Review Article

Are Doctors Unhealthy? Managing Cardiovascular Risks in Physicians

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INTRODUCTION

Every year cardiovascular diseases such as heart attacks, strokes and other vascular diseases kill more than 2 million Indians. Data from the Million Death Study[1] in India show that cardiovascular diseases are single largest cause of mortality in all regions of the country- be it urban area or rural, rich states or poor, large towns or villages. It has also been shown that the disease strikes Indians at a younger age as compared to Chinese and Caucasians and international comparative studies have shown that the disease occurs at least 10 years earlier in our population.[2] It has been predicted that India would be host to the largest number of such patients in the world in the next ten years.[3] The question that haunts politicians, administrators, medical bureaucrats, clinicians and medical scientists is why, what, where, and whom, of the disease?

CARDIOVASCULAR RISK FACTORS

Some answers are now available. The landmark INTERHEART study[4] that evaluated risk factors for acute myocardial infarction in more than 27,000 subjects in 52 countries and five continents of the world included a sizable number of subjects from India. This study showed that nine common modifiable risk factors are responsible for more than 90% of the heart attacks in all parts of the world including South Asians (Table 1). The risk factors are biological such as abnormal lipids (high apolipoprotein B to apolipoprotein A ratio), high blood pressure, diabetes and generalized and truncal obesity, and lifestyle factors such as smoking and tobacco use, psychosocial factors, sedentary lifestyle, lack of dietary fruits and vegetables, and lack of alcohol intake. For years it was believed that genes were important but analysis of genetic risk factors in the INTERHEART study has shown that addition of more than a 1000 genes in the risk algorithm increases the risk-prediction by only 2% suggesting that these factors may not be very important.

Table 1: The INTERHEART Study Risk Factors

	Risk Factors
Social Risk Factors	• Smoking and tobacco use • Psychosocial stress • Sedentary lifestyle • Low dietary intake of fruits and vegetables • Low alcohol intake
Biological Risk Factors	• High apolipoprotein B and apolipoprotein A ratio (high LDL cholesterol and low HDL cholesterol) • High blood pressure • Type 2 diabetes • Obesity and truncal obesity

Our own longitudinal studies in rural and urban subjects in Rajasthan have reported that many of these cardiovascular risk factors are rapidly increasing.[3] In the Jaipur urban population multiple risk factors that are mentioned in Table 1 have increased. Jaipur Heart Watch studies have reported that the age-adjusted prevalence of obesity, truncal obesity, high blood pressure, diabetes,

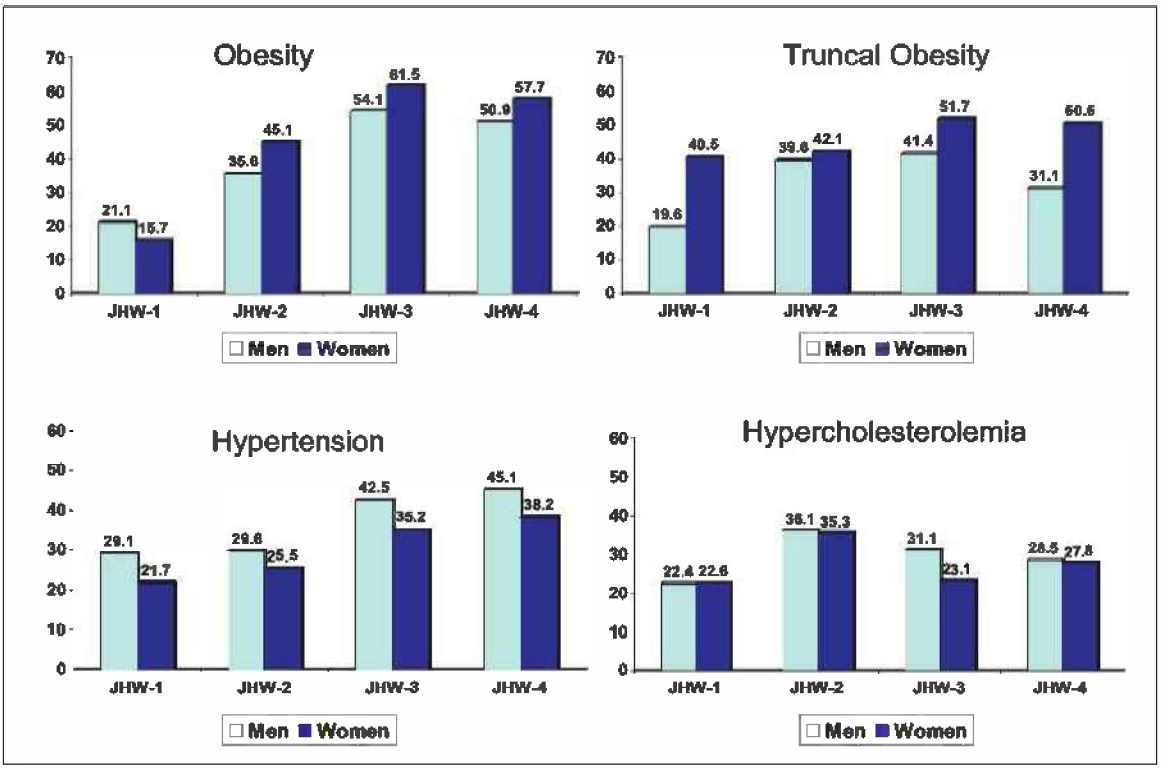

Figure 1: Trends in age-adjusted prevalence of various risk factors in Jaipur Heart Watch Studies (JHW) among urban subjects 20-59 years in India.6 These studies were performed in 1992-94 (JHW-1), 1999-2001 (JHW-2), 2003-04 (JHW-3) and 2005-06 (JHW-4). There is a significantly escalating trends in prevalence of obesity (body mass index >25 kg/m2) and hypertension

hypercholesterolemia, and the metabolic syndrome have increased significantly from years 1992 to 2006 (Figure 1)[3,5,6] Data on tobacco use showed that it increased among the lower and middle socioeconomic status subjects.[7] Dietary intake is poor in all segments of the society and there is a clear gradient in consumption of various foodstuffs.[5] Physical inactivity is clearly increasing as observed by increasing obesity and truncal obesity.[6] The stress of urbanization appears important.[8] At a macro level it has been reported that there is a strong correlation of cardiovascular risk factors with the rising coronary heart disease prevalence in India.[8] Clearly the focus has to be on these risk factors if cardiovascular diseases and heart attacks are to be prevented among Indians as a whole and among select high risk groups in particular.

CARDIOVASCULAR MORTALITY, RISK FACTORS AND PHYSICIANS

Traditionally it has been believed that cardiovascular diseases are problems of higher socioeconomic status subjects. In Europe and North America, till middle of last century it was reported that cardiovascular diseases were more in persons of high socioeconomic status. This changed in mid-1960s when reports appeared in Britain and USA that mortality due to cardiovascular diseases was more common in poor people as compared to the rich. This trend has persisted in western countries and the rich-poor gap in cardiovascular mortality is increasing.[9] In India and other developing countries it is well known that the least privileged groups are more prone to suffer from acute and chronic infections and poverty is a major determinant of mortality. Non-communicable diseases such as ischemic heart disease, cerebrovascular diseases, chronic obstructive lung disease, cancer and road traffic accidents are also major health problems among adults.[1,10] The Andhra Pradesh Rural Health Initiative[11] and Million Death Study[1] have reported that cardiovascular diseases are major cause of mortality among the poor and the mortality rates are almost similar among the rich and the poor. Recent epidemiological as well as case-control studies have shown the electrocardiographic changes suggestive

of coronary heart disease are more in less educated (poorer) and low literacy is a risk factor for acute myocardial infarction.[2,10]

Cardiovascular diseases among physicians: Presently physicians and other high socioeconomic status subjects in Europe, North America and other developed countries enjoy the longest lifespan and have the lowest incidence and mortality from all diseases especially cardiovascular diseases.[12] Data on mortality rates and causes among physicians in the US from 1984 to 1995 in 28 states revealed that the mean age of death was the highest among physicians as compared to lawyers, other professionals and the general population (Figure 2).[13]Top ten leading causes of death in the US male physicians were similar to the general population. The proportional mortality rates were similar for heart disease, cancer and diabetes, significantly lower for chronic obstructive lung disease, pneumonia, liver diseases and HIV/AIDS, and significantly greater for cerebrovascular disease, accidents and suicide. The longer life span of physicians has been attributed to high socioeconomic status, healthy worker effect, and better health choices among this group.

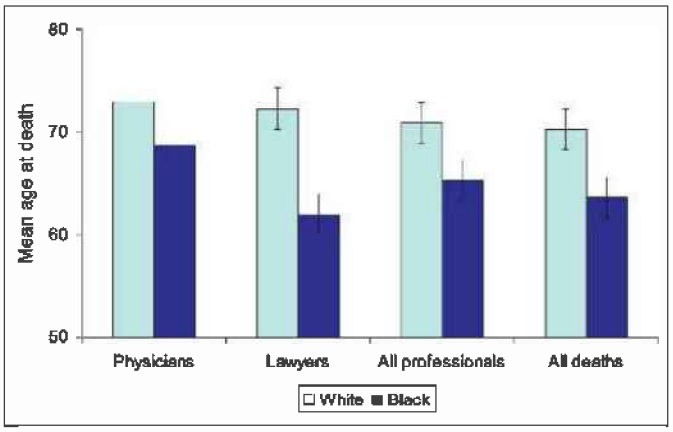

Figure 2: Mean age at death among physicians and other professionals in USA (for men dying after age 25)

The Physicians Health Study[14] has reported follow-up results in a cohort study of 2357 healthy men (mean age, 72 years) from 1981-2006. Biological and lifestyle factors and comorbid conditions were assessed by self-report with baseline and annual questionnaires. Mortality and incidence of major diseases were confirmed by medical record review. A total of 970 men (41%) survived to at least age 90 years. Smoking was associated with increased risk of mortality before age 90 years (hazard ratio [HR]; 2.10; 95% confidence interval [CI], 1.75-2.51), and similar associations were observed with diabetes (HR, 1.86; 95% CI, 1.52-2.26), obesity (HR, 1.44; 95% CI, 1.10-1.90), and hypertension (HR, 1.28; 95% CI, 1.15-1.43). Regular exercise was associated with a nearly 30% lower mortality risk (HR, 0.72; 95% CI, 0.62-0.83). The probability of a 90-year life span at age 70 years was 54% in the absence of smoking, diabetes, obesity, hypertension, or sedentary lifestyle. It ranged from 36% to 22% with two adverse factors and was negligible (4%) with five.

Compared with nonsurvivors, men with exceptional longevity had a healthier lifestyle (67% vs 53% had < 1 adverse factor), had a lower incidence of chronic diseases, and were 3 to 5 years older at disease onset. They had better late-life physical function (mean+SD score [maximum 100], 73+23 vs 62+30; $P < 0.001$) and mental well-being (mean score, 84+14 vs 81+17; $P = 0.03$). More than 68% (vs 45%) rated their late-life health as excellent or very good, and less than 8% (vs 22%) reported fair or poor health ($P < 0.001$ for trend). Regular exercise was associated with significantly better, and smoking and overweight with significantly worse, late-life physical function. Smoking also was associated with a significant decrement in mental function. It was concluded that modifiable healthy behaviors during early elderly years, including smoking abstinence, weight management, blood pressure control, and regular exercise, are associated not only with enhanced life span in men but also with good health and function during older age. The most important cause of death at this age is cardiovascular and this study clearly shows that lower prevalence of cardiovascular risk factors was associated with longer life span.

However, this was not always so. Dr William Ogle in 1886 reported on the health and mortality of members of the Victorian medical profession.[15] Ogle's work, together with that based on the Registrar General's Decennial Supplements, shows how vulnerable especially young doctors were to high mortality risks. The data compiled by the Friendly Societies also suggested that before the twentieth century members of the medical profession may have

experienced substantial periods of work-preventing illness which would certainly have affected their ability to make a satisfactory living. It is also clear that among members of the medical profession there were substantial variations in life chances; that Fellows of the Royal colleges fared far better than their less well-placed colleagues, but that among Fellows the surgeons and physicians shared similar experiences.[15]

Data on mortality among doctors in different occupations are available for British doctors enrolled in a cohort in early 1950's.[16] It was found that overall death rates among general practitioners were 23% higher than among physicians and surgeons of similar ages. The general practitioners smoked 37% more cigarettes and the excess mortality was accounted by a 38% excess mortality from smoking related diseases such as lung cancer, chronic bronchitis and ischemic heart disease. In the period of study from 1951 to 1977 the male doctors <65 years had a slightly lower mortality than the national average but significantly greater than that of all men in the same socioeconomic category (standardized mortality ratios were 89 for doctors and 76 for all men in socioeconomic class I).

Situation has significantly changed since those years and physicians in the UK, Western Europe and Australia enjoy one of the longest lifespan.[9] Similar trends are now emerging in Eastern Europe.[17]

Indian Physicians: Mortality data according to the occupational status or for Indian physicians are not available. Risk factor profile among Indian physicians has been reported. In a study of Indian physicians living in the US prevalence of coronary risk factors was greater than among the US population.[18]

Gupta et al[19] studied prevalence of coronary risk factors among Indian 256 physicians attending a national conference and reported that there was a high prevalence of obesity, truncal obesity, hypertension and hypercholesterolaemia while smoking, low HDL cholesterol and hypertriglyceridemia was low. Smoking or tobacco use was seen in five males (2.3%). Prevalence of obesity (BMI > 25.0 kg/m2) was in 104 (48.6%) males and 18 (51.4%) females. Truncal obesity diagnosed by WHR > 0.9 in males and > 0.8 in females was in 160 (72.4%) males and 23 (65.7%) females and a large waist circumference, > 100 cm in males and > 90 cm in females, was in 58 (26.2%) males and 7 (20.0%) females. Hypertension was in 74 (33.5%) males and 7 (20%) females. A high prevalence of diabetes diagnosed using fasting blood glucose > 126 mg/dl or previous history was noted in males 19 (9.4%), females 4 (12.9%). Prevalence of high total cholesterol levels > 200 mg/dl was in 91 (44.8%) males and 10 (32.3%) females. High LDL cholesterol level (>100 mg/dl) was in 144 (70.9%) males and 22 (70.9%) females and LDL levels > 130 mg/dl in 70 (34.5%) males and 9 (29.0%) female physicians. High triglyceride levels (> 200 mg/dl) were in 38 (18.7%) males and 4 (12.9%) females. The overall coronary risk was lower among Indian physicians as compared to previous Indian population studies (Figure 3). Prevalence of smoking, low HDL cholesterol and triglycerides was lower in physicians, prevalence of truncal obesity significantly greater, while other risk factors were marginally more but not statistically different.

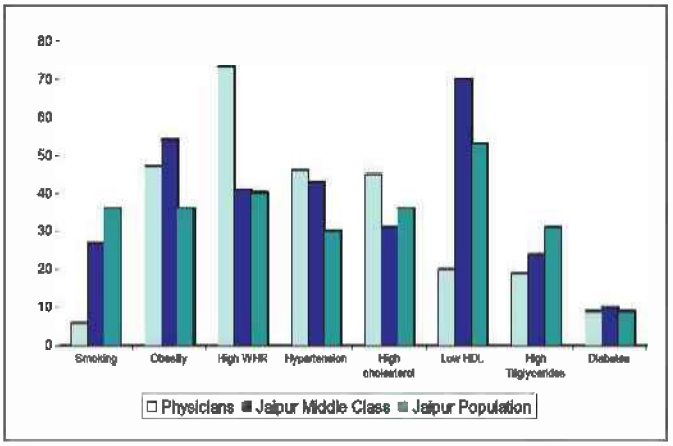

Figure 3: Age-adjusted prevalence of various cardiovascular risk factors among Indian male physicians as compared to men in population based studies in middle class locations and general population in Jaipur. Physicians have lower prevalence of smoking, low HDL cholesterol and high triglycerides.

On the other hand in a study in Chennai, Ramachandran et al[20] reported greater prevalence of multiple risk factors among younger physicians than reported in the Jaipur study. In this study data from 2499 physicians from urban and semi-urban areas (mean age 39.0 yr vs. 41.9 yr in the Jaipur study) were evaluated and compared with 3278 subjects from general population. Physicians had a greater prevalence of obesity, truncal obesity, hypertension, high cholesterol and metabolic syndrome while

prevalence of low HDL cholesterol and diabetes was lower.

Overwork and stress as a cardiovascular risk factor: a narrative.

It was a hectic day at work for Dr X. He left home in the morning to be at the younger son's passing out parade in school. All the school children were there in full regalia and parents were feeling proud. It was bitterly cold in the early morning and he was wearing just a blazer that was clearly insufficient. It was an emotional moment also. He then did the morning clinic and then proceeded to the hospital, seeing inpatients and busy with the outpatients till afternoon. There was phone call from the wife that mother-in-law had passed away. She had been ill with terminal cancer for some time and this was not unexpected. Anyway, he stopped seeing patients and deputed junior consultants to look after them. Afternoon was spent in preparing for the funeral. He returned home for a quick lunch and went back to in-laws' place which was a stone's throw away. The funeral procession began and he came back home to pick the car and found his father was not well. He had an episode of shortness of breath after exertion. After he settled, he went to the funeral site. There was a strange lump in his throat and he felt a bit sweaty. This was considered it to be due to heat in the afternoon. The cortege had already reached the funeral ground and he rushed towards the site. A sense of dizziness overcame him and he asked colleagues to make him lie down on a platform. No pain, no breathlessness, just weakness. Then he passed out. When he came around there was someone thumping his chest and another shouting his name. It was back seat of a car. In the intensive care of the hospital a severe bradycardia was noted and an injection of atropine was pushed by a cardiologist. There was thump in the chest and he felt hot. A temporary pace-maker was put in and he was thrombolysed as it was noted that there was an inferior wall myocardial infarction. Recovery was uncomplicated and he was discharged from the hospital after four days. Evidence based medical treatment consisting of a beta-blocker, a statin, aspirin, clopidogrel and ramipril was given.[23] A coronary angiogram showed significant disease in mid and distal right coronary artery and another piece of moderate atherosclerosis in mid left anterior descending artery. Coronary angioplasty at multiple sites was performed. Since then a combination of intensive lifestyle therapy (weight loss and weight maintenance, regular moderate-to-high grade physical activity and diet control) and pharmaceutical agents mentioned above have ensured that the physician remains healthy.

Prevention: These studies clearly demonstrate that while tobacco related risk factors are lower in Indian physicians in contrast to the older British physicians, metabolic risk factors are greater when compared with the population based subjects in Jaipur and Chennai and similar to the urban middle-class subjects. This portends a grim scenario for this group and suggests an urgent need for intervention. Inculcation of healthy lifestyles including dietary calorie and fat restriction and regular physical activity are essential if mortality rates similar to low rates in the US and UK are to be achieved. Suggested targets and interventions for primary prevention of cardiovascular diseases are shown in Table 2 (modified from reference number [21]). Needless to say, these guidelines are issues of personal effort and personal choice. It is strongly recommended that all young and middle-aged physicians strictly adhere to these prevention guidelines. Adherence to healthy lifestyle has been shown to not only reduce the incidence of cardiovascular diseases but also cancer and other chronic diseases.

STRESS AND CARDIOVASCULAR DISEASE

An important but easily overlooked cardiovascular risk factor is stress. Psychological stress elicits measurable changes in sympathetic-parasympathetic balance and the tone of the hypothalamic-pituitary-adrenal axis, which might negatively affect the cardiovascular system both acutely, by precipitating myocardial infarction, left-ventricular dysfunction, or dysrhythmia; and chronically, by accelerating the atherosclerotic process.[22] A case-narrative in panel highlights the role of stress in coronary heart disease.

Despite physicians having lower risk factors such as smoking and hypercholesterolemia than the general population risk for coronary heart disease remains high. Physicians face numerous hardships in balancing professional and personal lives. At workplace such challenges include government or corporate regulations, high work-load, need to see more patients, keeping up with the rapidly changing medical literature and medical malpractice suits.

Combined with personal issues these challenges produce a substantial stress. A direct consequence of acute-on-chronic stress is increased mortality from suicides and mental aberrations among physicians. Chronic stress causes a burn-out syndrome which is evinced by rapid rise and a equally rapid fall. This phenomenon which is a hall-mark of information

technology and management professionals is now equally observed in medical consultants.[24] This chronic stress also can cause a cascade of biochemical changes that result in multiple changes that results in increase in biochemical abnormalities and well known cardiovascular risk factors downstream (Figure 4).

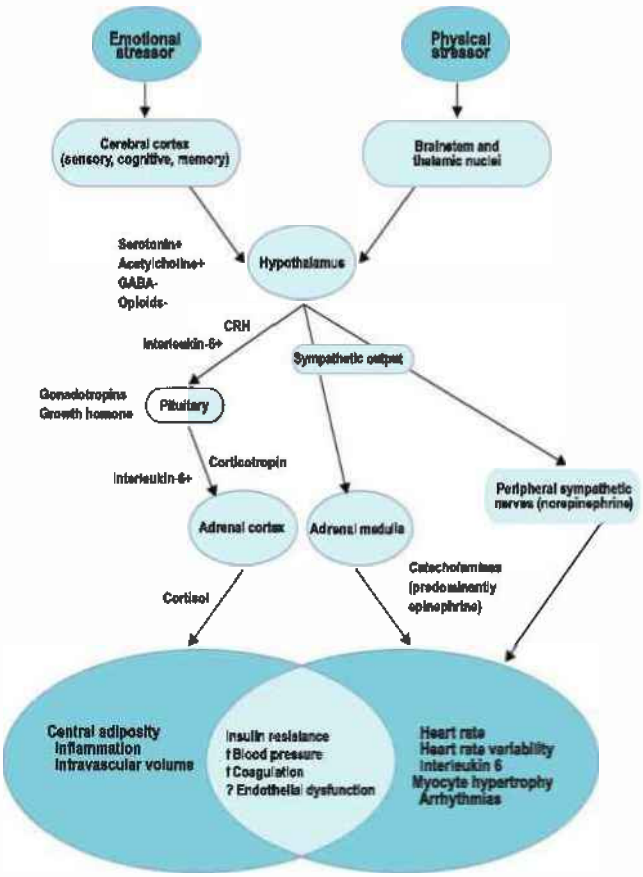

Figure 4: Cardiovascular effects of the stress response.

Stress pathophysiology: Vascular and metabolic effects of the hypothalamic-pituitary-adrenal axis and sympathetic nervous activity are diverse. Both systems potentially harm the vasculature by increasing blood pressure, decreasing insulin sensitivity with or without hyperglycaemia, and activating haemostasis (figure 4).[22] Some evidence suggests that both systems might precipitate endothelial dysfunction-an important early manifestation of atherosclerosis-but these data are inconsistent. Standardised mental stressors such as simulated job interview, mental arithmetic, or public speaking, provide a controlled way in which to examine the effect of mental stress on physiological variables.[25] Within minutes, these controlled stressors lead to increased concentrations of circulating catecholamines, corticotropin, and cortisol, and increases in heart rate, blood pressure, sympathetic nerve outflow, haemostatic factors, and blood viscosity, and impair endothelial function. In view of these rapid effects of stress on the blood, heart, and vasculature, the association of daytime mental stress with subclinical myocardial ischaemia in patients with stable coronary lesions is not surprising. The atherosclerotic process is undoubtedly affected by cross-talk between the hypothalamic-pituitary-adrenal axis, the sympathetic nervous system, and inflammatory mediators. For example, catecholamines strongly stimulate production of interleukin 6, the major cytokine inducer of C-reactive protein. Interleukin 6 is also a potent stimulator of the hypothalamic-pituitary-adrenal axis.

Acute stress: Major life changes associated with psychological and emotional adjustment are associated with an increased risk of cardiac events, in many cases with a magnitude of association similar to traditional cardiovascular risk factors. For example, in the months after the death of a spouse, mortality from all causes, particularly cardiovascular ones, is increased. Stress of daily living can also increase risk of cardiovascular events. For example, in one study of work-related stressors, upcoming deadlines were associated with a six fold increase in myocardial infarction, and other studies suggest that chronic work-related stress could carry a two to three times higher risk of cardiac events, especially when employees perceive little control over their work environment.[26]

Chronic psychological states: Major depression, anxiety, post-traumatic stress disorder, and personality types with tendencies toward hostility, pessimism, or social isolation have all been associated with cardiovascular morbidity. Depression, however, has received the most attention, since it is common and has a striking and consistent association with cardiovascular disease.[27] The prevalence of major depression is about 20% in cross-sectional studies of patients with known heart disease, and depression is strongly associated with mortality after myocardial infarction. Population-based studies of individuals without coronary disease

have noted that depression predicts subsequent coronary disease independently of important comorbidities. In a meta-analysis of 11 prospective studies, development of coronary artery disease in depressed patients had a relative risk of 1·6 after adjustment for other cardiovascular risk factors.[28]

Frequent anger and hostility also predict incident coronary events. In the Atherosclerosis Risk in Communities Study, normotensive patients with high anger temperament scores (characterised by frequent or long-lasting anger reactions with little or no provocation) had a hazard ratio of 2·3 for fatal or non-fatal cardiac events after adjustment for traditional cardiovascular risk factors.[29] Chronic anxiety also is a predictor of cardiovascular events, both ischaemic heart disease events and sudden death. Severe phobic anxiety, in particular, has been associated with increases in cardiac events of 1·3 to 3·0 times, perhaps via frequent paroxysms of fear. Some researchers have posited that anxiety disorders, by contrast with depressive disorders, are associated with especially high rates of sudden death and that the cardiovascular effects of anxiety disorders result from chronic or intermittent sympathetic overactivity (with arrhythmogenic potential) rather than overactivity in the hypothalamic-pituitary-adrenal axis and long-term induction of metabolic vascular risk factors and coronary disease.[22]

Personality types, both type A and type D, lead to unhealthy responses to daily psychological stressors. These personalities may be more common in physicians. The type D (distressed) personality is characterised by a combination of pessimistic emotions and introversion, which prevents sharing emotions with others. Type D individuals are gloomy, anxious, and socially inept worriers. By contrast, in the type A personality, anxiety and hypervigilance are directed outward as competitive, aggressive, irritable, and sometimes hostile behaviours. Type A personality has received attention as a potential cardiovascular risk factor for two decades, but results have been mixed as to whether this personality type is truly associated with cardiovascular events. Nevertheless, there seem to be specific type A behaviours that are especially pathogenetic. The anger component (as opposed to competitiveness and hypervigilance) has been associated with the metabolic syndrome, endothelial dysfunction, and cardiovascular morbidity and mortality. In the past decade, type D personality has received attention as a possible cause of cardiovascular events. For example, this personality type was associated with an odds ratio of 5·3 for death or myocardial infarction in patients who had received coronary stents.[22]

Stress management: Pharmaceutical and behavioural ways to reduce stress are being studied in controlled clinical trials for treatment and prevention of cardiovascular disease. Despite compelling biological plausibility, and evidence that relaxation techniques (such as meditation, yoga, and prayer) can transiently modify indices of autonomic activation, evidence to support the efficacy of behavioural and psychological stress reduction in the prevention of cardiac events is limited.[22] Although trends seem to show reduced rates of adverse cardiovascular events in patients who had stress reduction interventions in randomized trials, interventions and study populations have had substantial heterogeneity, and inconsistent effects only have been seen on measures of stress.[30] The ENRICHD investigators[31] enrolled nearly 2500 myocardial infarction patients with depression or low social support, or both, to cognitive behavior therapy versus usual care and recorded no effect on event-free survival, despite a modest improvement in depression and social isolation scores. However, a subset analysis that focused on patients with major depression who were prescribed selective serotonin reuptake inhibitors in a non-randomized way, did suggest a relative reduction in death or recurrent myocardial infarction of about 40%.

The term complementary and alternative medicine has been adopted to describe a system of health care not generally recognized as part of mainstream medical practice. It is often conflated with an older term, holistic medicine, which can briefly be defined as the art and science of healing the whole person-body, mind, and spirit-in relation to that person's community and environment. There are fundamental differences between complementary and alternative medicine and holistic medicine, highlighting holistic medicine's emphasis on the promotion of healthy lifestyles for practitioners and patients alike. It is argued that offering physicians more emphasis in holistic medicine could lay the groundwork for future physicians' adopting and modeling healthy

lifestyles.[32] Usefulness of such techniques need larger and more prolonged randomized trials.

Table 2: Interventions for primary prevention of cardiovascular diseases

Lifestyle Interventions	
Smoking and tobacco use	Consistently encourage persons not to smoke and to avoid environmental tobacco.
Physical activity	Advise to accumulate a minimum of 30 minutes of moderate-intensity physical activity (eg, brisk walking) on most, and preferably all, days of the week.
Heart-healthy diet	Encourage an overall healthy eating pattern that includes intake of a variety of fruits, vegetables, grains, low-fat or nonfat dairy products, fish, legumes, and sources of protein low in saturated fat (eg, poultry, lean meats, plant sources). Limit saturated fat intake to <10% of calories, limit cholesterol intake to <300 mg/d, and limit intake of trans fatty acids.
Weight maintenance/ reduction	Consistently encourage weight maintenance/reduction through an appropriate balance of physical activity, caloric intake, and formal behavioral programs when indicated to maintain/achieve a BMI between 18.5 and 24.9 kg/m2 and a waist circumference <35 in.
Psychosocial factors	Persons with CVD should be evaluated for depression and referred/treated when indicated.
Omega 3 fatty acids	As an adjunct to diet, omega 3 fatty-acid supplementation may be considered in high-risk* subjects.
Major risk factor interventions	
Blood pressure lifestyle	Encourage an optimal blood pressure of <120/80 mm Hg through lifestyle approaches.
Blood pressure drugs	Pharmacotherapy is indicated when blood pressure is 140/90 mm Hg or an even lower blood pressure in the setting of blood pressure-related target-organ damage or diabetes. Thiazide diuretics should be part of the drug regimen for most patients unless contraindicated.
Lipid, lipoproteins	Optimal levels of lipids and lipoproteins in women are LDL-C <100 mg/dL, HDL-C >50 mg/dL, triglycerides <150 mg/dL, and non-HDL-C (total cholesterol minus HDL cholesterol) <130 mg/dL and should be encouraged through lifestyle approaches.
Lipids—diet therapy	In high-risk or when LDL-C is elevated, saturated fat intake should be reduced to <7% of calories, cholesterol to <200 mg/d, and trans fatty acid intake should be reduced.
Lipids—pharmacotherapy—high risk	Initiate LDL-C-lowering therapy (preferably a statin) simultaneously with lifestyle therapy in high-risk with LDL-C 100 mg/dL, and initiate statin therapy in high-risk with an LDL-C <100 mg/dL unless contraindicated. Initiate niacin or fibrate therapy when HDL-C is low, or non-HDL-C elevated in high-risk
Lipids—pharmacotherapy—intermediate risk	Initiate LDL-C-lowering therapy (preferably a statin) if LDL-C level is 130 mg/dL on lifestyle therapy, or niacin or fibrate therapy when HDL-C is low or non-HDL-C elevated after LDL-C goal is reached.
Lipids—pharmacotherapy—lower risk	Consider LDL-C-lowering therapy in low-risk with 0 or 1 risk factor when LDL-C level is 190 mg/dL or if multiple risk factors are present when LDL-C is 160 mg/dL or niacin or fibrate therapy when HDL-C is low or non-HDL-C elevated after LDL-C goal is reached.
Diabetes	Lifestyle and pharmacotherapy should be used to achieve near normal HbA1C (<7%) in subjects with diabetes.

Preventive drug interventions	
Aspirin-high risk Aspirin-	Aspirin therapy (75 to 162 mg), or clopidogrel if patient is intolerant to aspirin, should be used in high-risk subjects unless contraindicated.
intermediate risk	Consider aspirin therapy (75 to 162 mg) in intermediate-risk subjects as long as blood pressure is controlled and benefit is likely to outweigh risk of gastrointestinal side effects.
Beta-Blockers	ß-Blockers should be used indefinitely in all who have had a myocardial infarction or who have chronic ischemic syndromes unless contraindicated.
Angiotensin converting enzyme (ACE) inhibitors	ACE inhibitors should be used (unless contraindicated) in all high-risk subjects.
Angiotensin Receptor Blockers (ARBs)	ARBs should be used in high-risk subjects with clinical evidence of heart failure or an ejection fraction <40% who are intolerant to ACE inhibitors.

CONCLUSION

Cardiovascular diseases, especially coronary heart disease, are major health problems in Indian population and among Indian physicians. In western societies, physicians enjoy one of the longest lifespan13 but similar data are non-existent in India.[13,33] Data suggest that physicians in India have similar, or even greater, risk factor profile as compared to the general population. Prevention effort should begin early and inculcation of healthy lifestyle (primordial prevention) is crucial in this regard. This should focus on absolute tobacco control, healthy dietary pattern and regular physical activity. Control of biological risk factors (abnormal lipids, high blood pressure and diabetes) is important and a tailored target-oriented approach is critical.[34] Acute as well as chronic stress is important in daily life of physicians and stress management using alternative and complementary approach is suggested. Ultimately a holistic approach being followed by many physicians in the west and many of the senior medical professionals in India shall be the most useful. An urgent population wide action is needed.[35]

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