

Commentary

Elevated blood pressure & effectiveness of comprehensive risk reduction programme

Worldwide the non communicable diseases are on the rise across all continents and irrespective of income status. These non communicable diseases now account for 60 per cent of deaths worldwide, and 80 per cent of these deaths occur in low or middle income countries where the effect is devastating because it affects someone in the prime of his life¹. A recent report from World Health Organization² identified six risk factors for death within the non communicable diseases. These risk factors are: high blood pressure, smoking, high blood glucose levels, physical inactivity, overweight and high cholesterol. Of these, hypertension is responsible for death of 7.5 millions and accounts for nearly 12 per cent of total deaths in the world. Data from INTERHEART³ and INTERSTROKE⁴ studies showed that Indian patients enrolled also place hypertension as a major risk factor that we need to worry about to prevent the disability due to cardiac related mortality and morbidity. The population attributable risk - PAR for hypertension was 17.9 for hypertension in the INTERHEART study and 34.6 in the INTERSTROKE study. Added to this is the fact that these risk factors are increasing in our country in both urban and rural populations⁵.

In this issue, the burden of elevated blood pressure in a nation-wide study on more than 10,000 individuals is published⁶. The authors need to be congratulated for the enormous work that was done to get this information. Now we have a reliable data on the epidemiology of hypertension. Isolated hypertension was observed in 2.6 per cent of middle age group and hypertension was seen clustering with other risk factors in another 12.3 per cent individuals in our country. This study is noteworthy because risk factor clustering has not been studied before in India. This is interesting because our methods for prevention will be useful multifold because of this clustering. Also is the fact that the clinicians

should screen for the multiple risk factors together for maximum benefit.

The effect of age in clustering of risk factors is significant. Persons above the age of 40 yr and males had more clustering; 40 per cent of participants above the age of 40 yr had 3 or more risk factors.

The study⁶ also had some major limitations that the population studied did not represent the group of general population. The persons enrolled were industry group, likely to be more motivated for health care and likely to be of higher socio-economic status. Another major limitation was the fact that this study did not include ageing population - the elderly, namely persons above the age of 60 yr. These risk factors are more likely to have higher prevalence with increasing age.

This study provides data about hypertension and clustering of important risk factors in a group of persons in our country, and fills in the significant gap that exists in the epidemiology of risk factors of cardiovascular diseases (CVD) in our country. The next step is to take this kind of study further to get the CVD mortality data as well. This is one area we are lacking completely. It is interesting to note that even in US⁷ and Europe⁸ these mortality data differ from region to region. So what we need is to take these types of studies forward in two ways. One is to introduce an interventional group to see the effects of risk reduction in the long run and secondly to study the effects of these risk factors on mortality on all India basis.

V. Jacob Jose

Department of Cardiology
Christian Medical College & Hospital
Vellore 632 004, India
jose@cmcvellore.ac.in

References

1. Daar AS, Singer PA, Persad DL, Pramming SK, Matthews DR, Beaglehole R, *et al.* Grand challenges in chronic non communicable diseases. *Nature* 2007; 450 : 494-6.
2. World Health Organization. *Global health risks: mortality and burden of disease attributable to selected major risks*. Geneva: World Health Organization; 2009.
3. Joshi P, Islam S, Pais P, Reddy S, Dorairaj P, Kazmi K, *et al.* Risk factors for early myocardial infarction in south Asians compared with individuals of other countries. *JAMA* 2007; 297 : 286-94.
4. O'Donnell M, Xavier D, Liu L, Zhang H, Chin SL, Rao-Melacini P, *et al.*, on behalf of INTERSTROKE investigators. Risk factors for ischemic and intracerebral hemorrhagic stroke in 22 countries. A case control study. *Lancet* 2010; 376 : 112-23.
5. Sridharan SE, Unnikrishnan JP, Sukumaran S, Sylaja PN, Nayak SD, Sarma PS, *et al.* Incidence, types, risk factors and outcome of stroke in developing country. Trivandrum stroke registry. *Stroke* 2009; 40 : 1212-8.
6. Jeemon P, Prabhakaran D, Goenka S, Ramakrishnan L, Padmanabhan S, Huffman M, *et al.* Impact of comprehensive cardiovascular risk reduction programme on risk factor clustering associated with elevated blood pressure in an Indian industrial population. *Indian J Med Res* 2012; 135 : 485-93.
7. Centres for Disease Control and Prevention (CDC). Estimated country-level prevalence of diabetes and obesity United States 2007. *MMWR* 2009; 58 : 1259-63.
8. Mariotti S, Copocaccia R, Farchi G, Menotti A, Verdecchia A, Keys A. Age, period, cohort and geographic area effects on the relationship between risk factors and coronary heart disease mortality. 15 year follow up of the European cohorts of seven countries study. *J Chronic Dis* 1986; 39 : 229-42.