



India - Diabetes Capital of the World : Now Heading Towards Hypertension

Shashank R Joshi*, Rakesh M Parikh**

India is the diabetes capital of the world with 41 million Indians having diabetes, every fifth diabetic in the world is an Indian. It also leads in prevalence of metabolic syndrome as well as obesity. 20 million Indians are either obese or abdominally obese with children being the prime targets and by 2025, the expected number is 68 million.¹ But the real impact of obesity and diabetes is through cardiovascular disease and hypertension. Mohan et al's CURES cohort clearly shows every fifth individual is a hypertensive in Chennai which parallels or even outstrips diabetes.² So hypertension may upsurge diabetes statistically in the genetically vulnerable Asian Indian race. The sinister cardiovascular implications of diabetes and obesity are well documented, but hypertension may take center stage soon.

The epidemiology of hypertension, in terms both of its importance as a risk factor for cardiovascular and other diseases and of its own etiology, continues to be a major field of investigation with an enormous peer-reviewed literature each year. MONICA (MONitoring trends and determinants In CARDiovascular disease) project has reported declining mean values in the populations for systolic and diastolic blood pressure with a few exceptions.³⁻⁷ Further analysis from the same data has revealed that the fall in BP was uniformly observed at all levels of readings, with no differential fall in high readings attributable to better control of hypertension.⁸ This universally declining trend in BP irrespective of medication is not explainable. However, recent data suggest that it is again on the rise. In 1999-2002, 28.6% of the U.S. population had hypertension.⁹ Hypertension prevalence has also been increasing in other countries, and an estimated 972 million people (333 million in economically developed and 639 million in economically developing, countries), in the world are suffering from this problem.¹⁰ Incidence rates of hypertension range between 3% and 18%, depending on the age, gender, ethnicity, and body size of the population studied. Temporal trends in age-specific and age-adjusted prevalence of hypertension indicate that there has been a progressive increase in the prevalence of age-specific

and age-adjusted hypertension in China. This trend is probably representative of a broader tendency for a progressive rise in the prevalence of hypertension in economically developing countries. Given that more than 80% of the world's population lives in economically developing nations, it is very likely that the worldwide burden of illness due to hypertension will continue to escalate unless measures are taken to blunt the expected increase in the prevalence of hypertension

In light of the existing data suggesting increase in prevalence of hypertension in developing countries, data of more than 2000 subjects from the CURES study by Mohan et al was evaluated and is being published in this issue.² The overall prevalence of hypertension in the study population was 20% being 23.2% in men and 17.1% in women. Even in the young (20-29 yrs) the prevalence of hypertension was 3.8% in men and 3.1% in women, while at the age of 60 years and above the figures jumped to 50.8% in men and 51% in women. Isolated systolic hypertension was present in 6.6% of the subjects while isolated diastolic hypertension was present in 4.2% of the subjects. Among the known hypertensive subjects, 70.8% were under treatment for hypertension however only 45.9% had blood pressure under control, which represents 15.4% of the total hypertensive group. The prevalence rates reported in the present study are lower than that reported in other studies from Jaipur, West Bengal and Kerala though they are comparable to those observed by Indian Council of Medical Research (ICMR) non-communicable disease (NCD) risk factor surveillance. In an earlier issue we addressed the fact that the famous rule of halves still apply in the Indian population.¹¹

Evidence from clinical practice and from the literature suggest that approximately half of most common chronic disorders are undetected, that half of those detected are not treated, and that half of those treated are not controlled: the 'rule of halves'. Workload in primary care would increase by at least 12% if all common and important chronic disorders were fully diagnosed, treated and followed up; the accompanying effects on prescribing costs would be complex, but not necessarily inflationary. One of the cornerstones of the primary prevention of cardiovascular disease has been screening and early antihypertensive drug treatment of patients with high blood pressure (BP). Nevertheless, recent

* Department of Endocrinology, Seth G S Medical College & KEM Hospital and Lilavati Hospital, Mumbai. ** S K Soni Hospital, Jaipur.

population studies have in some elegant Finnish and Belgian studies, shown that awareness and management of high BP levels are far from optimal but in developed countries, the rule of halves may not be valid. However despite of this, data continues being generated about the validity of this rule. It serves as crude reminder that BP control is far from optimal.¹²

Prevalence of hypertension observed in this study is 50% higher than that reported from New Delhi in Intersalt Study (13.6%) two decades back.¹³ The available literature suggests that being Indians, at least we should not be in the notion that prevalence of hypertension is declining. With the prevalence comparable to other countries like U.S., which have the highest figures and being the country with second largest population, we are probably having one of the largest number of hypertensive patients. In any case, in thirty years our population will over come China and even at the current rate of hypertension we will have the largest number of people with hypertension in the world. One more label – Hypertension capital of world! There is an urgent need to address this problem. The age old saying - “Prevention is better than cure” has a strong relevance in its context to our country.

The targeted strategy should be directed at people who already have a high normal level of BP, have a family history of hypertension, are overweight, consume an excessive amount of salt or too little potassium, are physically inactive, or consume three or more alcoholic drinks per day. Intervention programs indicate that the desired lifestyle changes can be achieved and maintained over prolonged periods of follow-up with an associated reduction in the incidence of hypertension of 25%-50%. As with any lifestyle change, it is easier to achieve and maintain the desired intervention goals in people who are most motivated. These individuals include people who are older, have already experienced a CVD complication or have a comorbid condition, or have a higher socioeconomic status. The concurrent application of public and professional education campaigns aimed at encouraging the consumption of a diet that is lower in sodium and caloric content and higher in potassium content than is typical in most societies, as well as increased physical activity and moderation in alcohol consumption, form the basis to prevent hypertension. Public education is best achieved by means of simple,

action oriented messages that build on the community’s existing knowledge of the risks and value of treating hypertension. Such messages should be consistent with the many other health recommendations that are directed at the general population.

REFERENCES

1. Joshi SR. Management of Obese Indian Patient. *Indian Journal of Obesity*. 2005; 1 (1) : 11-20.
2. Mohan V, Deepa M, Farooq S, Datta M, Deepa R. Prevalence, Awareness and Control of Hypertension in Chennai – the Chennai Urban Rural Epidemiology Study (CURES-52). *J Assoc Physicians Ind* 2007;55:326-32.
3. Tunstall-Pedoe H, ed, for the WHO MONICA Project. MONICA monograph and multimedia sourcebook. Geneva: World Health Organization, 2003.
4. WHO MONICA Project. *MONICA manual*. 1998-1999.
5. Kuulasmaa K, Hense H, Tolonen H, for the WHO MONICA Project. *Quality assessment of data on blood pressure in the WHO MONICA Project*. May 1998.
6. Kuulasmaa K, Tunstall-Pedoe H, Dobson A, Fortmann S, Sans S, Tolonen H, et al. For the WHO MONICA Project. Estimation of contribution of changes in classic risk factors to trends in coronary-event rates across the WHO MONICA project populations. *Lancet* 2000;355: 675-87.
7. Tolonen H, Kuulasmaa K, Ruokokoski E. For the WHO MONICA Project. *MONICA population survey data book*. October 2000.
8. Hugh Tunstall-Pedoe, John Connaghan, Mark Woodward, Hanna Tolonen, Kari Kuulasmaa. Pattern of declining blood pressure across replicate population surveys of the WHO MONICA project, mid-1980s to mid-1990s, and the role of medication. *BMJ* 2006;332:629-35.
9. Hajjar I, Kotchen JM, Kotchen TA. Hypertension: trends in prevalence, incidence, and control. *Annu Rev Public Health* 2006;27:465-90.
10. Kearney PM, Whelton M, Reynolds K, et al. Global burden of hypertension. *Lancet*. In press.
11. Deepa R, Shanthirani CS, Pradeepa R, Mohan V. Is the “Rule of Halves” in hypertension still valid? - Evidence from the Chennai Urban Population Study. *J Assoc Physicians Ind* 2003;51:153-7.
12. Joshi SR, Shah SN. Control of blood pressure in India: Rule of halves still very much valid. *J Assoc Physicians Ind* 2003;51:151-2.
13. Intersalt: an international study of electrolyte excretion and blood pressure. Results for 24 hour urinary sodium and potassium excretion Intersalt Cooperative Research Group *BMJ*; 297 30 JULY 1988: 319-28.

India-diabetes capital of the world: Now heading towards hypertension. *J Assoc Physicians India* 2007;55:323-4. 2. Dash SC, Agarwal SK. Outcomes of treating hypertension in the elderly: A short commentary on current issues. *Am J Geriatr Cardiol* 2003;12:14-8. 13. Hernandez-Vila E. A review of the JNC 8 blood pressure guideline. *Tex Heart Inst J* 2015;42:226-8. 14. Altaf M, Rasheed A, Mujtaba A, Mohammed S. Drug utilization evaluation of antihypertensives in geriatric patients in a tertiary care hospital. *Int J Pharm Pharm Sci* 2014;6:261-4. 15. Borzecki AM, Glickman ME, Kader B, Berlowitz DR. The effect of age on hypertension control and management. *Am J Hypertens* 2006;19:520-7. The presence of hypertension in diabetic patients substantially increases the risks of coronary heart disease, stroke, nephropathy and retinopathy. When HT coexists with DM, the risk of CVD is increased by 75%, which further contributes to the overall morbidity and mortality of already high risk population. India contributes a lion's share in the diabetic and hypertensive population. This needs to be tackled with proper awareness and proper government policies. 1. Shashank R Joshi and Rakesh M Parikh, India - Diabetes Capital of the World: Now Heading Towards. *Hypertension, JAPI, Editorial, May 2007, Vol. 55,323-324.* 2. Mohan V, Deepa M, Farooq S, Datta M, Deepa R. Prevalence, Awareness and Control of Hypertension.