

## PREVENTIVE CARDIOLOGY – THE ONLY WAY OUT!

**Mohammad Hafizullah**

Department of Cardiology,  
Lady Reading Hospital & Khyber  
Medical University, Peshawar -  
Pakistan

**Address for Correspondence:**

**Dr. Mohammad Hafizullah,**  
Professor,  
Department of Cardiology,  
Lady Reading Hospital & Khyber  
Medical University, Peshawar -  
Pakistan

E-mail: mhu5555@gmail.com

As a consequence of 'Epidemiological transition' WHO estimates that 60% of the world's heart patients will be in South East Asian region. South Asia is home to a large, quickly growing, and predominantly poor population.<sup>1</sup> In early sixties, coronary artery disease such as heart attack and angina represented 4% of all cardio vascular deaths in the region, where as in 1990 the proportion was more than fifty.<sup>1,2</sup> This was defined as unprecedented transformation in the causes of morbidity and mortality during the twentieth century, which resulted in global increase in cardiovascular morbidity and mortality. Although heart problems are declining in high-income countries, they are increasing in virtually every other region of the world. The consequences of this preventable epidemic are substantial on many levels-individual mortality and morbidity, family suffering, and overwhelming economic costs.<sup>1</sup>

The economic impact of NCDs is huge. Estimated GDP could increase by 4-10 percent, in terms of macroeconomics, if NCDs were completely eliminated. While elimination is neither feasible nor a current realistic goal, these figures give a sense of the impact that interventions might have.<sup>2</sup> In terms of microeconomic costs, about 40 percent of household expenditures for treating NCDs are borne by individual borrowing and sales of assets, indicating significant levels of financial vulnerability to NCDs. Because of the chronic nature NCDs compared to communicable diseases, recurrent health events increase the risk of more frequent catastrophic spending.<sup>3,4</sup>

These findings have major implications for South Asia. NCDs increase with aging but without associated economic gains it can lead to unhealthy aging. This is characterized by disability and premature death. The shift of the disease burden toward NCDs while a significant burden remains of maternal and child health and nutrition issues, increases demand on the health system many-folds.<sup>5</sup> This burden on households will make it harder for families and more will be driven into poverty as most health care is currently being financed with private out-of-pocket resources.<sup>6</sup>

In the recently held UN summit of head of states on NCDs, it was emphasized that by not doing anything the cost to world in terms of cumulative loss in output associated with NCD in developing countries over fifteen years 2001-2015 will be 7 trillion and this can be avoided by spending 170 billion. This could be achieved by adopting 'fourteen best buys' recommended by WHO. This is

equivalent to 4% of total current spending on health in low income countries. This extra cost can be easily raised by levying extra taxes on cigarette.<sup>7-9</sup>

Some interesting studies have been conducted to assess the effects of different measures to contain NCDs especially where sources are not extravagant. In terms of population-based interventions, the effects of reduction of tobacco consumption and salt intake of 15 percent modeled in 23 low- and middle-income countries found that over 10 years, 13.8 million deaths could be averted, at a cost of less than US\$ 0.40 per person a year in low-income and lower middle-income countries, and US\$ 0.50-1.00 per person a year in upper middle-income countries (as of 2005). For Bangladesh, India, and Pakistan (the three South Asian countries among the 23), the model predicts deaths averted in a range of 50-70 per 100,000 of the at-risk population (the population over age 30).<sup>10-14</sup> This seems to be a very attractive, smart and cost-effective investment to achieve these goals.

The concept of poly-pill has been very interesting and daunting! Among high-risk individuals in the same set of 23 low- and middle-income countries, the evidence of preventing or managing CVD by reducing blood pressure or cholesterol by drugs has been used to model the cost-effectiveness of pharmacological interventions. When scaling up the above current coverage levels, the model estimated that that over a 10-year period, a multidrug regimen for the prevention of CVD could avert 17.9 million deaths from CVD in these 23 countries. The 10-year average yearly cost per person would be US\$1.08 (US\$0.75-1.40), ranging from US\$0.43 to US\$0.90 across low-income countries and from US\$0.54 to US\$2.93 across middle-income countries.<sup>15-18</sup>

Different countries are at different stages of development of their NCD programs and it is therefore important to integrate this aspect in the framework. The framework analyzes NCD program management in four stages: Assess, Plan, Develop and Implement, and Evaluate. Some studies have been conducted in different parts of Pakistan to assess the prevailing risk factors profile in healthy population and patients presenting with coronary artery disease.<sup>19-24</sup> Three complementary strategies can be used to contain this disease. First, the burden of risk factors can be reduced through population-wide public health measures, such as awareness about smoking, unhealthy diets, and physical inactivity. Second, to identify higher-risk subgroups of the population who stand to benefit the most from specific, low-cost prevention interventions, including screening for and treatment of high blood pressure and elevated cholesterol. Third, resources should be allocated to acute as well as secondary prevention interventions. For countries such as ours, more information is required on the prevalence of the major preventable risk factors.<sup>19-24</sup> The lessons learnt from the epidemiologic transition provide insight into how to alter the course of the heart diseases epidemic. The efficient employment of low-cost preventive and therapeutic strategies mentioned above can alter the natural course of this epidemic.

Many initiatives have been undertaken in different parts of the world presenting workable models for developed<sup>25</sup> and developing countries.<sup>24,5</sup> The EUROACTION preventive cardiology program reduced the risk of cardiovascular disease compared with usual care mainly through lifestyle changes by families, who together made healthier food choices and became more physically active than before the intervention. This is a model of preventive cardiology, which has been successfully implemented and assessed, and can be used, in routine clinical practice. This study proves that we need to go beyond specialized cardiac rehabilitation services and provide local preventive cardiology programs, appropriately adapted to the medical, cultural, and economic setting of our country. Models have been developed in Pakistan but the need of the day is to apply them at grass root level and this requires the support of the government.<sup>28-30</sup>

Preventive council of Pakistan Cardiac Society has already developed local guidelines for the prevention of cardiovascular diseases. Emphasis has been laid on adoption of simultaneous primordial, primary and secondary preventive interventions. What are the important steps the council has to take? Guidelines need to be disseminated more effectively. Preventive cardiology theme should be propagated through continuous medical education interactive workshops all over. Special emphasis has to be laid on school and undergraduate education. Strategies for prevention of heart disease should be taught in schools and colleges in easy and simple language. Preventive cardiology should be included in final year curriculum of medical colleges. As the data on risk factors in Pakistan is scanty, more studies should be done with objective of risk factors analysis in our own population.

Fundamental to this is developing optimally structured and functional departments of Preventive Cardiology with well trained and staffed human resource, proper infrastructure and necessary resources in every institute and major hospitals, private hospitals and district hospitals especially those hospitals offering invasive services. Close liaison has to be encouraged between medical units, diabetic units, cardiac surgical units and these departments. It should provide facilities to assess risk factors like blood pressure, weight and waist measurement and check cholesterol and sugar. It should develop special literature about heart problems in local language, Urdu and English for educating general public visiting the clinics for any ailment. It should provide detailed information on specific risk factors –their importance and ways to control them for patients diagnosed to have specific risk factors. Such departments should establish free drug banks for treatment of hypertension, diabetes and

cholesterol. Expert help should be available for quitting smoking and treating obesity in these special centres. They should hold regular seminars for general public awareness. They should develop special software for GP clinics for record keeping and more importantly for follow up. This may be centrally connected for a data base and regular follow up.

To conclude, the burden of non communicable diseases is rapidly increasing in the developing countries. With increase in the incidence of non communicable diseases on one hand and inability to control the menace of infectious diseases on the other hand, leaves the developing countries extremely vulnerable. In countries like Pakistan treatment options are expensive and limited and most of the population does not have access to the tertiary care hospitals. It would therefore be more logical to concentrate on prevention of diseases.<sup>30</sup>

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