

Yogic Management of cardiovascular disorders

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*“Heart disease before the age of 80 is not God’s will
but due to our own faults---“*

- Paul Dudley White

The increased longevity of humans over the past century can be significantly attributed to advances resulting from medical research. Among the major benefits have been vaccines and antibiotics for infectious diseases, insulin for diabetes, treatment of hypertension and some of the cancers treatments for AIDS, newer surgical techniques such as microsurgery and beating heart surgery. The human genome project and stem cell therapy has opened up new vistas. However many challenges still remain, including the appearance of antibiotic resistance and the lifestyle related diseases like diabetes, hypertension, obesity and coronary artery disease (CAD) which are assuming almost epidemic proportion.

The fast changing lifestyle during the last three decades has resulted in an estimated 11% increase in heart disease in our country and the younger generation is getting more affected, almost 4-5 times than in US. The scourge of lifestyle diseases is taking a heavy toll of human life, the individuals between the age of 35-65 being more vulnerable. The urbanization and rapid industrialization, globalization and development of modern facilities (Television, computer, internet, two/four wheelers, fast food, Cola, and mobile phones) and smoking and alcohol have resulted in faulty lifestyle culminating in metabolic syndrome (MS). According to WHO, CVD will be the largest cause of death and disability by 2020 in India mainly the CAD.

Why is there high prevalence of CAD in India? Recently an Asian phenotype has been recognized which is characterized by increased waist circumference, and increased visceral fat deposits –despite low body mass index. Diabetes mellitus, hypertension, hyperlipidemia, obesity, sedentary habits contribute in development of atherosclerosis – a plaque formation in the arteries including coronary arteries. The rupture of unstable plaque and subsequent platelet aggregation result in thrombus formation and blockade of the lumen of the artery causing Acute coronary syndrome (ACS) which may present in the form of unstable angina, (UA), S-T elevated Myocardial infarction (STEMI) and Non-S-T elevated myocardial infarction (Non-STEMI), The outcome depends on the extent of involvement and rapidity of intervention .

About 1000 year BC Charaka, the great Indian physician also pronounced almost similar causations of heart disease --

*अत्यादनं गरुस्त्रिनगधं, चिन्तनम् चेश्टनम् ।
निद्रासुखं चाम्यधिकं कफ हृद्रोगकारणम् ॥*

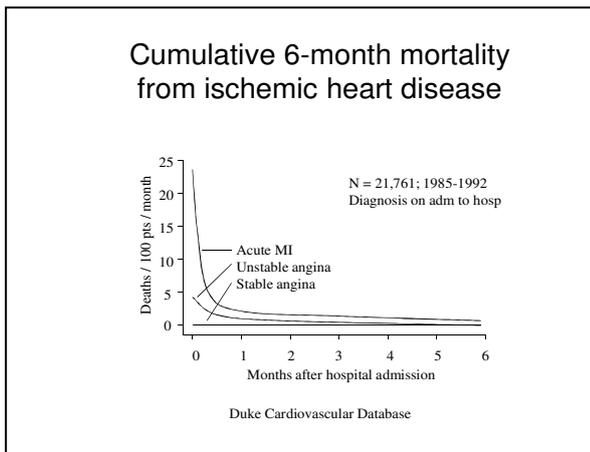
- Charaka sutra

*“Over-eating, heavy and fatty meals, worries, sedentary habits and over
indulgence in sleep are the causes of cardiac diseases to KAPHA”*

Dr. O.P. Gupta is presently Senior Consultant and Emeritus Professor of Medicine. He has served MGIMS for almost four decades. He was also the Medical Superintendent of the hospital (1994-1990) and Dean of the institute (1994-2002). Dr Gupta has passion for teaching, medical research and writing. He spends his considerable time teaching bedside medicine to the medical students and postgraduates during his ward rounds. His area of interest is clinical cardiology. He has mentored more than two dozen MD students in their research on problems related to etiology, diagnosis, therapy and prognosis of cardiac disorders. An avid reader and a skilled writer, he is the Chief Editor of J MGIMS.

The last few decades have witnessed explosive growth of knowledge in cardiology and technological advances for intervention and management of CAD with great ease and perfection in cost effective manner. However there are constraints of economy, infrastructure as well as the trained man power. Hence there is need to develop effective strategy for prevention. All over the world, more and more individuals are looking outside the borders of conventional medicine for at least part of their health care need. There are several complementary and alternative systems. Yoga is an ancient system of self-development, which offers a holistic approach to man through its ideology & techniques. For centuries Yoga has been practiced in India. It has been considered a way of life which we have given up. Yoga makes us realize that disease affecting any specific part of our body is not really a disease confined only to that part but in fact, it is a manifestation of some disharmony in

the body-mind complex of the whole personality. In the present time no therapeutic system is considered to be valid until unless it has gone through rigorous testing (RCT) and evidence of its benefits are documented (Evidence Based Medicine or EBM).



Recent publication of some trials and systematic reviews have proved that Yoga can be used for primary and secondary or even tertiary prevention successfully.

A Systematic review by Hutchinson *et al* (2003) concluded (review of six trials with well defined inclusion / exclusion criteria that Yoga practiced as a holistic discipline is beneficial for the prevention and treatment of coronary heart disease.¹ Another systematic review by Innes KE *et al* (2005), of English and Indian original studies from 1970-2004 which include 22 RCT and 21 non-RCTs and noted beneficial changes overall in several IRS-related indices of CVD risk, including glucose tolerance and insulin sensitivity, lipid profiles, anthropometric characteristics, blood pressure, oxidative stress, coagulation profiles, sympathetic

activation, and cardiovagal function and concluded that yoga may reduce many IRS-related risk factors for CVD, may improve clinical outcomes, and may aid in the management of CVD².

Dean Ornish (1998) while studying “intensive lifestyle trial for reversal of Coronary heart disease” observed that in the experimental group, the average percent diameter stenosis at baseline decreased 1.75 absolute percentage points after 1 year (a 4.5% relative improvement) and by 3.1 absolute percentage points after 5 years (a 7.9% relative improvement). In contrast, the average percent diameter stenosis in the control group increased by 2.3 percentage points after 1 year (a 5.4% relative worsening) and by 11.8 percentage points after 5 years (a 27.7% relative worsening) ($P=.001$) between groups³. It is noted that participants who followed diet and exercise requirements but did not follow stress management (yoga) did not have significant reversal³.

Dr Manchanda *et al* has done pioneering work on the role of yoga and diet in the prevention of coronary artery disease emphasized the need for exercise or yoga, swimming, walking and abstaining from alcohol, smoking and avoiding junk (fast) food, in order to lead a normal healthy lifestyle. “It is also very necessary to control anger, tension and stress, which lead to high blood pressure and heart attack”. In a landmark randomized controlled trial observed that a practice of 90 minutes of yoga daily significantly reduces the coronary stenosis⁴.

The Mount Abu Open Heart Trial and Abu Healthy Heart Trial (Both RCT) of which the results were presented in Asia-Pacific congress of Cardiology -2004 (Singapore) and APICON-2005 Mumbai concluded that there have been significant improvement in symptoms like angina, breathlessness, palpitation, exercise tolerance and LVEF, The psychological parameters improved and drug requirement for managing angina, hypertension and diabetes was reduced. Coronary angiography demonstrated opening up of the Vessels⁵. The studies in this projects are continuing.

Recently mass yoga training by Yogacharya Shri Ramdeo Baba have shown some positive results and medical teams are monitoring the outcomes and it will further confirm the observations of various workers so far.

Maharshi Patanjali has described eight “Essential components of yoga (Ashtang yoga)”. It needs to be emphasized that yoga is not a technique of exercise and body building, it is a discipline and without observing other components it will be of very little use. The Yama (your attitude), and Niyam come first before Asanas. Purity in Achar (action), Aahar (food) and Vyohar (interpersonal relationship) are important attributes for following the path of yoga. The Yama (सत्य, अहिंसा, अस्तेय, ब्रम्हचर्य असंग्रह) and Niyam (शौच, तप, संतोष, स्वाध्याय, ईश्वर प्रणिधाम) help us in modifying our lifestyle, working with perfection and keeping the mind stress free. Yoga intervention should be designed and conducted to identify programs best suited for diverse populations and for specific populations with high-risk factors for chronic health conditions. Such studies could guide the development of more practical and effective interventions

I would like to mention in brief the sequence of the postures and pranayamas

In various successful studies—

1. Time — early morning (this can be modified according to convenience),
2. Place — preferably a quiet & clean place
3. Use a thick mat or blanket

4. Start with warming up exercises like stretching the arms, rolling the shoulders, neck movements, movement at waist. Bending – 10 minutes
5. Yoga postures while standing — a) Tadasana b) Trikonasana c) Hastpadasana d) Surya namaskara e) Veerasana f) Vrikshasana g) Garudasana
6. Bajrasana - relax
7. Yoga postures while sitting - a) Mandukasana b) Balasana c) Shashankasana d) Bidalasana e) Gomukhasana f) Ardhamatsyasana g) Ustrasana h) Paschimottasana
8. Shavasana - relax
9. Yoga postures while lying supine - a) Pawanmuktasana b) straight leg raising c) Sarvangasana d) Vakrasana e) Setubandhasana
10. Makarasana - relax
11. Yoga postures while lying prone - a) Shalabhasana b) Naukasana c) Bhujangasana
12. Sit in sahasana or padmasana - relax
13. Pranayama - a) Bhastrika b) Nadi shodan c) Shitkari d) Kapalbhathi e) Agnisar f) Anulom vilom g) Bhramri
14. Udgeet
15. a) parwatasana b) Butter fly
16. Leg stretching & feet rotation
17. Shavasana - total relaxation

Meditation can be done before or after the asanas or separately at any other time. Sit in a comfortable position, may be Padmasana or Sahajasana. Depends on individual liking, a soft music can be played so to avoid other distractions. The back and head should be in a straight line but not over stretching. Close your eyes and focus your vision either at tip of the nose or a point between the eye brows. Pay attention to your breath - inhalation and exhalation. Multitudes of thought will flow through, let it flow. Continue to pay attention to breaths. Some individual may focus on Mantra etc but it is not necessary. After a few days you will find that number of thoughts and distractions are diminishing and you are better able to concentrate. Do it every day, preferably at the same time. You can select the duration –the time for which you can sit comfortably. This can be increased as you start enjoying it.

It has been appreciated by the those practicing Yoga & Meditation that, it Improves the overall functioning of the organs, improves blood circulation, brings about better neuro-muscular coordination, strengthen the immunity, Further investigations have shown- increase in HDL, reduction in inflammation, enhancement of anti-oxidant activity, improved endothelial functions, reduced platelet aggregation thereby improved vascular luminal patency and recanalization of the narrowed vessels. Pranayam and meditation also acts as a stress buster through limbic system of the brain controlling mood, memory and emotions resulting in alpha state i.e. alpha waves in Electroencephalogram become prominent suggestive of wakefulness where there is a relaxed and effortless alertness. The secretion of neuropeptides, serotonin and endorphins is also associated with the observed changes. Also through hypothalamic it creates a sort of balanced endocrine and nervous control increasing parasympathetic activity by balancing neurotransmitters release.⁶

The yoga and meditation can be used for primary, secondary and even tertiary prevention of cardiovascular disease. However one has to keep in mind the few important things -

1. Always consult your doctor before starting the programme
2. Do not try to stop medicines you are already taking
3. Adhere to lifestyle modifications as advised by your doctor
4. Start slowly with few postures and for short time
5. Never fatigue yourself
6. Do it at your comfort level
7. Increase gradually
8. If you are in pains (any type), do not proceed
9. Not to be done immediately after meals (a gap of minimum 4 hrs is essential). Take enough of water
10. Do not force any posture. Don't overdo it.
11. Warm up before and relax after the exercise
12. For primary prevention one can start as mentioned above, but for secondary and tertiary prevention it should be slow, and the postures which cause relatively more strain viz. Surya namaskar etc should be avoided initially. Pranayam & meditation can be continued.
13. It should be used as adjunct to medicine
14. It is never a primary treatment for heart disease

Heart disease is a problem of modern times. It is psychosomatic in nature. Improper lifestyle, faulty diet and negative thinking play an important part in triggering heart disease. Our thoughts, feelings and emotions affect our body and mind. Negative emotions spark chemical processes throughout the entire body. Smoking and high blood pressure - can trigger heart disease. A complete yoga program involves exercises (asanas), breath control (pranayama), sleep control (yognidra) and mind control (meditation). These are the tenets for cardiac health⁶. Yoga has an important role in the prevention of cardiovascular diseases that includes recurrence of heart attacks, hypertension and coronary heart diseases

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