

Hypertension in India- The Way Forward

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INTRODUCTION

Hypertension is one of the most significant public health problem and a common lifestyle disease today in India. In 90% patients, the cause is idiopathic.¹ Around 50% of the population remain undiagnosed. According to experts, Hypertension is likely to end up being an epidemic in the near future and 1/3 of the population would suffer from hypertension by the year to 2020.

Increased awareness, treatment, and control of high blood pressure are critical for the reduction of mortality and morbidity. Shifting focus from expensive tertiary care for non-communicable diseases to primary and secondary prevention provided by primary health care and the community would be cost effective and will also save lives. It is suggested that community screening programs combined with simplified diagnostic evaluation and intense patient education and follow-up may greatly increase the success rate. Policy related, health system-related, as well as individual factors are the determinants and barriers for the poor-quality of hypertension management.²

INDIAN SCENARIO

In India 100 million patients are with hypertension. Overall estimates for the prevalence of awareness, treatment, and control of blood pressure (BP) are 25.3%, 25.1% and 10.7% for rural Indians and 42.0%, 37.6% and 20.2% for urban Indians respectively. (J Hypertens. Jun 2014; 32(6): 1170–1177).³ According to CURE study, only 15.4% of the total hypertensive group had blood pressure under control.⁴

Significant differences were noted in the rural and urban

areas for awareness and control of hypertension (P = 0.002 and 0.03, respectively). One recent study showed that young people working in IT industry have high BP because of their lifestyle. Youngsters spend more time on smartphones and seem to be living in a virtual world instead of being physically active.

Transition to Non-Communicable Diseases

There is a rapid transition in the disease burden seen over the past couple of decades from communicable to non-communicable disease in India. This is because of India's economic growth, urbanization over the past decades, changing lifestyles, reduced physical activity, other rapidly evolving socioeconomic determinants, unhygienic and overcrowded living conditions, growing levels of stress, higher exposure to pollution, faulty food habits like increasing intake of saturated fats and tobacco by the people.⁵

The amount of fat intake increased by more than 25%, both in urban and rural areas,⁶ the per capita consumption of proteins went down. This, coupled with reduced physical activity, gives rise to intermediate risk factors such as hypertension and metabolic syndrome. 20 million Indians are obese today with projected rise to 70 million by 2025^[7]. Around 14% of Indians smoke daily and more young people are taking up smoking, levels of drinking and smoking are the highest amongst the lowest income quintile in India^[8].

Due to poor access to health care, the high cost of treatment, social stigma, and low awareness they tend to ignore the disease. Seeking treatment would also mean missing wages, reduced productivity, an additional cost of transport to reach the nearest health facility especially for those in rural settings. Improved healthcare in India has increased the average life expectancy from 48.8 years in 1970 to 64.1 years in 2009^[9], resulting in a growing aging population which faces an increased risk of hypertension. Between 2011 and 2031, the number of people above 60 years of age is expected to more than double in India. A recent screening drive by the government in Bangalore found 14% and 21% people to be suffering from diabetes and high blood pressure respectively. The government has announced the expansion of the program to screen 15-20 crore people across the country this year.

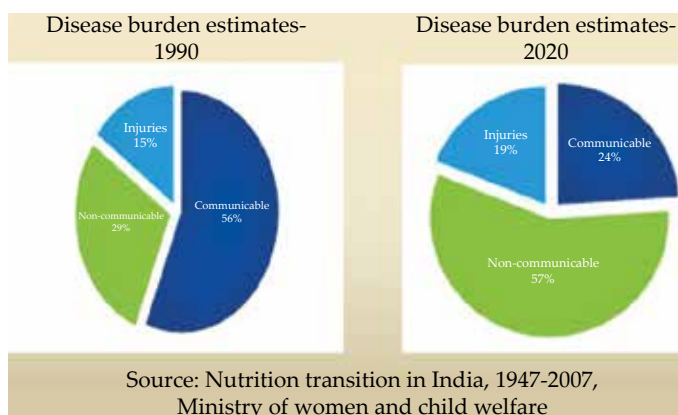


Fig-1 : A big cause of concern for India

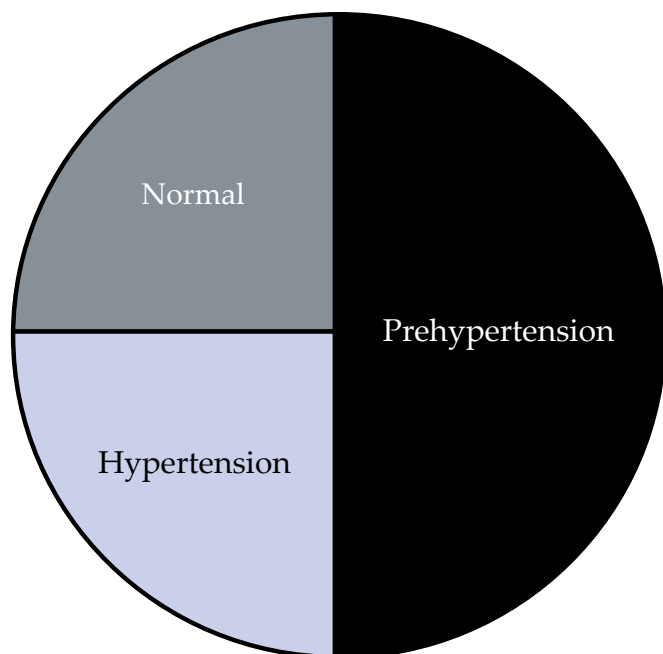


Fig. 2

Economic Burden of Hypertension in India

- The annual income loss from non-communicable disease in India was Rs. 251 billion
- Hypertension alone has contributed Rs. 43 billion
- It is a leading cause of hospitalization and outpatient visits
- It is leading cause of absenteeism at workplace

Why screening for hypertension?

Hypertension screening is a strategy used in a population to identify the possible presence of yet to be diagnosed individuals without signs or symptoms.

1. Screening adults to detect hypertension early and initiate treatment before the onset of target organ damage occurs is highly cost effective.
2. Major public health problem on cardiovascular health in India and leads annually to 1.1 million deaths.
3. Account for 10.8% of all deaths and 4.6% of all Disability Adjusted Life Years (DALYs) in the country.
4. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India.
5. However, World Health Organization (WHO) has said that hypertension is the most easily preventable problem. The WHO report states that a 2 % reduction in diastolic blood pressure could prevent 3,00,000 deaths from cardiovascular disease by 2020.

How to screen for hypertension?

“FRIEND” approach for screenings

F -Family

R-Relatives

I-Institutions, industry,

E-Education group, schools, college, polytechnics

N-Neighborhood, house, village, town camps

D-Doctor community, dears, and nears

Free BP checkup can be done in the following places

1. Bus stands, railway stations, airports
2. Shopping malls, supermarkets
3. Banks, government, and corporate offices
4. Petrol pumps
5. Theaters
6. Temples and other religious places
7. Exhibitions
8. Schools and colleges

In clinics and hospitals

1. Check BP for all patients, attendees, visitors, and strangers

Through national health programs like non-communicable disease (NCD) program by government of India in all the centers and also by conducting free health check-up camps by NGOs like Rotary, Lions, IMA, API, professional bodies and through self-help groups screening for hypertension can be done.

What we should achieve by screening

1. Identify people with prehypertension and advise preventive measures and lifestyle modifications.
2. Early detection of hypertension and management to prevent complications
3. Treat hypertension and target organ damage aggressively
4. Detect and treat associated risk factors
5. Proper follow-up and suitable advice with documentation

After identification, patients have to be referred to hospital for further management.

EVALUATION

Once the diagnosis of hypertension is clearly established by multiple blood pressure readings on different visits including readings in the supine and standing position, the physician must detect; whenever possible; the secondary forms of hypertension with the best cost effect approach. This can be done with the medical history, physical examination and selected clinical and biochemical analysis.

CRITICAL POINTS IN HISTORY TAKING FOR HYPERTENSION

1. Duration of hypertension and previous therapeutic history.
2. Personal and family medical history - hypertension, renal disease, diabetes, gout, etc.,
3. Habits -smoking and alcohol.
4. Intake of hypertensinogenic agents- estrogen, sympathomimetics or steroid drugs.
5. Lifestyle - exercise, stress (both at home and at work).
6. Sleep history for sleep apnea.
7. Symptoms linked to secondary forms of hypertension- muscle weakness, spells of tachycardia, sweating and tremors and flank pain.
8. Symptoms of target organ damage- a headache, dizziness, transient weakness, decrease of visual activity, chest pain, dyspnoea, claudication, and nocturia.

CRITICAL POINTS IN PHYSICAL EXAMINATION FOR HYPERTENSION

- I. In measurement of blood pressure-adhere rule of 12345
 1. One limb BP daily (same limb).
 2. Take BP in both limbs and for treatment purpose the limb with higher BP to be taken.
 3. Take BP in all three positions sitting, standing and supine position.
 4. Record all four limb BP when consulting for the first time.
 5. Take BP at least five times a week.
 1. BP should be recorded in all patients with loud- A2.
 2. Record twice, if in doubt, after 10-minute interval.
 3. Three-time average BP in irregular pulse, like atrial fibrillation, ectopics.
 4. Four consecutive patients had elevation in diastole check your stethoscope earpiece for block and /or check your ears for wax.
 5. Before starting treatment ask them to check for BP with different times, different equipment/doctor at least five times
- II. General appearance- waist circumference, fitness, blushing and sweating.
- III. Psychological general behavior- personality traits.
- IV. Fundus examination
- V. Neck examination – carotid auscultation and thyroid palpation.
- VI. Heart rate, rhythm, and murmur.
- VII. Lungs-rhonchi, rales.

VIII. Abdomen- renal masses, bruit over aorta, renal and femoral arteries.

IX. Extremities- pulse and edema.

INVESTIGATIONS FOR UNCOMPLICATED HYPERTENSION

1. Hemogram
2. Analysis of renal functions
 - a. Urine analysis and microscopic examination of sediment
 - b. Blood urea, nitrogen, and creatinine
3. Blood biochemistry
4. Serum sodium, potassium, uric acid and glucose
5. Lipid profile
6. Chest x-ray, ECG, and ECHO

MANAGEMENT

In management of hypertension, usually physicians encounter so many pitfalls either directly related to him or through the patient

APPROACHES TO THE PREVENTION OF HYPERTENSION⁽¹⁶⁾

The World health organization(WHO) has recommended the following approaches in the prevention of hypertension:

1. Primary prevention
 - a. Population strategy
 - b. High-risk strategy
2. Secondary prevention

PRIMARY PREVENTION

Primary prevention is a measure to reduce the incidence of disease in a population by reducing the risk. The earlier the prevention started the more likely it is to be effective.

POPULATION STRATEGY

The population approach is directed at the whole population, irrespective of individual risk levels. The concept of population approach is based on the fact that even a small reduction in the average blood pressure of a population would produce a large reduction in the incidence of cardiovascular complications such as stroke and CHD. The goal of the population approach is to shift the community distribution of blood pressure towards lower levels or “biological normality”. This involves a multi-factorial approach, based on the following nonpharmaco-therapeutic interventions

EDUCATION AND LIFESTYLE MODIFICATION

Nutrition

1. Reducing salt (sodium) intake
 - Aim for less than 3-5 grams per day. However, the daily average salt consumption in Indian scenario is 8-9 grams per day.

Ways to reduce sodium intake

- Food items without added salts
- Unsalted nuts, seeds, beans
- Avoid adding salt and canned vegetables to homemade dishes
- Unsalted and sodium, fat-free broths and soups
- Use fresh poultry, lean meat, and fish.
- Rinse canned foods to reduce sodium.
- Low-sodium, low-fat cheeses
- Add spices and herbs to enhance taste
- Add fresh lemon juice instead of salt to fresh vegetables

Salt restricted food should be made available at hotels, marriage and other functions. This would create awareness among the public.

Know What to Eat: Dietary Approaches to Stop Hypertension (DASH) diet is an eating plan rich in fruits, vegetables, whole grains, fish, poultry, nuts, legumes, and low-fat dairy. These foods are high in key nutrients such as potassium, magnesium, calcium, fiber, and protein. The DASH diet can lower blood pressure because it has less salt and sugar.

Weight Reduction: The prevention and correction of overweight /obesity (BMI > 25) is a prudent way of reducing the risk of hypertension and indirectly Coronary artery disease; it goes with dietary changes. Even small amount of weight loss can make a big difference in helping prevention

Exercise Promotion: Lifestyle Recommendations for Hypertension: Physical activity should be prescribed to reduce blood pressure

- F Frequency - Four to seven days per week
- I Intensity - Moderate
- T Time - 30-60 minutes
- T- Type - Cardiorespiratory Activity
- Walking, jogging
 - Cycling
 - Non-competitive swimming

Exercise should be prescribed as an adjunctive to pharmacological therapy

Behavioral Changes: Reduction of stress and smoking, moderation of alcohol drinking, modification of personal lifestyle, yoga, and transcendental meditation could be beneficial.

Health Education: The general public requires preventive advice on all risk factors and related health behavior. The whole possibility of primary prevention

Self-Care: Long ago, Henry Sigerist, the medical

historian stated that "The people's health ought to be the concern of the people themselves. They must struggle for it and plan for it, this was against disease and for health cannot be fought by physicians alone. It is a people's war in which the entire population must be mobilized permanently".

An important element in community-based health programs is patient participation. The patient is taught about self-care, i.e., Home Blood Pressure Monitoring (HBPM) and keep a log-book of his BP readings.

High-Risk Strategy: The aim of this approach is "to prevent the attainment of levels of blood pressure at which the institution of treatment would be considered". Detection of high-risk subjects should be encouraged by the optimum use of clinical methods. Since hypertension tends to cluster in families, the family history of hypertension and "tracking" of blood pressure from childhood may be used to identify individuals at risk.

2. Secondary Prevention

The goal of secondary prevention is to detect and control high blood pressure in affected individuals.

Early Case Detection: Early detection is a major problem. This is because high blood pressure rarely causes symptoms until organic damage has already occurred, and our aim should be to control it before this happens. The only effective method of diagnosis of hypertension is to screen the population.

Treatment: In essential hypertension, we scale down the high BP to acceptable levels by the multi factorial approach.

Patient compliance: The treatment of high blood pressure must normally is always life-long either through life modification or drugs and this where the problem of patient compliance arises, which is defined as 'the extent to which patient behavior (in terms of taking medicines, following diets or executing other lifestyle changes) coincides with can be improved through education directed to patients, families and the community. Compliance can only be achieved through adequate patient education and strict follow-up.

The basis of follow-up lies in the proper maintenance of records either by the physician or by the patient. It can be achieved through

- a. Hospital records or patient follow-up records
- b. Home-based monitoring of records using-
Home blood pressure diary by British Hypertension Society^[11]

My blood pressure log by American heart association.

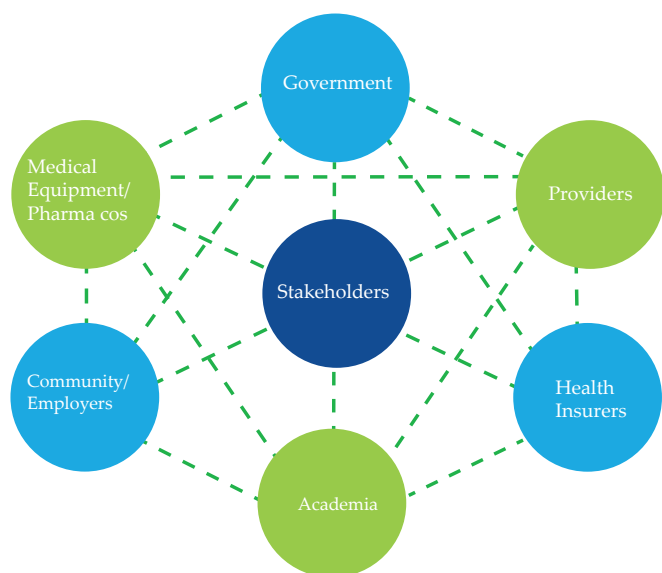
Use www.heart360.org, a free online tool to track

and monitor health information including blood pressure.

THE WAY FORWARD^[12]

India has the intellectual and financial capability to overcome challenges being faced in delivering efficient and cost effective health service. Indian stakeholders need to collaborate and innovate in order to address the challenges of low accessibility, affordability, and awareness and to meet the healthcare needs of the population. Another area for innovation is the use of mobile technology and can give alert messages for proper follow-up. Another possible collaboration can be between the government, academia, and the pharmaceutical industry to conduct India specific trials and upgrading of the teaching manuals to include the latest content^[12].

Collaboration between stakeholders



Hypertension control can be achieved by better government policies, political focus and social determinants of health such as education, development health system, proper health care financing, free or low-cost BP medicines, education for health care providers, free primary care, use of innovation in technology, collaboration with various stakeholders and patient empowerment. Patient empowerment has been said to be the blockbuster drug of 21st century.³⁸ Self-control and behavioral strategies such as self-monitoring of BP, BP diary are important for improving adherence.¹³

TACTICAL¹²

- Primary and secondary healthcare system to be strengthened by retraining medical staff to focus towards surveillance, prevention and counselling.
- Community health workers such as ASHAs, to be trained to raise awareness and to flag high risk people to the local health centre for timely intervention.
- Improve health information systems for surveillance and monitoring of individuals by using ICT.¹²

FOOD & AGRICULTURE LAWS¹²

- Salt, sugar, and fat content in processed food to be regulated in collaboration with the food industry.
- Advertising of unhealthy food to be regulated especially those targeted towards children.
- Proper labelling of food to be mandated to show its nutritional content and warn about excess levels of salt, sugar or fats.
- Anti-smoking laws to be implemented.

INDUSTRY

Pharmaceutical and Medical Technology¹²

- Given the differences in genetic makeup across Indian population it is mandatory to make India specific clinical trials and sub-group data analysis.
- Encourage localized price effective innovations like the low cost HBPM, and the polypill.

Insurance Agencies^[12]

- Out-patient treatment and annual health check-ups, wellness programs to be covered for all through innovative products of insurance scheme which can be incentivized.

Employers^[12]

- Awareness screening, by holding health camps, risk screening camps and other activities at work places.
- Apart from creating healthy work environments that promote physical activity and healthy eating, conduct periodical health camps for improving awareness screening at work place.

COMMUNITY

Academia^[12]

- Continuing medical education (CMEs) must be made mandatory to update the knowledge of health care professionals.
- Teaching methods and syllabus to reflect the paradigm shift to prevention rather than intervention in light of increase of lifestyle diseases to be updated along with strengthening medical education and training infrastructure.
- Study innovative business models like North Karelia Project, Finland The Tianjin Project, China Model and Recommendations of the World Hypertension League.

Community¹²

- All the stakeholders including media jointly create multi-sectoral and integrated programs involving the community and its leaders to raise awareness of the diseases and emphasize on prevention of the diseases.
- Social marketing campaigns involving celebrities to promote physical activity, reduce smoking and

healthy eating. Similar education programs to be conducted at schools and colleges.

CONCLUSION

Hypertension management is everybody's responsibility. All stakeholders must co-ordinate, co-operate, collaborate and innovate to tackle this serious significant health concern of hypertension.

"Today's unhealthy behaviors are tomorrow's risk factors.

Today's risk factors are tomorrow's disease"

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