

THE GROWING CHALLENGE OF CORONARY HEART DISEASE IN SOUTH ASIA- IMPLICATIONS FOR THE COMMUNITY AND HEALTH SYSTEM

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Cardiovascular diseases are major causes of mortality and disease in the Indian subcontinent, causing more than 25% of deaths. The epidemic of cardiovascular diseases (coronary artery disease and stroke) in India is advancing rapidly and there has been a dramatic rise in the prevalence of Coronary Artery Disease in India which is further projected to rise substantially. It is predicted that India will be host to more than half the cases of heart disease in the world within the next 15 years. Apart from the high burden of cardiovascular diseases, what is even more distressing is the fact that they affect the productive workforce aged 35–65 years. Coronary artery disease catches Indians young and they manifest coronary heart diseases 5–10 years earlier than in other populations around the world. The mean age for first presentation of acute myocardial infarction in Indians is 53 years. In India about 50% of the CHD-related deaths occur in people younger than 70 years compared with 22% in the West. Such premature coronary artery disease can have devastating consequences for an individual, the family, and society. Between the years 1990 and 2020, CHD is anticipated to increase by 120% for women and 137% for men in developing countries as compared to 30%–60% in developed countries. In developed nations the rise in the burden of CVD occurred over several decades due to a long period of epidemiological transition. In India, perhaps because of the rapid pace of economic development, epidemiological changes have spanned a much shorter time.

Quantification of the exact disease burden cannot be done in India since there are relatively few mortality studies from India, as there is no uniform completion of death certificates and no centralized registry for cardiovascular diseases. However the WHO and the World Bank estimate that deaths attributable to cardiovascular diseases have increased in parallel with the expanding population in India, and that cardiovascular diseases now accounts for a large proportion of disability adjusted life years (DALY) lost. Wasir et al reported an increasing trend and significant burden of CHD

cases in the cardiology out-patient department and medical admissions to a Delhi-based tertiary care hospital. From 1966 to 1970, CHD was present in 18.4% of all heart diseases cases seen at the All India Institute of Medical Sciences, Delhi. This changed to 16.5% in the period of 1971–75, 15.2% in 1976–80 and 19.7% in 1981–85. In the same years, the proportion of CHD cases in hospital admissions increased from 20.8% to 21.0%, 20.3% and 23.9%, respectively. Pooled data from the states of Assam, Madhya Pradesh, Punjab, Kerala, and Karnataka reveals that as proportion of all cardiac admissions to various government hospitals, CHD increased from 14% in 1970 to 19% in 1985. At Vellore (South India), admissions due to CHD in a non-government hospital steadily increased from 4% in 1960 to 33% in 1989, indicating increasing burden on the healthcare system. The prevalence of CAD in urban India is about double the rate in rural India and about 4-fold higher than in the U.S. The rates appear to be higher in south India with Kerala having a prevalence of 13% in urban areas and 7% in rural areas.

In India, the economic impact of the increase in cardiovascular diseases was estimated at 9 billion dollars in national income from premature deaths due to heart disease, stroke and diabetes in 2005 alone, with the projected estimates of 237 billion dollars by 2015. The out-of-pocket health expenses incurred by households increased from 31.6 per cent in 1995 to 47.3 per cent in 2004. Modelling studies have estimated that if non-communicable diseases (NCDs) were completely eliminated, the estimated GDP in a year would have been 4-10 per cent higher.

The INTERHEART study has brought a lot of clarity in our understanding of multiple well established physiological and behavioral risk factors for incident myocardial infarction. This study was an international case-control study, carried out in 52 countries involving 15152 cases of incident acute myocardial infarction (AMI) and 14820 controls and estimated the hazard ratios and population-attributable

fractions for multiple risk factors for incident myocardial infarction in several regions of the world. It was revealed that abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, psychosocial stress, decreased consumption of fruits and vegetables, moderate consumption of alcohol, and physical activity accounted for most of the risk of myocardial infarction worldwide. Collectively, these nine risk factors accounted for 90 per cent of the population attributable risk (PAR) in men and 94 per cent in women. The risk of heart attacks imposed by these risk factors was similar in both sexes, for all the population groups studied at all ages in all regions emphasizing the role of environmental origin of cardiovascular risk factors for all the ethnicities of the world. The effect of the risk factors is particularly striking in young men (PAR about 93%) and women (about 96%), indicating that most premature myocardial infarction is preventable. Worldwide, the two most important risk factors are smoking and abnormal lipids. Together they account for about two-thirds of the PAR of an acute myocardial infarction. Psychosocial factors, abdominal obesity, diabetes, and hypertension were the next most important risk factors in men and women, but their relative effect varied in different regions of the world. The usual measure of obesity (body-mass index) showed a modest relation with acute myocardial infarction but was not significant when abdominal obesity was included in the analysis.

The South Asian component of this study confirmed that deaths due to acute myocardial infarction in south Asians occur at 5-10 years earlier than western population. This higher risk for premature coronary artery disease is largely determined by the higher levels of risk factors and the nine conventional risk factors (abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, psychosocial factors, consumption of fruits & vegetables, alcohol and regular physical activity) collectively explain 86 per cent of the AMI risk in south Asians. In South Asians too, abnormal Apo-B/ApoA-1 ratio and smoking are the most important risk factors. Low education level is associated with increased risk of AMI worldwide. Protective lifestyle factors such as leisure time physical activity and regular intake of fruits and vegetables are markedly lower among south Asians than western population, while harmful risk factors

such as elevated ApoB/Apo A-1 ratio are higher in south Asians. South Asians have significantly higher population attributable risk associated with waist-hip ratio. South Asians have higher level of risk factors in both cases and controls under the age of sixty.

Even though coronary heart disease is a huge public health challenge for developing countries in South Asia especially India, it has attracted less comment and little public health response. The community and the policy makers need to realize the importance of formulating 'Healthy-Heart policy' and setting into place primordial prevention strategies which focus on the population at large. Stricter regulations against tobacco use, increase in prices of tobacco products and aggressive media campaign could perhaps decrease the use of tobacco in populations. Decrease in tobacco use will also lead to a reduction in a whole host of other non-communicable diseases. Community Health education programs to encourage dietary changes and increasing the amount of physical activity are needed. Curricula in schools and colleges should also highlight the concept of healthy heart diet and regular physical activity. Since women are the often neglected sufferers of coronary heart disease, both health care providers and the community need to be made aware of the same. South Asian countries need to develop their own guidelines for the early identification of individuals at risk of cardiovascular disease. Innovative cost effective strategies focusing on optimal delivery of cardiovascular care within existing public health framework need to be developed.

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