that is best forgotten. My wife and kids are very happy. I am greatly thankful to Brahma Kumari sisters and Dr. Satish Gupta for bringing about this miraculous change in my life.

A TRYST WITH DESTINY
K.K. Kaushal, 56 yrs, Delhi

My traumatic journey begins in November, 1998 when I was hardly 47 years old. I had a heart attack on 23rd November, 1998, followed by another attack on 23rd March, 1999. The angiography done in Escorts Hospital, Delhi, in April, 1999, revealed that I had 99% blockage in LAD mid stenosis and 70% in LCS distal. It was followed by angioplasty.

I had heart problem again in the month of June, 1999. It was found that I had 90% LCX proximal. Another angioplasty was done in Escorts Hospital. After six months, in December 1999, it was found that I had Triple Vessel Disease with 50% LAD mid LCX 90% proximal, 70% mid and 2nd Ob2 and 90% mid stenosis. RCA was 100% blocked. I underwent bypass surgery and was discharged from the hospital next month, in January, 2000.

I had another heart attack in August, 2000. An angiography revealed right graft 100% blocked and deposits in the arteries increased. I was very miserable by then. There was onset of depression and I had no will to live. It took me one to two hours to take my meals. I was simply not able to do any thing. The doctors in the hospital told me that I would have to live with it for my remaining life. In the face of Death, I was advised to cultivate a positive attitude on life!

It was in March 2001 that I attended the first 'Ever-healthy and Ever-happy" life style camp at Shantivan, Abu Road. On the very first day I had this unusual spiritual experience that it was some trick of Destiny that had brought me to Shantivan. Since then I have attended these camps regularly. I find myself a completely changed person. Medicines have reduced to the minimum. I play badminton and other games with friends. I enjoy my morning and evening walk and am living my life with zest.

Thanks to Shiv Baba and the Brahma Kumari sisters who have shown me the path to health and normalcy.

A Tribute To Women

They talk about a woman's sphere as
though it had a limit;
There is not a place in earth or Heaven,
There is not a task to mankind given,
There is not a blessing or a woe,
There is not a whispered yes or no,
There is not a life, or death, or birth,
That has a feather's weight of worth
without a woman in it.

I NO LONGER AM A HEART PATIENT
- Rajni Mulchandani, Ahmedabad

I had been suffering from high B.P. for the last 15 years and used to take medicines regularly. Some years ago, I felt chest pain and after consulting various physicians, it was diagnosed as unstable angina pain. The pain was persistent which disturbed my family and me. On 22nd February 2005, an angiography was carried out which reported there was one 100% blocked artery while others had multiple blockages. We consulted three reputed doctors at various hospitals in Ahmedabad who all advised surgery, therefore we set a date.

Suddenly, divine intervention came through a family friend, who informed us of the CAD regression camp hosted at the Brahma Kumaris Headquarters. With the assistance of some BKs, I attended the camp in May 2002, accompanied by my husband. We were impressed by the methodology and Dr Gupta's style of teaching. His slogan is to "heal thy self". We had living examples of people who were completely cured by following the system before us. Here, patients are told through psychological testing why they are suffering and how to remove the root-cause of suffering. No other doctor does this practice.

We attended in all four programmes in the interval of 4-5 months. Every programme filled my heart with love and an earnest desire to live. The personal visits of the great *Dadis* of Brahma Kumaris and their preachings changed my way of living. I started visiting the Brahma Kumaris centre in Memnagar, Ahmedabad. Everything goes on normally now without angina or need for surgery. My relatives, friends and neighbors doubt whether I was ever a heart patient!

Then came time for the second angiography in August 2003. We chose a different hospital and the doctors were surprised to see that the 100% blocked artery was now 100% open, and the other multiple blockages had reduced to a great extent! "It's is a miracle. I cannot believe when I compare the first and repeated angiography reports."

These results are due to the blessings of God and the holy *Dadis* of Brahma Kumaris. Moreover I dedicate my success to Dr. Satish Gupta who took lot pains to design the programme, teach it in a very lucid manner, and attend to the patients uniformly.

I know the pain of heart patients and the agony their family members go through, which is curable now. The heart of Dr. Satish Gupta is open for all. He calls us not heart patients but 'Dilwale'. I can spread the light through the torch given by Dr Gupta and my services are available 24 hours any day for any Dilwala.

I continued to follow the daily routine from 4.00 am to 10.00 at night and attended the follow-up programme after six months. I attend every CAD Project camp and serve as a volunteer. Dilwalas have formed the 'Healthy Heart Education & Research Foundation' to spread the message of CAD Project. I have motivated several CAD patients to attend the programme and we have also started a Pune Chapter of the Foundation to help CAD patients of the city.

The Power of Super Surgeon
Punna M. Reddy, 36 years, Karimnagar (AP)

I am a Software Engineer by profession. I stayed with my family in Hyderabad. With her five daughters (Lust, Anger, Greed, **Attachment** and Ego) Maya played havoc with my life to make it miserable and terrible. But with God's grace I was saved. I weighed only 40 kg with a height of five feet eleven. I had so many other physical problems like chest pain, spinal column pain, blood disorder, Sinus, acidity along with mental problems such as fear, worry, stress etc. The family of Maya expected that I would surrender to them by going into deep depression and then commit suicide. I came to know that Maya can close all the paths of recovery in the outside world relating to body. But she could not curb my inner desire to know who I am and how I could contact God, the Supreme Soul through meditation or Rajyoga.

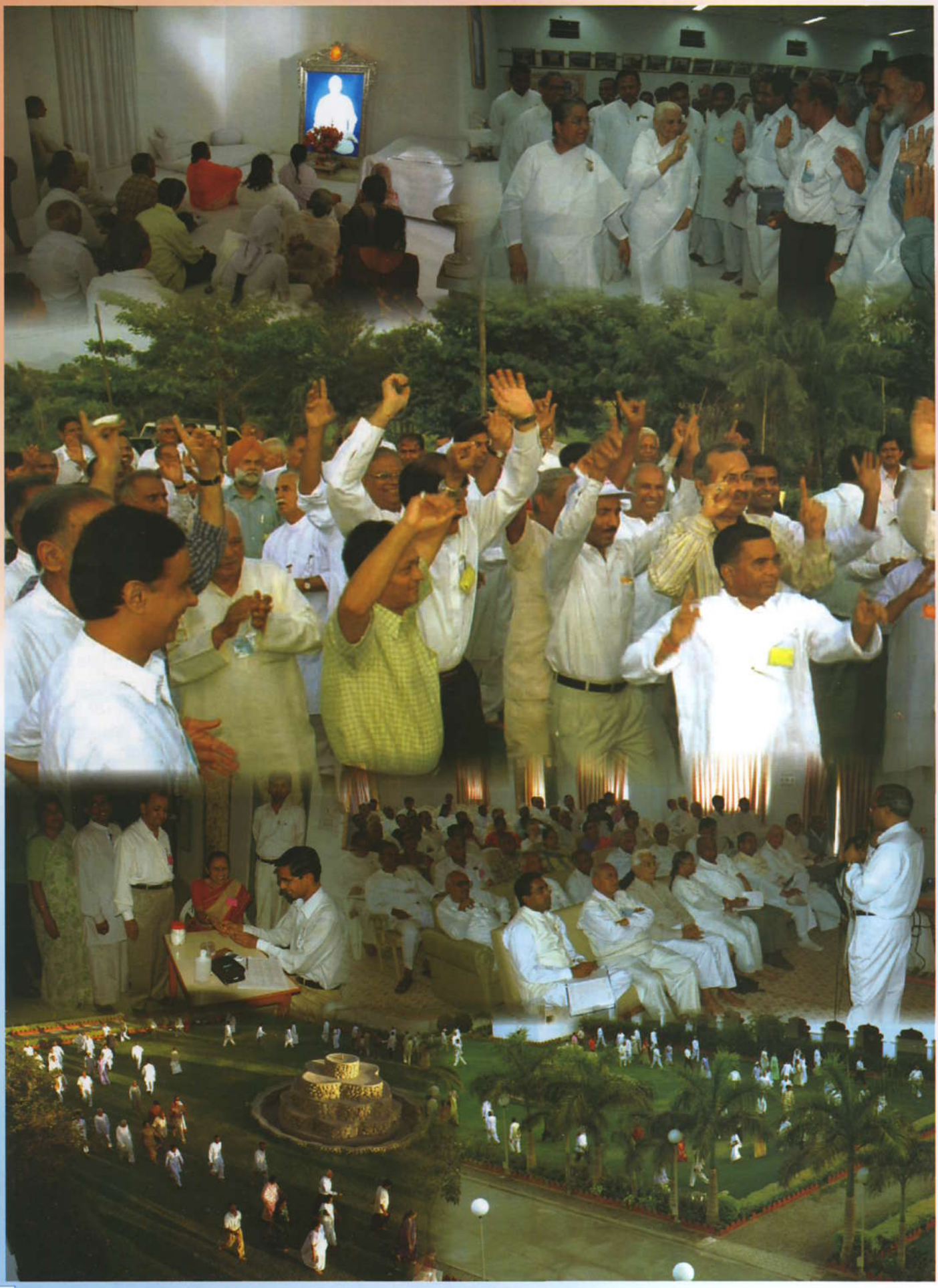
Astonishingly, I came out from not only all the vices but also came out of six moths of deep depression and also gained bodily weight by 22 kg with in two & half years. It all happened with the help of Rajyoga meditation and practicing soul consciousness without contacting any doctor. It was all automatic. I stopped smoking, eating non-vegetarian food, sleeping and getting up late etc. Now I have healthy mind and body. I earnestly practice Rajyoga (interacting with GOD) to enrich my soul with all the seven original attributes of soul (Peace, Love, Wisdom, Purity, Energy, Joy and Bliss) which I get from the Supreme Soul, the source of all these qualities. In my search for Peace and Love I reached Shantivan which is really the abode of Peace. I am now giving free service to Dilwalas (CAD patients) and all other activities relating to them. I am greatly thankful to GOD, Dadi jis and to all brothers and sisters of the B.K. family and, lastly but not the least, to Dr. Satish Kumar Gupta & B.K Bala behn.

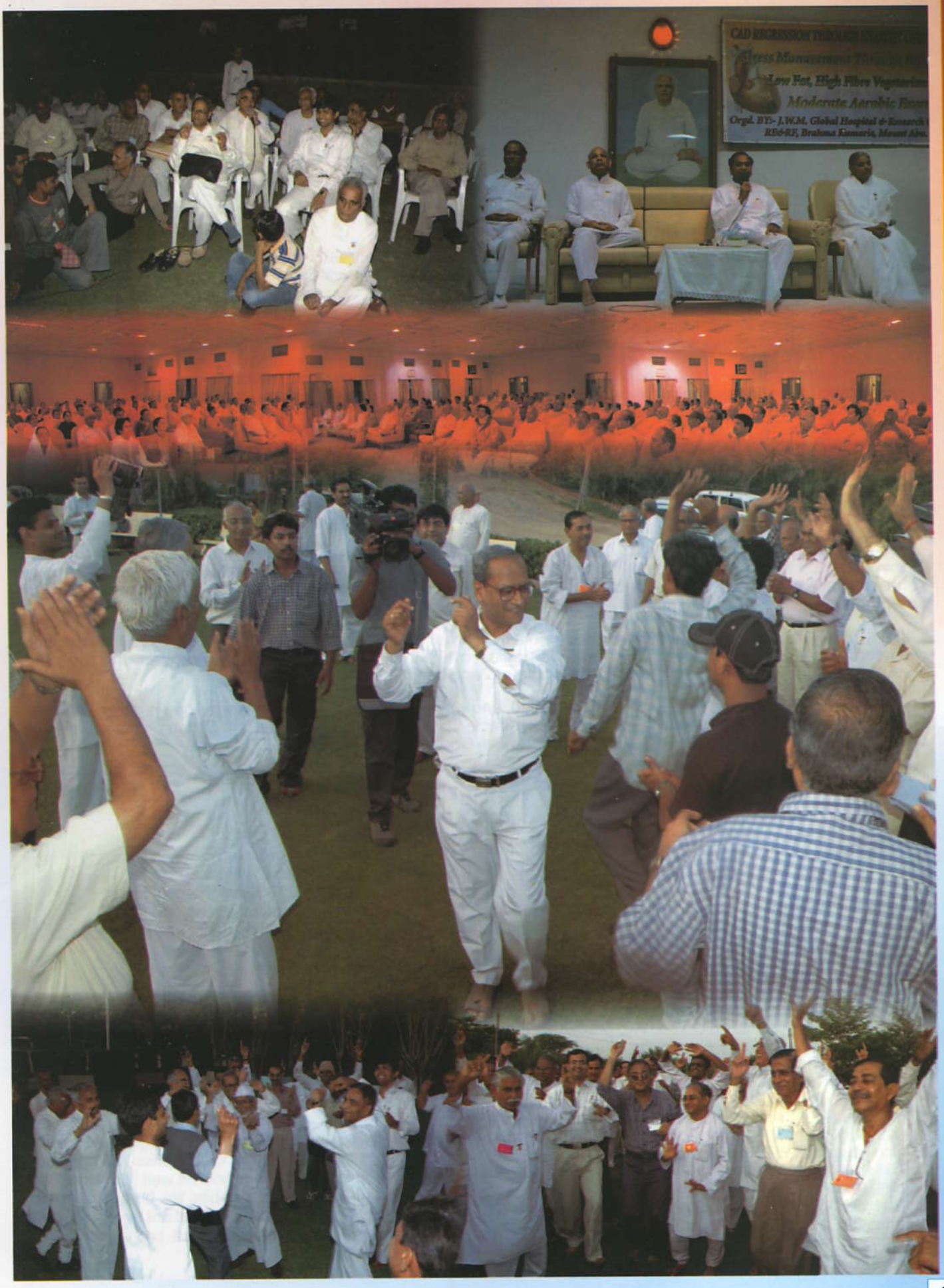
Optimism

Optimism is a cheerful frame of mind that enables a tea kettle to sing even though it is in hot water up to its nose.

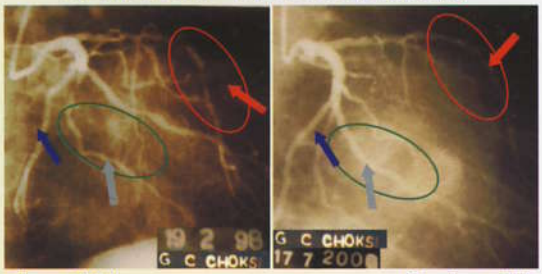
A Doctor's Advice

Never, under no circumstances, take sleeping pills and a laxative on the same night.




Low Fat, High Fibre Vegetarian
Moderate Aerobic

Ghanshyam Choksi - Repeat coronary angiography



Ghanshyam Choksi
Baseline coronary angiography

Ghanshyam Choksi
Repeat coronary angiography

TREATMENT GIVEN IN GOD'S REMEMBRANCE

- Ghanshyam C. Choksi, 63 yrs, Ahmedabad

I am a retired Civil Engineer. During my career I had to work very hard. By nature I was very punctual and sincere. If some task was done incorrectly, I would get upset and angry.

In January 1998, I had to travel to Delhi from Ahmedabad by road and when I returned after six days my legs were swollen. I visited a physician who took my E.C.G. and found that my heart was not functioning properly. After an echo, I was advised for angiography, which revealed multiple blocks in my coronary arteries. I was shocked by this report as I neither had chest pain nor any symptoms of breathlessness etc. Due to poor ejection fraction of 20% (pumping power of the heart) neither by-pass nor angioplasty was possible in my case making it a critical situation. My wife and children became very depressed. Two months passed in tension and the doctor's medicines were not helping any more. I left everything to God.

One day a friend insisted that I attend the 'Healthy & Happy Living Programme for CAD Regression' started at Global Hospital, Rajasthan. I was lucky to get permission to attend the first programme from 15th 21st May 1998.

We were warmly received by Dr. Satish Gupta and his team. Every patient was allotted an independent well-equipped room. The treatment was given sweetly in God's remembrance. They taught us how to live a life full of peace love, joy and happiness. After attending this camp I found a new direction. I continued to follow all components of the programme strictly.

After a follow-up visit, I had my Echo test done before coming for the third follow-up visit in February 1999. It was really wonderful that the pumping power of my heart was raised to 35% from 20%! I have attended 5 camps within two years and can gradually feel the improvements. Life is colourful and beautiful again.

I underwent a repeat angiography on 17th July 2000, and was astonished that the blockages had reduced 20% and the pumping power was raised to 45%! It's a great miracle that God has saved my life. Dr. Satish Gupta is the angel who has filled new joy in my life. He put in great efforts with God's mighty power.

FAITH IN MAINTAINING CONSTANT GOOD HEALTH

- K. H. Patel,
Former High Commissioner of India to Uganda & Ambassador to Rwanda & Burundi, Ex. Director, Ministry of External Affairs, (Govt. of India) 68 yrs, Ahmedabad (Guj)

I had a massive heart attack in January, 2000. Immediately, I had to go through angiography and angioplasty, involving the placement of two Stents. However, in next one month and three weeks I got another heart attack. Following this, I went through second angiography. The result showed that the LAD, where angioplasty was done, had got completely blocked. Two prominent Heart Surgeons opined that I should go through by-pass surgery. However, my Cardiology Consultant thought that medical management should be sufficient.

While accepting this view, I came in touch with Dr. Satish Gupta who was conducting his CAD program at Abu, Rajasthan. I began to follow this programme, which has resulted in my EF improving from 45% to over 60%. I have not felt any cardiac problem whatsoever during the last six-and-a-half years.

I feel confident that as long as I practice Rajyoga Meditation and the basic principles of CAD programme relating to food , exercise and proper rest and sleep, I shall not have cardiac problem ever again.

EVERYONE SHOULD KNOW ABOUT THIS PROGRAMME

-Shenaz A. Babi,57 yrs,Gujarat

I attended the CAD regression camp in September 2004, with 90% blockage of the right side CA, and 70% in right renal artery. I was under constant stress and suffering from diabetes, restlessness, domestic and professional problems and had a sensitive nature.

There are several good changes that I have undergone in my physical and emotional health. I no longer get angina and have developed more stamina. My personality has improved and lifestyle is simpler and more peaceful. I have learned to overcome unnecessary anxiety and take things at a normal pace.

I strongly feel the CAD Regression programme should be arranged in small camps in all states of India, and broadcast on television channels as well. It's necessary for us to cultivate healthy habits for body and mind. Health is a gift of God and we should not neglect it. Let's inspire more people to attend such programmes and improve their lives.

The Four Heart Attacks Still going strong
- Satish S. Kawoor, 55 yrs, Pune

I served in TATA Motors for 31 years. During this period I met with two major accidents: a severe electric shock on the chest in 1981 and a road accident in which all the veins in my right ankle were crushed.

A year following my road accident I suffered from a heart attack in 1982, which was diagnosed to be myocardial injury due to the electric shock on my chest. I had a second heart attack within a month and was hospitalized for 4 months. I had my third attack in 1987 followed by a CVA attack in 1993 in which I lost my memory. The angiography report revealed a clot. I regained my memory after treatment for 2-3 months and resumed my duties. But since the job caused stress I found it difficult to continue and opted for voluntary retirement.

I opened a hotel at Shirdi Sai Baba, 20 kilometers from my home in October 2003. But running a profitable hotel is not an easy affair for a single person. The outcome was the fourth heart attack. My angiography revealed I had six blockages ranging from 70 to 90% and the doctor suggested angioplasty for 5 blockages. But considering the costs we opted for by-pass surgery and the day for operation was fixed. I don't know what caused the operating surgeon to change his mind but on seeing the CD he suggested I should first try out yoga and ayurvedic medicines and if need be, to come for the operation after three months.

One of our doctor friends introduced me to the CAD Regression Camp and I joined it on 16th August 2004. It was totally a new concept for me and by the fourth day I started feeling very light within. We had a picnic on the sixth day which was a virtual TMT test for us because every Dilwala danced to garba and bhangra music without feeling any physical discomfort. On the last day each one of us had personal counseling from Dr. Gupta.

I continued to follow the daily routine from 4.00 am to 10.00 at night and attended the follow-up programme after six months. I attend every CAD Project camp and serve as a volunteer. Dilwalas have formed the 'Healthy Heart Education & Research Foundation' to spread the message of CAD Project. I have motivated several CAD patients to attend the programme and we have also started a Pune Chapter of the Foundation to help CAD patients of the city.

What soothing words can do !

Patients admitted in ICCU with cardiac ailments become relaxed and comfortable if the treating doctor keeps his hand on the patient's forehead during his examination of the patient, along with a few soothing words about the patent's recovery.

ALLAH'S ENCHANTING MEDICAL SYSTEM
- Mazhar Mehsari, Mumbai

On 11th March 1999, I suddenly developed chest pain. I consulted my family doctor and got T.M.T. done. After keeping me in the ICU for few days, the doctor recommended I go in for an angiography. At J.J. Hospital, Mumbai, Dr Bhosale informed me of the CAD regression camps organized by Brahma Kumaris, Abu, and said if I ever decided to attend I should let him know.

I went ahead with the angiography which revealed that I had 3 blockages: 80%, 90% and 99%. Though I wasn't ready for surgery, my family members and friends insisted I go ahead. I have strong belief in Allah and pray 5 times a day; just before the surgery I felt God was inspiring me to contact Dr. Bhosale. He immediately made arrangements for me to come to Shantivan.

Whatever I saw at the Brahma Kumaris Complex was what Islam calls 'Jannat' or 'Paradise'. It is such a pure environment. My mind blossomed on seeing the behaviour and personality of all those who live here. The first miracle was renouncing the notion that 'I am a patient.' I gave up non-vegetarian food on returning home as the pure food eaten in Shantivan left a pleasant mark on my mind.

There is great joy in practicing soul-consciousness and detaching from the body and world to remember God. Whenever I share my experiences with doctors, none of them are prepared to believe me. Heart disease is spreading rampantly in Bharat where the majority is unable to afford surgery. So at such times, this treatment from God is a blessing. God is the Ocean and I constantly feel the showers of His mercy on me.

EASY TREATMENT & GREAT BENEFITS
-Shivaji K. Nikalje,45 yrs, Pune

In 2003, while I was walking one day I suddenly felt dizzy as though everything was going dark. I met the doctor next day who asked me to get an angiography done. The report showed I had three blockages: one was 100% blocked and the other two, 90%. My doctor recommended I have by-pass surgery immediately. However I didn't have the two lacs to pay for it.

I chanced to come by a doctor who informed me of the CAD regression camps held at Shantivan, Abu Road. He told me to take a decision of having the operation only after returning from Shantivan. My wife and I came to Shantivan in September 2003.

We initially had the impression that ayurvedic medicine would be prescribed. But from the first session, Dr Gupta shared very valuable information about how heart diseases develop, how a change in lifestyle is essential etc. I followed the programme diligently and still maintain it. The practice of meditation too helped me greatly in understanding myself and connecting the soul with the Divine Being.

I am absolutely fine today and can walk up to ten kilometres comfortably!

(Names of the Organizations as in Loving Tributes)

The Organizing Committee of WCCPC-2007 and WPCHC-2007 convey their Heart-felt THANKS

To all the Participating Organizations for their Guidance, Cooperation and Assistance.

All members of the CAD Research Project Team

WHA

apsc

J.W. Global Hospital & Research Centre

Medical Wing, RERF BKWSU, Mount Abu

HHERF

INTERNATIONAL SCIENTIFIC ASSOCIATION MSA

WASS

TIMES FOUNDATION

EXPRESS Healthcare

PRICEWATERHOUSECOOPERS

Life POSITIVE

ASSOCHAM

SCOPE

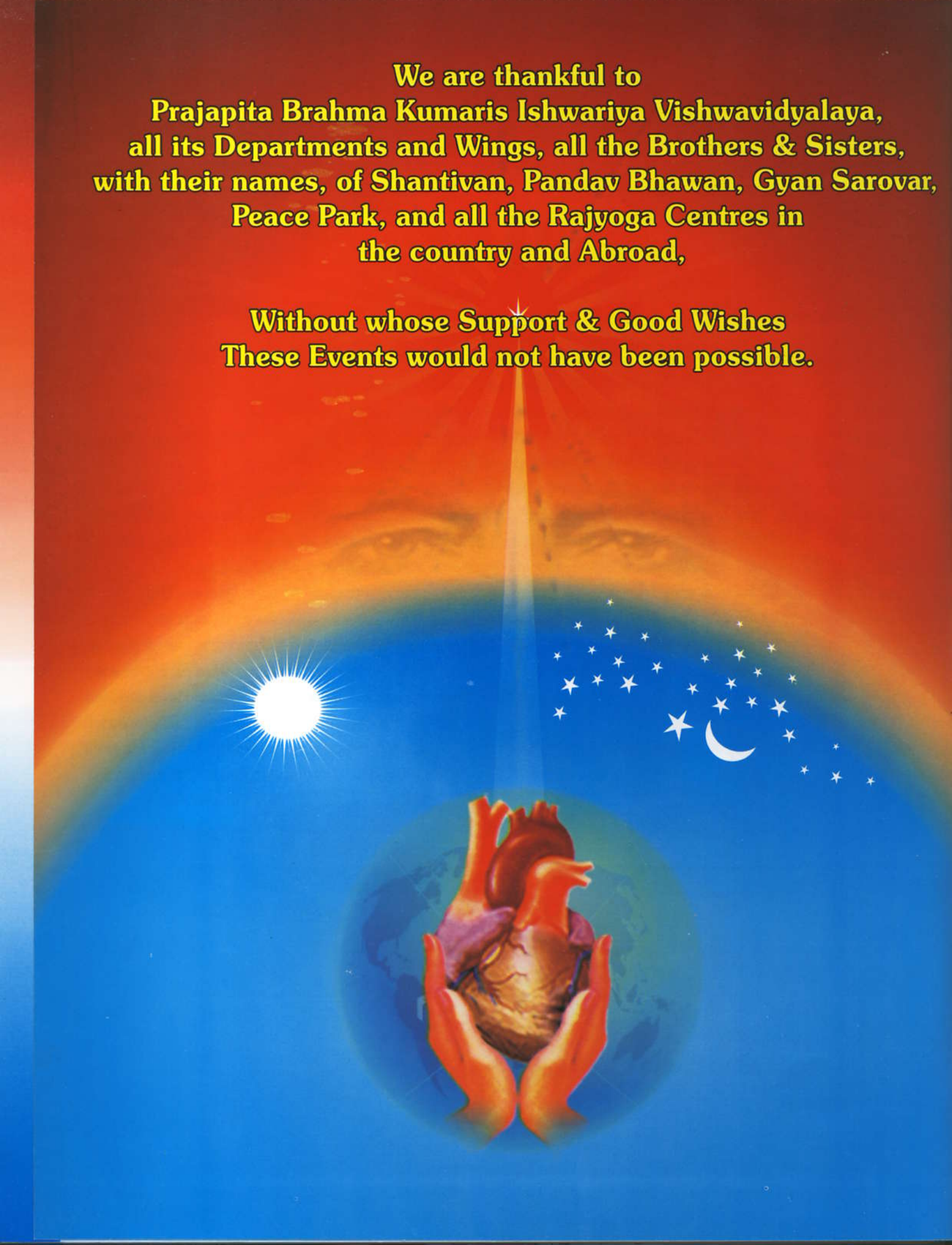
LIONS

TONS OF THANKS TO

The Management and all the Brothers & Sisters,
with their names of
J.W. Global Hospital & Research Centres and
The Medical Wing of
Rajyoga Education & Research Foundation
of the
Brahma Kumaris,
for their valuable support.

We are thankful to
Prajapita Brahma Kumaris Ishwariya Vishwavidyalaya,
all its Departments and Wings, all the Brothers & Sisters,
with their names, of Shantivan, Pandav Bhawan, Gyan Sarovar,
Peace Park, and all the Rajyoga Centres in
the country and Abroad,

Without whose Support & Good Wishes
These Events would not have been possible.

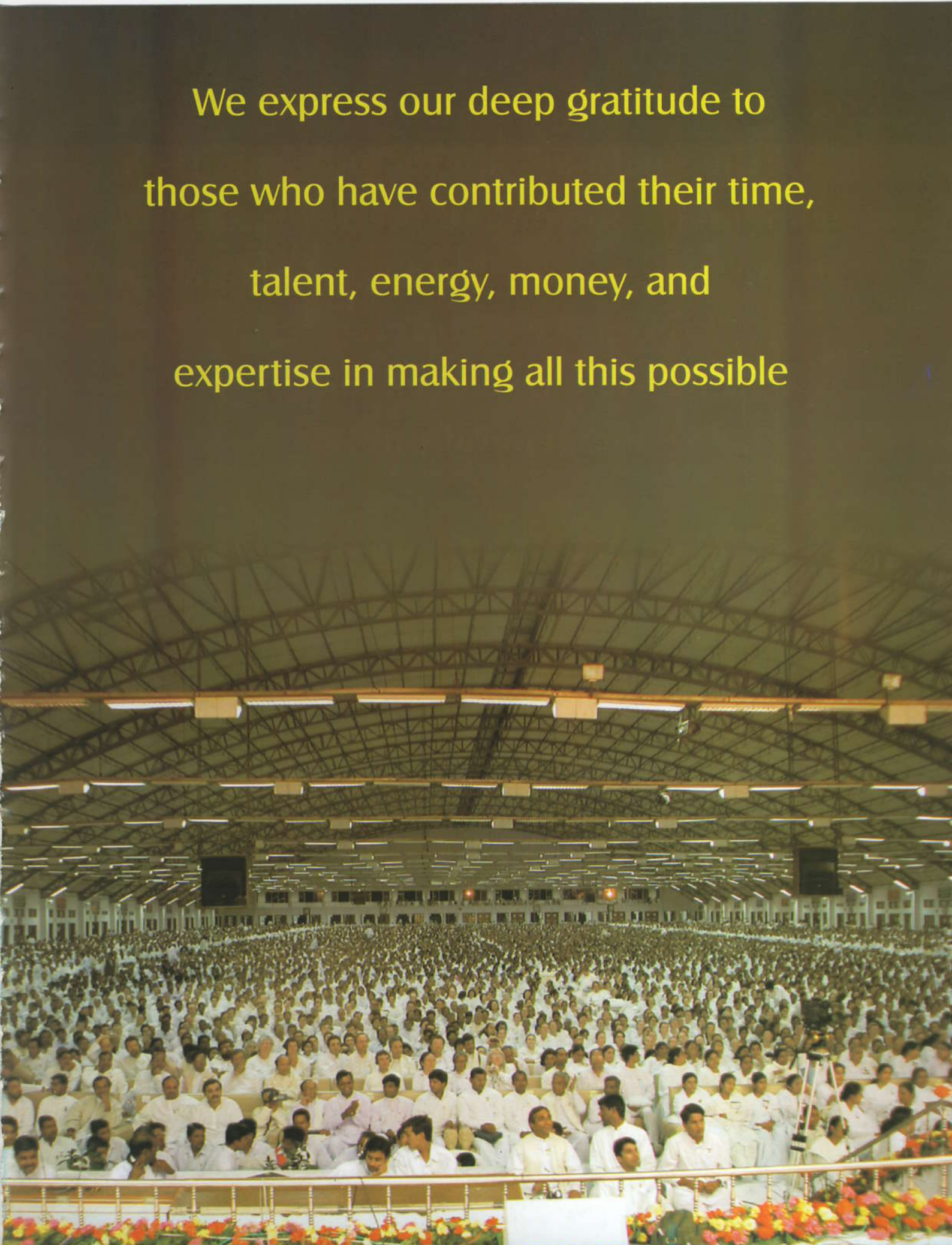


We express our deep gratitude to

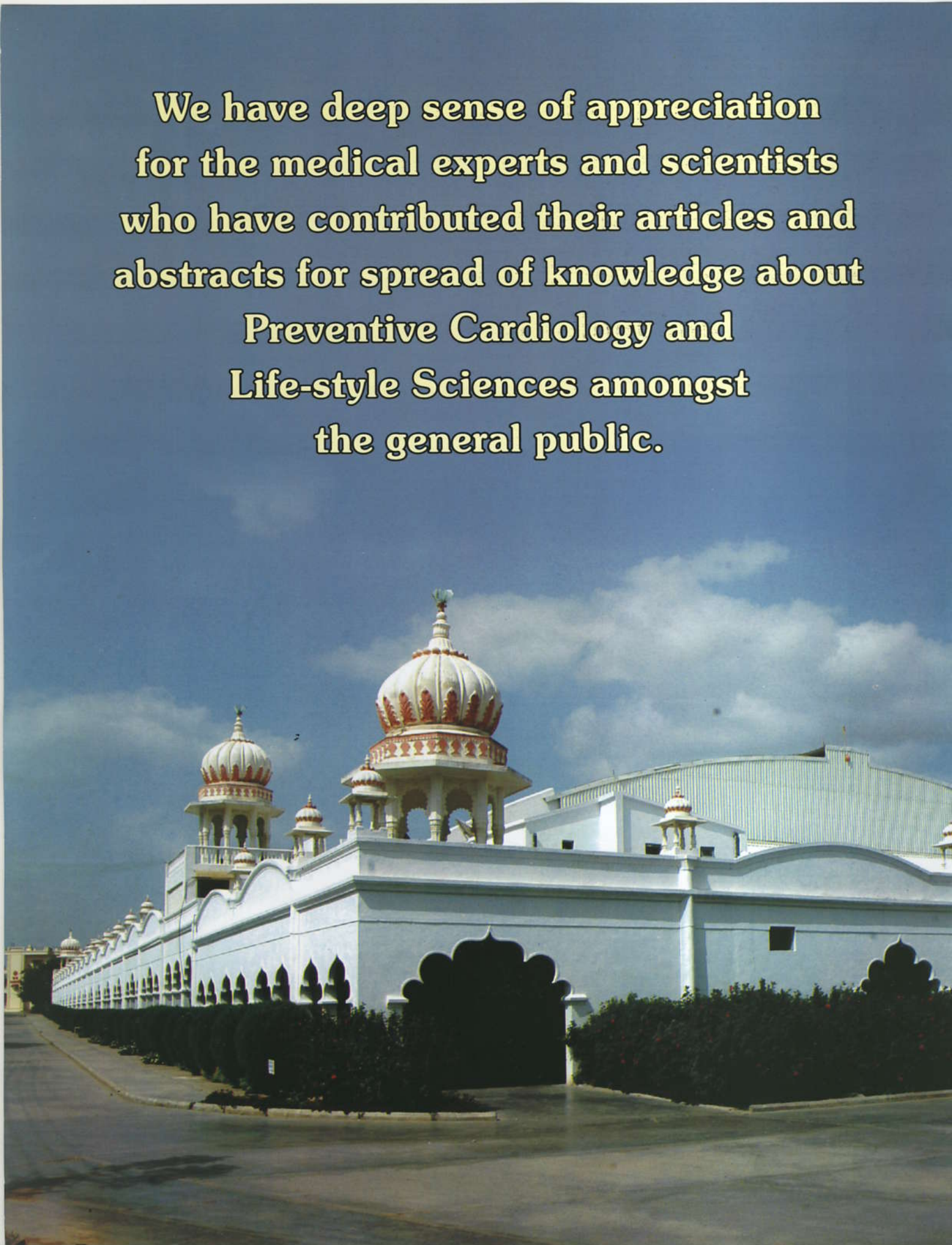
those who have contributed their time,

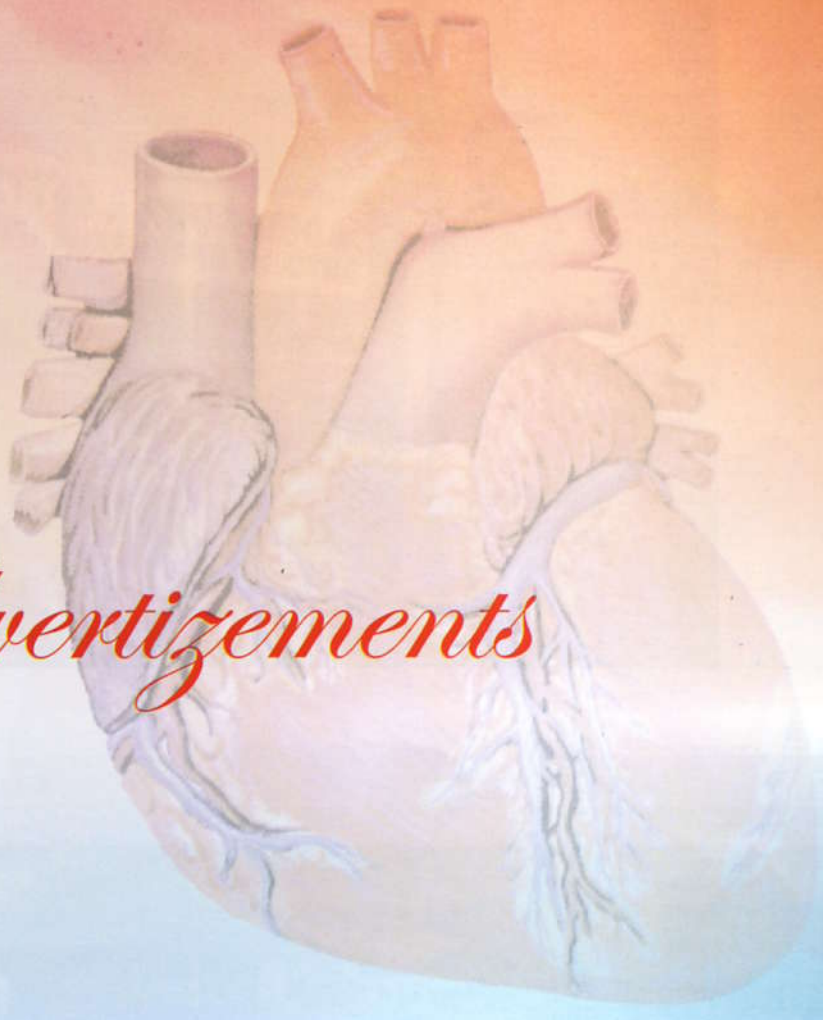
talent, energy, money, and

expertise in making all this possible

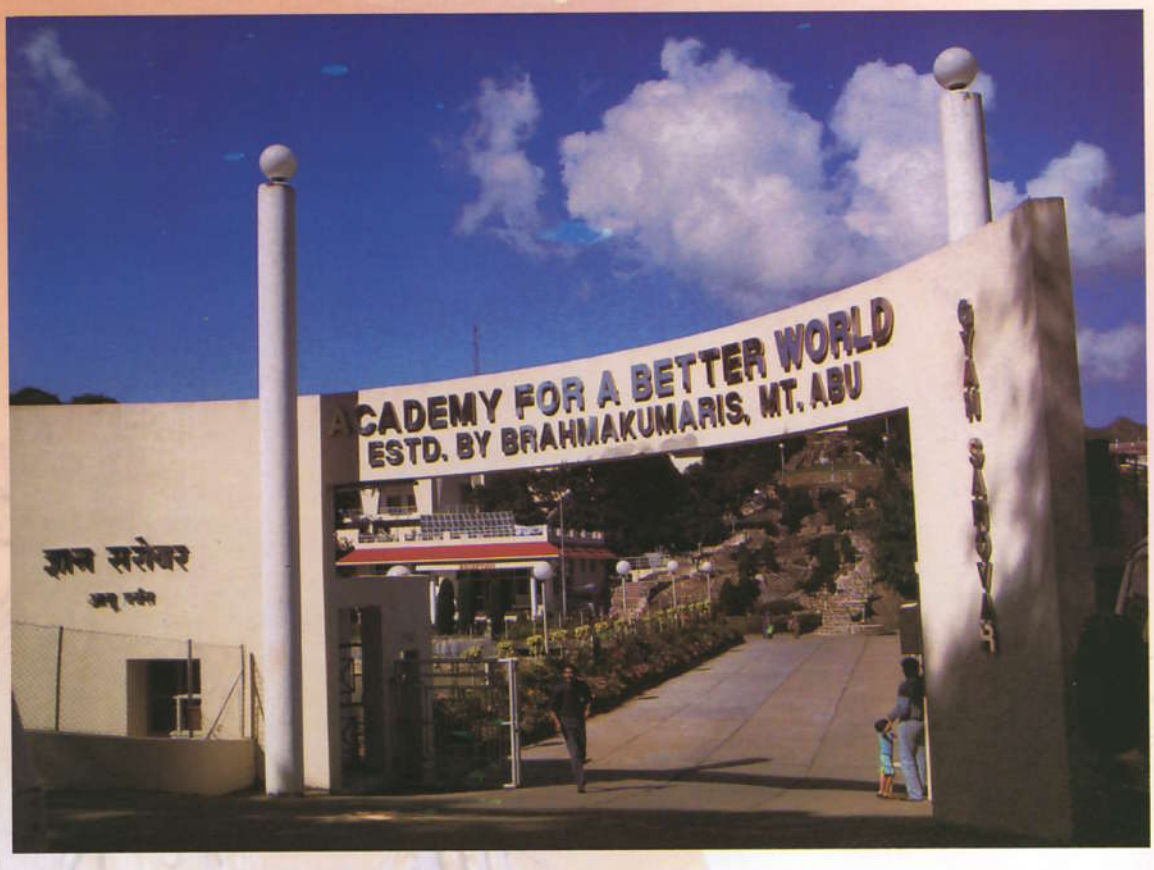


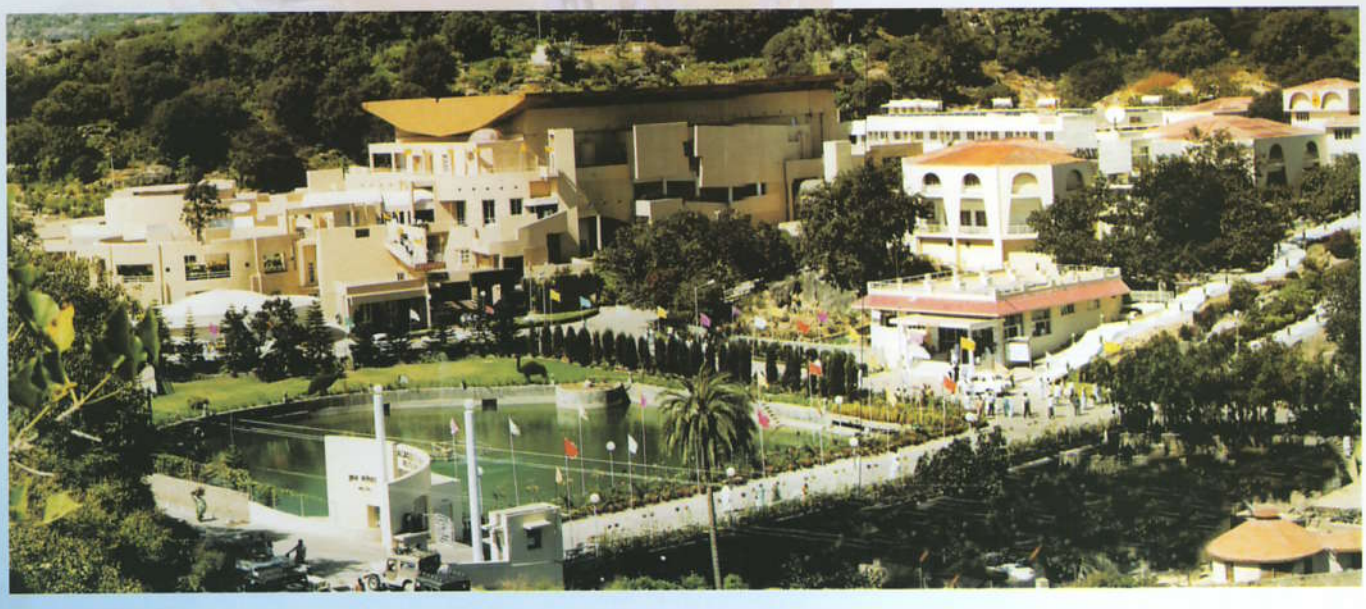
We have deep sense of appreciation for the medical experts and scientists who have contributed their articles and abstracts for spread of knowledge about Preventive Cardiology and Life-style Sciences amongst the general public.





Advertizements


ACADEMY FOR A BETTER WORLD
ESTD. BY BRAHMAKUMARIS, MT. ABU
ज्ञान सरोवर




100%
No added sugar
Tropicana
Premium Gold
ORANGE
fresh new taste
Tropicana 100%
pure juice
and nothing else.

NO. 1 IN TRUST

The most trusted two-wheeler company of India, TNS Automotive Study, 2006

NO. 1 PRODUCT

CBR Bike of the Year, 2007 by Overdrive, BS Motoring and NDTV Profit Car & Bike

NO. 1 IN TECHNOLOGY

Automobile Technology of the Year 2007 Award by Overdrive and NDTV Profit Car & Bike

NO. 1 IN INNOVATION

The first to introduce exclusive showrooms for women customers - Just4Her, CRM - Hero Honda Passport Program & Two-wheeler Driving School - Ride Safe

NO. 1 IN CORPORATE EXCELLENCE

Winner of Dun & Bradstreet - American Express Corporate Awards, 2006

NO. 1 IN CUSTOMER CHOICE

Splendor the most preferred two-wheeler brand
CNBC Awaaz Consumer Awards, 2006
Best in class TNS Total Customer Satisfaction Award, 2006
Top model - ET Brand Equity Survey, 2006

No wonder we are

WORLD'S NO.1*

for the 6th year in a row

Winning the hearts of millions of people is no simple exercise. Hero Honda, with its unwavering focus and commitment to quality, performance and service has earned the trust of over one crore seventy five lakh satisfied and happy customers. In 2006, Hero Honda was proud to add over thirty two lakh new customers to its family. We thank you for making us the World's No. 1 two-wheeler Company, yet again.

6 YEARS IN A ROW

HERO HONDA
WORLD NO.1
TWO-WHEELER COMPANY

*Highest unit sales, as a single company, among two-wheeler companies worldwide for the calendar year 2006

www.herohonda.com

Percept/H 119HH

Global Hospital & Research Centre (GHRC)

A pragmatic approach towards holistic healing, that is, J Watumull Global Hospital & Research Centre. It took an industrialist, a surgeon and a spiritual leader to come up with the novel idea of a multi-disciplinary secondary care hospital located in the verdant green hills of the Aravali range.

In 1989, eminent head and neck cancer surgeon from Mumbai Dr. Ashok Mehta visited Mount Abu and was impressed with the meticulous team work of the Brahma Kumaris in implementing their global UN-dedicated project, 'Global Co-operation for a Better World'. He then realised, he had found a group of like-minded people who would implement his vision of a model hospital focusing on healthcare.

The project was adopted by Khuba and Gulab Watumull of Mumbai and Hawaii (U.S.A.) respectively, and named J.Watumull Global Hospital & Research Centre, in memory of their late father. At the time, district Sirohi's roughly 700,000 strong population was served by 4 hospitals with a combined bed strength of 457 served the district's. J Watumull Global Hospital & Research Centre was commissioned on October 24, 1991.

Since then, word of the hospital and its philanthropic aims has gone around and financial support has been forthcoming from the Americas, Australia, Germany, Holland, Hong Kong, India, Japan, Kenya, Mauritius, Phillipines, South Africa and United Kingdom. The hospital has expanded its scope of operation, both within the hospital premises and in field work conducted in numerous villages around Mount Abu, under the leadership of BK Nirwair, appointed Managing Trustee of the governing board formed in 1989. www.ghrc-abu.com

GV Modi Health Care Centre

The G V Modi Rural Health Care Centre & Eye Hospital at Abu Road was built in 1994
with support from the Modi family of Surat, a hospital patron - Robin Ramsay of Australia, and Government funding received under the National Programme for Control of Blindness.

The hospital was established as a general health centre, also housing a laboratory, x-ray unit, pharmacy, dental clinic, and most important, an eye clinic that would function as a referral cum post-operative check-up clinic for the many eye patients seeking surgery for cataract, glaucoma and other blindness causing illnesses.
Since then, the ophthalmic unit has been shifted to the Global Hospital Institute of Ophthalmology. The centre presently houses a cardiac clinic that serves as a consultation room for patients seeking admission to the hospital's coronary artery disease regression project.

GLOBAL HOSPITAL INSTITUTE OF OPHTHALMOLOGY

The success of community ophthalmology services conducted in the field, and the appreciation for hospital services received from patients operated for diseases causing blindness led to the establishment of the Global Hospital Institute of Ophthalmology in 2003. The hospital is staffed by five ophthalmic surgeons supported by optometrists and nursing staff.

It offers all anterior segment microsurgeries, cataract extraction by phaco-emulsification or by small incision with posterior chamber IOL implantation, glaucoma, trauma, adnexal and vitreo-retinal surgery, contact lenses fitting and care, corneal services including eye banking and corneal transplantation, glaucoma care, laser retinal photocoagulation for diabetic retinopathy, low vision aids, Nd Yag laser services, neuro-ophthalmological care, oculoplasty and orbit services, paediatric ophthalmology and strabismology and a uveitis clinics.

The underlying aim is to develop the institute as a well-equipped, modern tertiary eye care centre for persons living in the districts it serves - Jalore, Pali, Sirohi, Udaipur of Rajasthan and areas of neighbouring Gujarat.

P. C PARMAR FOUNDATION GLOBAL HOSPITAL EYE CARE CENTRE

The excellent response of the community to the Global Hospital Institute of Ophthalmology resulted in the construction of a new eye wing adjacent the existing centre. This facility launched in 2007, named the P C Parmar Foundation Global Hospital Eye Care Centre, houses specialist ophthalmic OPDs, as well as private hospital rooms and an area to teach ophthalmology. This has increased the capacity for indoor treatment, especially in paediatric and other specialized sub-branches of ophthalmology.

The Global Hospital & Research Centre Trust is extremely grateful to the Parmar Foundation, Orbis International Inc. and New World iCare Pvt. Ltd. who helped establish this new unit.

RADHA MOHAN MEHROTRA GLOBAL HOSPITAL TRAUMA CENTRE

The Radha Mohan Mehrotra Global Hospital Trauma Centre, a trauma unit at Abu Road constructed with support of the Radha Mohan Mehrotra Medical Relief Trust was launched in 2007.

This centre offers emergency specialist medical care to trauma patients - road accident and medical emergencies - around Abu Road. It is equipped for emergency (and routine) surgery requirements in the disciplines of general surgery and orthopaedics. After conducting basic medical services, the centre transfers patients to J Watumull Global Hospital & Research Centre at Mount Abu or to other cities depending on the seriousness of the case.

Laboratory and imaging diagnostic devices both as support services for surgery and for the routine diagnosis of residents in the vicinity of the centre are also available.

A neurosurgeon is attached to the centre on a 'visiting basis' and a critical care ambulance equipped with wireless control equipment to ensure prompt attention to cases rushed to the centre is also a vital part of our trauma setup.

BSES MG HOSPITA, MUMBAI

In the year 2002, the Global Hospital & Research Centre Trust entered into a novel public-private sector partnership with the BSES and the Brihanmumbai Municipal Corporation (BMC). The BMC allocated land for a hospital at Andheri in Mumbai, the BSES covered the cost of constructing the hospital building and its equipment while the management of BSES MG Hospital as it is called, is being done by the Global Hospital & Research Centre Trust.

This 100 bed multi-disciplinary hospital located at Andheri in Mumbai's suburbs has posted encouraging results ever since it began operations. The hospital offers out-patient clinics in the disciplines of cancer, cardiology, child guidance, chest medicine, dentistry, diabetes, ENT, endocrinology family medicine, GI endoscopy, gynaecology, homeopathy, medicine, nephrology, neurology, ophthalmology, orthopaedics, paediatrics, pain management, physiotherapy, psychiatry, sports medicine, surgery and urology.

It also offers diagnostic, indoor and operative facilities. It has a well equipped laboratory, imaging department, blood bank and pharmacy. The hospital offers health check-ups and specialty clinics where a large number of consultants proffer advice. Much emphasis is placed on organizing medical camps for underprivileged sections of society and continuing medical education programmes.

Janki Foundation

Launched in December 1997 at the Royal College of Physicians, London, The Janki Foundation for Global Health Care is a UK-registered charity supporting research and awareness in the field of health and spirituality.

The Foundation's original primary objective was to support the work of the Global Hospital and Research Centre (GHRC) in Mt Abu, India, where a holistic model of healthcare enabled by a dedicated approach to values development has been pioneered. The hospital and its associated health outreach facility works in partnership with the World Health Organisation in the STOP TB campaign and is reducing child mortality and improving maternal health in the region through nutritional supplements, health checkups and immunization.

The Foundation continues to provide extensive support for this work. Under the guidance of Dadi Janki, its president, it has also extended its remit to include values-based educational initiatives within the healthcare sector worldwide. In September 2004 it launched Values in Healthcare: a spiritual approach, a personal and team development programme for healthcare practitioners. By June, 2006, the programme had been introduced in more than 30 countries.

The Foundation also publishes information leaflets for patients and holds regular conferences, seminars and an annual lecture exploring the spiritual dimension of healthcare. Research findings and clinical experience increasingly reveal that spiritual factors have a part to play in recovery from illness. The Foundation's premise is that better understanding of these factors can benefit both the patient and practitioner, by promoting the healing process, reducing stress and staff fatigue and raising morale.

The Foundation's activities include support for health practitioners in attending to their own well-being, through reflective and other techniques that facilitate re-connection with their own highest values.

Dadi Janki, co-administrative head of the Mt Abu-based Brahma Kumaris World Spiritual University, is chief patron of the Global Hospital.

Medical Wing

To develop awareness among the masses of the importance of maintaining a healthy life-style.

To reintroduce the ancient concept of holistic health care into the practice of modern medicine and affirm the role of meditation in developing a healthy world.

To encourage a high standard of ethics and exemplary conduct among medical and health professionals.

To provide an environment in which distinguished medical scientists and specialists can dialogue and exchange experiences.

To conduct and publish research into the psycho-physiology of Raja Yoga Meditation and its application in the prevention of sickness and promotion of health.

To encourage public and professional responsibility in meeting the World Health Organisation's objectives.

There is no denying that the medical advances of the last decades of the 20th century are nothing short of miraculous. Wonders, such as major organ transplants, heart bypasses, hip replacements, laser surgeries and sophisticated diagnostic techniques, relieve the suffering and extend the life span of countless individuals who would otherwise be doomed to an untimely and painful end.

There is also widespread recognition of the interrelationship between mind and body. Holistic medicine and health practices are steadily gaining popularity. Diet, stress in the workplace and environmental factors-both physical and psychological- are being measured as to their impact on well-being and provisions are now made in the health care policies of major companies for alternative therapies such as acupuncture and homoeopathy.

Yet while the mental, emotional and social aspects of a patient's well-being are beginning to be addressed, there is still little understanding as to how a person's thoughts, attitudes, and beliefs contribute to his or her well-being.

Dis-ease begins first at the level of spirit. A human being, who has a sense of true self-love and self-respect as well as a clear understanding of the value of his or her life, is resistant to diseases of all types. However, when these are diminished or damaged through loss or trauma, the spirit becomes susceptible to negative and waste thoughts and vibrations. The will towards love and life is weakened and the physical system reflects this by being accident-prone, vulnerable to disease-producing elements such as germs and viruses and with reduced psychological immunity to social pressures, interpersonal tensions and other forms of stress. Various forms of sensual indulgence and addictive behaviour result from the soul's attempt to compensate or escape the inner impoverishment and discomfort.

Spiritually empowered medicine prescribes meditation and spiritual practices which enhance an individual's resistance to the negative influences that drain spiritual energy. At the same time it promotes self-respect, purposefulness and other values which empower the will and strengthen the character. Spiritual empowerment demonstrates the truth that 'sound character contributes to a sound mind and body'. Best of all, meditation is a medication that has no adverse side effects.

Nurses, doctors and other medical personnel can also benefit from spiritual empowerment. Often they are victims of the same addictive habits (smoking and drinking alcohol) as their patients. Hospitals, medical schools and out-patient clinics are often stressful environments. The Global Hospital & Research Centre is an example of a spiritually empowered medical environment where all staff regularly practice meditation. Many patients describe its calm and comforting ambiance-a marked contrast to many medical establishments of the same size and scope- as having played a significant role in their recovery.

Brahma Kumaris

Prajapita Brahma Kumaris Iswariya Vishwa Vidyalaya (or Brahma Kumaris World Spiritual University, BKWSU, as it is known in foreign countries) is an international spiritual organisation. It has been working at all levels of society for a positive change for the last 70 years. The organisation offers a wide range of educational programs through its more than 8000 centers in more than 100 countries.

The Brahma Kumaris institution acknowledges the intrinsic goodness of all people. A worldwide family of individuals from all walks of life, they are committed to spiritual growth and personal transformation, believing them essential in creating a peaceful and just world. Acknowledging the challenges of rapid global change, we nurture the well-being of the entire human family by promoting spiritual understanding, leadership with integrity and elevated actions towards a better world. The University works alongside individuals and organisations in all areas of the community, such as healthcare, education, youth, social services, the criminal justice system and in inter-religious dialogue.

A visionary leader, the founder, Brahma Baba, envisioned a time when people of all backgrounds would come together to rediscover and develop the spiritual dimension of their lives. One of his most revolutionary inspirations was to place women in the major leadership roles of the University.

A practical method of meditation is taught that helps individuals understand their inner strengths and values. Raja Yoga Meditation is a method of relaxing, refreshing and clearing the mind and heart. It helps you look inside to rediscover and reconnect with your original, spiritual essence.

The BKWSU has general consultative status with the United Nations Economic and Social Council and consultative status with UNICEF.

www.bkwsu.org, www.brahmakumaris.com

Healthy Heart Education & Research Foundation (HHERF)

The Beneficiaries of CAD programme have formed the HHERF, which was registered with Charity Commission, Ahmedabad (Gujarat) on January 8, 2004.

The main objective of the Foundation is to spread awareness about the CAD Program as widely as possible in India, so that the maximum number of people can take its advantage. The Foundation is administrated by a 11- member Board of Trustees, hailing from different part of India. Some of the office bearers of the Foundation are as below:

Dr.Satish Kumar Gupta - President
Shri B. L. Maheshwari - Vice President
B. K. Sharda - Managing Trustee
Shri Shailesh Patel - Joint Secretary

Individual persons, Firms, Companies & Public Trusts, who subscribe to the objectives of the Foundation, can become the Members. The Foundation is run on the basics of the Voluntary contributions received. The Contributions to the Foundation are exempt from Income Tax U/S 80G @ 50% of donated amount.

Present Address of the Foundation is as under:

Healthy Heart Education & Research Foundation 110 ,Sampann Complex, Navrangpura
Ahmedabad - 380 009 (Guj) Ph: 079 - 26405892 – 95 Fax: 079- 26560136
Email: **healheart@healheart.org** Web Site: www.healheart.org and www.3dheartcarebkabu.org

For more details Contact :

CAD Project Office	**02974 228101 to 8 Ext: 3116**
Healthy Heart Office	**02974 228577**

BEST WISHES

FOR
SUCCESS OF
WCCPC 2007 & WPCHC 2007

From:
Smt. Om Kumari Sharma
&
Shri. Prakash Sharma
(Rtd. Chief Manager SBI)

PREMIUM HOMES WITH DISTINCTIVE LIFESTYLES.

एकता

ISO 9000

EKTA TERRACES

Mahavir Nagar, Kandivali (W).

2 and 2½ BHK Apartments.

• Swimming Pool • Club House & Landscaped Garden at podium level
• Modular Kitchen • Video Door Phone
• Designed to Resist the Seismic Forces.

EKTA MEADOWS

Just 400 meters off Western Express Highway,
Near Thakur Village, **Kandivali (E).**

2 and 3 BHK Apartments.
Also available 1 BHK Apartments -
Ready Possession.

• Modular Kitchen • Designer Toilets
• Landscaped Garden • Children's Play Park
• Club House, Gymnasium • Swimming Pool
• Squash Court • Earthquake resistant design

एकता

401, Durga Chambers, Linking Road,
Khar (w), Mumbai - 400 052.
Tel:2604 8088 / 2600 2424. Fax:2604 8188
Email: ektashelters@vsnl.com
Website: www.sheltersindia.com

rose Movies

(A Division of Rose Audio Visuals Pvt. Ltd.)

DRONA

A FILM BY
GOLDIE BEHL

PRODUCED BY
SUNIL LULLA
&
SHRISHTI ARYA

H.O. : 103, VIP Plaza, B/7, Beh-Crystal Plaza, Link Road, Andheri (W), Mumbai - 400 053.
Tel. : +91-22-26733715 Fax : 26733719
B.O. : 3, Aman Palace, 10th Juhu Mumbai-400 049. Tel. +91-22-26714995/97 Fax : 26714996
Website : www.roseaudiovisuals.com