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Editorial

Towards better hypertension management in India

Hypertension is an important public health problem in India and leads annually to 1.1 million deaths (uncertainity index 0.9-1.3 million)[1]. It is estimated to account for 10.8 per cent of all deaths and 4.6 per cent of all disability adjusted life years (DALYs) in the country[1]. Globally also, hypertension is the most important risk factor for death and disease burden and is estimated to be responsible for 9.4 million deaths and 7.0 per cent DALYs[2].

Several guidelines published in 2013 have refocussed international attention on hypertension[3-6]. A crucial focus in all these guidelines is both the achievement of optimum blood pressure (BP) as well as overall reduction in cardiovascular (CV) risk. These can be achieved by combination of a range of interventions: *(i)* lifestyle changes (increased physical activity, increased consumption of fruits and vegetables, sodium restriction, weight management, alcohol abstinence and smoking/tobacco cessation); *(ii)* drugs to lower BP (calcium channel blockers-CCBs, diuretics, angiotensin converting enzyme inhibitors-ACEI, angiotensin receptor blockers-ARBs, beta-blockers, *etc.*) and to lower lipids using statins[3]. All these lifestyle and pharmacological strategies are likely to be equally important in Indians with hypertension, although no previous trial of BP reduction or lipid lowering has been conducted in South Asians or have included sizeable numbers of participants of South Asian origin. Based on the currently available data, a few issues need highlighting: *(i)* over half of those with hypertension in India are not aware that they have elevated BP; *(ii)* of those who are aware that they have hypertension, only about 60 to 80 per cent are treated with medications; and *(iii)* of those who are treated, the majority do not have adequate control of BP and fewer have other risk factors addressed. Consequently, only about 10-15 per cent of those with hypertension have controlled BP. These massive gaps in detection of hypertension, its treatment and control require systematic strategies to tackle barriers. Some of the important strategies are summarized in the Table.

Hypertension occurs in 25-30 per cent of middle aged individuals in urban and 15-20 per cent in rural areas of the country[7]. The Prospective Urban Rural Epidemiology (PURE) study has reported that hypertension prevalence in South Asian adults aged 35-70 yr varies from 30.7 per cent in India, 33.5 per cent in Pakistan and 39.3 per cent in Bangladesh[8]. Among those with hypertension, awareness (40.4%), treatment (31.9%) and control (13.0%) are very low[8]. There is an urgent need for increasing awareness of hypertension (through better detection and education of the public) and to promote its treatment and control by using public health measures. Relevant for India and other lower middle and low income countries, are policy initiatives, promotion of widespread BP measurements (screening), and strategies to ensure lifelong BP control in those having hypertension.

Public health measures include media and educational campaigns to promote awareness that *(i)* hypertension is asymptomatic, *(ii)* BP measurements are essential, *(iii)* BP reduction is required, and *(iv)* drugs are effective, safe and well tolerated and are required to be taken for life even when the BP is "controlled". Promotion of healthy lifestyles can be done by focussing on messages to avoid smoking and any tobacco use, minimizing or eliminating alcohol consumption, increasing the consumption of fresh fruits and vegetables and reducing animal fat consumption. Salt intake should be reduced especially in those with high consumption (>5 g sodium/day)

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Table. Recommendations for better hypertension control in India

Strategy	Examples
Public education	• Hypertension is a major cardiovascular risk factor and one of the most important cause of strokes and heart disease
	• Hypertension is most often silent, so regular BP checks are essential in all adults (>35 yr)
	• Hypertension can be prevented and better controlled by adoption of prudent lifestyle combined with simple, safe and inexpensive drugs
Patient empowerment	• Lifelong commitment to lifestyle changes and anti-hypertensive therapy in patients with hypertension
	• BP self monitoring
Opportunistic screening	• Screening for hypertension among all adults by physicians or other health care workers at every encounter at all levels of care (universal opportunistic screening)
	• Measurement of BP in adults once a year by trained non-physician health care workers during home visits in rural and urban areas
Lifestyle changes	• Focus on reducing high salt in diet, reducing alcohol consumption, weight reduction, and greater physical activity
	• Smoking/tobacco use cessation for overall risk reduction
Low dose combination pharmacotherapy	• Use of low doses of two or more individual drug combination as initial therapy
	• Use of evidence based combinations
Control of vascular risk factors	• Focus on management of all vascular risk factors- smoking, high cholesterol, other lipids, diabetes- in every hypertensive subject
	• Polypill in high risk persons

and in older individuals. Other useful measures are promotion of physical activity by local environmental changes at home, workplace and schools; user friendly food labelling and consumer information regarding fat, trans-fat and salt content; and subsidies for healthy foods (low-fat dairy products, fruits and green vegetables)[9].

Screening as a tool for greater hypertension detection and awareness is important[3]. Opportunistic screenings for BP in all adults should be performed at every healthcare system encounter. Screening can be successfully and efficiently performed by trained non-physician healthcare workers as well as during routine medical consultation. Early diagnosis is the critical step to initiating proper management, and is associated with substantial reductions in cardiovascular mortality and morbidity[3]. Besides screening, non-physician healthcare workers can also be trained to provide lifestyle advice, to initiate low doses of safe medications and to reinforce adherence. This approach of task shifting is likely to be an extremely cost-effective strategy and is essential if a large and resource challenged country, such as India, is to control a common condition such as hypertension affecting one third of adults[10].

A number of pharmacological agents are available for BP control. Older guidelines promoted a stepped-care pharmacological approach and drugs were classified as first line (diuretics, beta-blockers), second line (ACE inhibitors, ARBs, CCBs) and third line (others)[11]. However, all the recent statements and guidelines advise an *a la carte* approach to drug treatment[3-6]. In fact, combination of two drugs from separate classes (ACE inhibitors, ARBs, CCBs, beta-blockers or diuretics) in low doses should be the initial choice and is more effective and better tolerated than using high doses of a drug from a single class[12]. Rational fixed drug combinations have been advised by European guidelines[3] and combination pills are widely available in India. Multi-drug combinations not only provide better BP control over a short term, but also reduce physician inertia (*i.e.* the delays in increasing dose or adding a second drug), promote compliance and adherence. These are convenient, and cost-effective.

An important component of hypertension management is cardiovascular risk reduction. Controlling risk factors beyond BP control by smoking cessation, reduction of cholesterol and diabetes management can further reduce cardiovascular events in patients with hypertension. Clinical trials (*e.g.* ASCOT) have reported that management of lipids using statins leads to greater reduction of clinical events as

compared to isolated BP control[13]. All these studies, however, used separate pills for achieving targets. It is now possible to combine several BP medications and a statin into a combination pill (polypill)[14]. Use of a polypill is promising and phase 2 trials show incremental BP control and large risk reductions (60 to 70%) in CVD events[15]. Several large clinical trials utilizing the polypill strategy are ongoing (HOPE-3, TIPS-3) and results should be available by 2016 and 2018[14,15].

Promoting lifelong adherence to drug therapy is important for optimal hypertension management. There are multiple reasons for non-adherence, most are related to patients' attitudes and factors, provider related issues and barriers in the healthcare system[16]. Relevant for India are poor understanding among patients about hypertension (its risk, its asymptomatic nature and the need for lifelong therapy), and about potential benefits of treatment and proper use of medications; poor interaction of patient with physicians and the healthcare system; poor access to medications and relatively high costs; and inadequate distribution of physicians and other healthcare professionals, with only a few in rural areas and in poor communities. Multiple strategies have been used to improve adherence, and include patient level, drug treatment level and health system level interventions[17]. Complex interventions are most effective and use several approaches together[16]. These approaches include provision of more convenient care which is more easily accessed by patients, information about hypertension and the need for lifelong treatments, periodic reminders, counselling about lifestyle modification, family support, telephone follow up, supportive care and worksite- and pharmacy-based programmes[3]. In India and other low and lower-middle income countries, use of community health workers is an attractive strategy for hypertension management[10]. Such workers have been successfully utilized to reduce maternal mortality, promotion of smallpox and polio immunizations and HIV/AIDS management[18]. Whether such a strategy will be effective for hypertension management in India is being evaluated in a few studies *(e.g*. PREPARE[19], DISHA[20]). Another strategy that has been successfully utilized in BP control is the use of pharmacists or nurse practitioners. In India, unfortunately, the pharmacists are not authorised to prescribe and the category of nurse-practitioners does not exist. Such legal barriers need to be removed for specified conditions as has been done in many other countries. Twenty two countries worldwide and all the 50 US States have legislations that authorise nurse practitioners or pharmacists to prescribe simple treatments[21]. Countries that allow pharmacists to prescribe these drugs include developed countries such as Australia, Canada, New Zealand, South Africa, UK and USA, and middle income countries such as Malaysia. A meta-analysis reported that pharmacist led team intervention reduced systolic BP by 9.3 mm Hg and diastolic BP by 3.6 mm Hg over a one-year period compared to usual care[22]. This would project to an additional 25 to 30 per cent risk reduction in CVD compared to usual care and can have a huge clinical and public health impact. Similar legislations are required in countries such as India, to enhance wider access of patients to simple and evidence based drugs for chronic and stable conditions such as hypertension, and to promote long term adherence.

In conclusion, hypertension is an important public health problem in India. Hypertension detection, awareness and its control are poor. Improved detection and management can prevent hundreds of thousands of premature deaths and avoid a similar number of strokes and heart attacks every year. Innovative "systems" based strategies (Table) to better manage hypertension are required. A combined approach to lowering risk with lifestyle changes and combined use of anti-hypertensive and lipid lowering therapy (perhaps through a polypill) can reduce the cardiovascular risk by as much as 75 per cent[15]. There is a need for improved systems of healthcare for widespread screening for hypertension so that it can be detected. Once detected, effective BP control and reduced CVD risk is best achieved by combinations of BP lowering agents and a statin. Such an approach shall have an enormous clinical and public health impact.

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