

EDITORIAL

Hypertension Control in India: Are we there Yet? OR Uncontrolled and Resistant Hypertension: The Indian Perspective

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The World Health Organisation (WHO) Non-communicable disease (NCD) profile for India (2014) shows that cardiovascular (CV) disease accounts for 26% of all deaths in India.¹ Blood vessels serve the large "Battle Grounds" to Blood pressure (BP) which bears a continuous relationship with the occurrence of several CV events such as stroke, myocardial infarction (MI), sudden death, heart failure and peripheral artery disease (PAD) as well as of end-stage renal disease (ESRD). This association begins with even low values of BP such as 110–115 mmHg for systolic BP (SBP) and 70–75 mmHg for diastolic BP (DBP).²

According to 2008 estimates, hypertension affects more than 1 out of every 5 adults in India.¹ Hypertension prevalence has been increasing in both rural and urban India over the last 6 decades. Nearly 25% of urban and 10–15% of rural adults are hypertensive which correlates with a 12-fold and 7-fold increase in urban and rural hypertensive population respectively. Estimates from the Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India show that by the year 2020, 159.46/1000 Indians will be hypertensive.³

Every year, 1.1 million lives are lost to hypertension in India. Nearly 10.8% of all deaths in India can be ascribed to hypertension.⁴ Moreover complications contribute to the morbidity

associated with hypertension. Estimates show that 16% of ischaemic heart disease, 21% of peripheral vascular disease, 24% of acute MI and 29% of strokes in India are attributable to hypertension.⁵ In an assessment of risk factors for hypertension in the densely populated countries of China and India, *Wang F et al.* showed that several risk factors contribute to the prevalence of hypertension. Increasing age, unhealthy diet (especially salt intake >5gms doubles the risk of hypertension), obesity, alcohol and tobacco consumption, physical inactivity and urban residence were some of the key influencers.⁶

Uncontrolled hypertension is defined as inability to achieve the SBP < 140 mmHg and DBP < 90 mmHg as per Joint National Committee VII guidelines, despite being on anti-hypertensive medications.⁷ Resistant hypertension denotes BP that remains elevated above treatment goals despite concurrent use of 3 anti-hypertensive medications of different classes that includes a diuretic. Both awareness and control of hypertension are poor in India.² A recent study by *Anchala R et al.* reemphasized this point by showing that in rural India, only 1 out of every 4 hypertensives were aware of their condition with only 25% were undergoing treatment. Things were only slightly better in

urban India with >4 out of every 10 hypertensives aware of their condition with nearly the same number receiving treatment. The BP control rates were depressing in both populations with only 1/10th of the rural and 1/5th of the urban hypertensive population exhibiting BP control.⁸

In the present issue of the journal, *Bharatia R, et al.*⁷ have tried to shed some light on the various aspects of uncontrolled and resistant hypertension in India. Uncontrolled hypertension has been associated with both patient- and physician-related factors. On the other hand, uncontrolled hypertension can develop into resistant hypertension, if managed ineffectively. Some common risk factors for both uncontrolled and resistant hypertension include old age, obesity and high baseline systolic BP. Since the data on uncontrolled and resistant hypertension is limited in India, *Bharatia R, et al.* have planned this comprehensive study to evaluate the prevalence of resistant hypertension. Additionally, the profile of the uncontrolled hypertensive patients was assessed on the basis of socio-demographic, medical history, anthropometric variables along with physician treatment preferences. This cross-sectional, multi-centric, non-interventional, observational and single visit study was conducted

across 486 sites over 2013-2014. 4725 patients with uncontrolled hypertension were analyzed of which more of 70% of whom were male. Nearly 19.5% i.e. 922 had resistant hypertension. Patients in the age group of 46-65yrs contributed maximally to the prevalence of uncontrolled (73.4%) and resistant (80.1%) hypertension. These figures were, however, based on single visit readings. Most patients in the study group were pre-obese or obese with an average BMI of 27.3 ± 4.41 kg/m², which was much higher than the suggested cut off of 23 kg/m² in Asian Indian adults. The average SBP/DBP values in the study population was $158.70 \pm 14.498/97.93 \pm 9.352$ mmHg. Predisposition of Indians to hypertension followed by uncontrolled and resistant hypertension was seen due to excessive dietary salt ingestion, courtesy Indian foods like chutneys, papads, and pickles. Also, most of the uncontrolled hypertensive patients were from Gujarat and Maharashtra which, the authors suggest, could possibly be due to environmental factors and lifestyle differences in different geographical regions in India. Diabetes and dyslipidemia were found to be the most common co-morbidities associated with uncontrolled as well as resistant hypertension, with diabetes being more prevalent than dyslipidemia. Again these co-morbidities were chiefly reported in the age group of 46-65yrs.

Data from several landmark trials such as UKPDS (United Kingdom Prospective Diabetes Study), ABCD (Appropriate Blood Pressure Control in Diabetes), MDRD (Modification of Diet in Renal Disease), HOT (Hypertension Optimal Treatment), AASK (African American Study of Kidney Disease and Hypertension), IDNT (Irbesartan

Diabetic Nephropathy Trial) and ALLHAT (Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial) have shown that monotherapy is often insufficient to achieve target BP levels.⁹ Interestingly, Bharatia R, et al showed that 45.4% of the patients with uncontrolled hypertension were managed on monotherapy with ARBs being the drug of choice. In case of patients managed on ≥ 2 drugs, ARB+CCB or ARB+diuretics were the dual combinations of choice whereas the most often used triple combination was that of ARB+CCB+diuretic. In case of patients with resistant hypertension, all patients were on ≥ 3 drugs with ARB+CCB+diuretic being the most common combination. Lipid-lowering drugs followed by oral hypoglycemic agents and antiplatelet agents were the most frequently co-prescribed medications in this patient population.

This well planned study addresses the inadequate data available regarding uncontrolled and resistant hypertension. The study also suggests protective measures to be taken to control hypertension including reduction of physician's inertia, diet and physical activity, regular patient follow-up with BP measurements and counselling, and the improvement in patient adherence. So what insights do this study offer? (a) obesity, diabetes and dyslipidemia are important modifiable risk factors for hypertension in the Indian population; (b) the age group of 46-65yrs is most vulnerable to occurrence of uncontrolled hypertension; (c) ARBs form an essential part of monotherapy, dual and triple therapy attesting to their versatility; (d) underutilisation of combination therapy could be one of key reasons for inadequate control; (e) if inappropriately managed, nearly 1 out of every 5 patients of

uncontrolled hypertension might develop resistant hypertension.

Resistant hypertension can be treated by identification and reversal of lifestyle factors, appropriate treatment of secondary causes of hypertension and by the use of multiple antihypertensive medications. Tailoring therapy to suit the patient and achieve BP control to attain the twin goals of reducing uncontrolled hypertension and subsequent development of resistant hypertension is the need of the hour.

References

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