Expert Opinion on Hypertension Management: An Indian Observational Study

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ABSTRACT

Background: Hypertension prevalence in India is increasing significantly in last decade. An observational study was conducted to assess prevalence of Hypertension, its determinants like patient adherence to diet, exercise and pharmacotherapy in routine clinical practice. Methodology: A cross sectional, questionnaire based study was conducted to collect opinion among doctors in cardiology practice across India between January to April 2017. Convenient sampling method was used. Results: A questionnaire booklet titled ‘HEART study (Experts Opinion on Hypertension And its Treatment)’ was distributed to doctors who had given written informed consent to participate in the study. 442 completely filled booklets were assessed. The HEART study results highlights that 78% of doctors diagnosed >20 new cases of hypertension every month. Patient’s adherence to physical activity and diet was rated as poor by 70% of doctors.. 67% respondents prescribed Angiotensin Receptor Blockers (ARB) and Telmisartan (52.7%) was most opted ARB followed by Olmesartan (24.5%) and Losartan (21%), Valsartan (1.8%). Majority of doctors (92%) opined that >60% of hypertensive patients require second drug to achieve goal BP and >1/5th of patients require third drug. Among hypertensive smokers, study participants chose Telmisartan (53%), followed by amlodipine (36%). Dyslipidemia (46%) was most common co-morbid condition seen by Doctors and 70.6% of doctors prescribed Atorvastatin for dyslipidemia. All Doctors opined that patients’ awareness to hypertension was poor and counseling of patient’s at least once a month was preferred by 92% of doctors. Conclusion: The ‘HEART’ study data demonstrates that current rates for awareness on hypertension, compliance to treatment is low. Telmisartan is commonly prescribed ARB by Doctors and Dyslipidemia is most common co-morbid condition witnessed in their practice. Increasing number of patients requires >1 drug for achieving goal BP. Emphasis on regular patient counseling on lifestyle modification, medication adherence and follow-up helps in better management of hypertension.

Keywords: Hypertension, Prevalence, Treatment, Pharmacotherapy, Epidemiology
1. INTRODUCTION

Hypertension is the predominant risk factor for cardiovascular (CV) morbidity and mortality accounting for one in every eight deaths worldwide\(^1\)\(^2\). Hypertension is ranked as the third most important risk factor for attributable burden of disease in south Asia\(^3\). The Global and Regional Burden of Disease and Risk Factors study, in a systematic analysis of population health data for attributable deaths and attributable disease burden, has ranked Hypertension in south Asia as second, only to child underweight for age\(^3\).

Hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems in India\(^2\)\(^3\). As per the available literature, hypertension prevalence in India is about 29.8% (95% confidence interval: 26.7-33.0)\(^4\). Nearly 2.03 million Deaths in India have occurred due to cardiovascular diseases and expected to increase significantly\(^4\). More than 55% of stroke deaths and 24% of all Coronary cardiovascular deaths occur in India due to hypertension\(^5\). In a population of 1.1 billion, the prevalence of hypertension has been found to be increasing in epidemic proportions.

Furthermore, India is undergoing a rapid economic growth. This growth has been accompanied by lifestyle changes which have had a large impact on the health profile of India's citizens and placed a significant strain on the country's healthcare system\(^6\)\(^7\). Hence, a survey covering the major cities of all Indian states was undertaken to assess the Hypertension, associated factors and its management in the day to day clinical scenario in India.

2. METHODS

We carried out a questionnaire based survey among doctors in cardiology practice in the major Indian cities. This Indian Survey on Hypertension was conducted between January 2017 to April 2017.

Questionnaire

The questionnaire booklet titled The HEART study (The Experts Opinion on Hypertension And its TReatmenT) was sent to the doctors who were willing to participate. The HEART study questionnaire included questions on prevalence, diagnosis, co-morbidities, lifestyle, patient’s awareness, compliance, and pharmacotherapy. The study was conducted after receiving approval from Bangalore Ethics, an Independent Ethics Committee which is recognized by the Indian regulatory authority, Drug Controller General of India.

Participants

An invitation was sent to leading doctors in cardiology practice in the month of November 2016 for participation in this Indian survey on Hypertension. 530 doctors from major cities of all Indian states representing the geographical distribution shared their willingness to participate and provide necessary data. Doctors were asked to complete the questionnaire without discussing with peers. Written informed consent was obtained from each Doctor before initiation of the study.

3. RESULTS

A total of 530 questionnaire booklets were distributed and 442 (response rate 83.4%) completed questionnaires were collected personally by study coordinators after 4 weeks. Unfilled or incomplete forms were excluded from the study. The descriptive statistics like number and percentage are used to describe the data. Tables and graphs have been incorporated wherever necessary.

Mean age of respondents was 43.8 ± 10.9 years (range: 34–62 years). More male doctors (60.2%) participated than females (39.8%). All the doctors were specialized in hypertension management. 310 doctors (70%) had more than ten years of clinical experience in cardiology practice, while 83 doctors (19%) had more than 5 years and <10 years of practice and 49 doctors (11%) had more than <5 years of clinical experience in hypertension management.

On the question on prevalence of hypertension, 60% of the doctors expressed that 20-30 new cases of hypertension are diagnosed every month in their clinical practice, 22% of them opined that at least 10 cases new cases/month and 18% of the doctors diagnosed as high as ≥40 cases per month. 33% of the respondents opined that the newly diagnosed hypertension is seen in 30-40 years, while 52% opined that it is diagnosed in the age group of 40-50 years and rest 15% opined that it is seen in patients above 50 years. 59% of the clinicians expressed that the newly diagnosed patients with hypertension had their systolic blood pressure (SBP) in the range of 160-179 mm Hg and diastolic blood pressure (DBP) in the range of 100-109 mm Hg. 41% of the doctors witnessed patients with SBP of >180 mm Hg and DBP of >110 mm Hg. 87% of the doctors expressed that there is a significant rise in hypertension in youth attributed primarily to obesity and smoking. Among the patients
diagnosed with hypertension, 83% of the doctors in our survey opined that more than one third of the patients were smokers, while 12% of doctors expressed 10-20% patients were smokers and 5% of them opined <10% patients were smokers in their clinical practice. Furthermore, 63% of the respondents opined that Hypertension is more common in men, while 37% of the respondents opined that hypertension was more common in women. When doctors were asked about the co-morbidities with hypertension, 87% of doctors expressed that 50% of the patients with hypertension have additional cardiovascular risk (CV) factor. 13% of doctors expressed that 75% of their hypertensive patients had additional CV risk factor. 46% of the doctors expressed that Dyslipidemia is the common co-morbid condition associated with hypertension followed by Diabetes Mellitus(38%), Chronic Kidney disease(CKD) 11% and other conditions viz., Asthma, hypothyroidism, epilepsy (fig. 1).

![Figure 1: Doctors response on the co-morbid conditions observed in their patients with hypertension](image)

When doctors in our survey were asked to opine on patient’s adherence to diet and exercise, 70% of the doctors answered that the adherence being poor. Furthermore, 89% of the Doctors opined that increasing dietary potassium to reduce blood pressure in those who are not at high risk for hyperkalemia can be beneficial. 11% of the respondents opined as no benefits with increasing dietary potassium. On the question on aggressive lowering of BP and their opinion on SPRINT trial, 78% of the doctors in the study expressed that aggressive BP lowering provides beneficial clinical outcomes in the Indian population. On the question on most commonly used antihypertensive drug class in newly diagnosed hypertensive patients. 67% of the participants replied that Angiotensin Receptor Blockers (ARB) is the most commonly used followed by Calcium Channel Blockers (CCBs) (15%), ACE inhibitors (11%), and Beta Blockers (7%). Among the ARBs, Telmisartan was the most opted ARB among the doctors (52.7%) followed by Olmesartan (24.5%), Losartan (21%) and Valsartan (1.8%) (fig. 2).
When doctors were asked to opine on the use of two or more antihypertensive medications, Doctors (92%) in our study opined that more than 60% of the patients with hypertension require second drug to achieve goal BP and more than 1/5th of the patients require additional third drug for the management of hypertension. 8% of the doctors expressed that 40% of their patients require two drugs and 15% of the patients require three drugs for management of hypertension.

On the question of addition of a diuretic, 53% of the doctors opted Chlorthalidone while 47% opted for hydrochlorothiazide. Furthermore, for the commonly co-prescribed antihypertensive with a diuretic, doctors in their practice advised Telmisartan (40%), Olmesartan (26%), followed by Amlodipine (11%), Metoprolol (9%), Losartan (6%) Ramipril (5%) and Atenolol (3%).

On the question on antihypertensive combination in patients with co-morbid diabetes requiring two drugs, 37% of the respondents co-prescribed Telmisartan and Amlodipine, while 29% of the doctors co-prescribed Olmesartan with amlodipine. 24% of them co-prescribed Telmisartan and Cilnidipine and 10% co-prescribed olmesartan and Cilnidipine.

73% of the doctors also expressed that telmisartan aids in reduction in microalbuminuria in 20-30% patients with hypertension and co-morbid diabetes, while 19% of the doctors expressed reduction is seen in >30% of their patients and 8% of the doctors opined that it is seen in <20% of patients.

In the management of hypertension in chronic smokers, 42% of the doctors in our HEART study chose telmisartan followed by amlodipine (31%), Olmesartan (14%) and Metoprolol (13%).

In patients with hypertension and co-morbid dyslipidemia, Atorvastatin was the most prescribed lipid lowering agent by 70.6% of the clinicians followed by rosuvastatin (23.5%), pitavastatin (4.5%) and simvastatin (1.4%) see fig. 3.
In our study, 74% of the doctors expressed that the triple drug combination of telmisartan or olmesartan, amlodipine, and hydrochlorothiazide or chlorothalidone aids in patients with uncontrolled Hypertension, while 26% opted triple drug combination of telmisartan or olmesartan, cilnididine, and hydrochlorothiazide or chlorothalidone.

All the clinicians in the study opined that only less than 50% of the patients are aware of hypertension as a medical condition and consequences of uncontrolled hypertension. All the doctors expressed that despite being counseled for regular intake of antihypertensives, less than 50% of the patients comply with the medication. Doctors (87%) were of the view that nearly half of the patients stop the medication intermittently once the symptoms improve. 13% of them expressed that >75% of their patients stop the medication intermittently. When the doctors in this survey were asked about the patient’s follow-up visits, 88% of the doctors expressed that 50% of the patients never return on the stipulated schedule while 12 % of them opined that 1/4th of their patients never return on stipulated time for BP monitoring and routine follow-up. All the doctors expressed that there is an urgent need to educate for improving awareness on hypertension, compliance to medication, diet and routine follow-up.

When doctors were asked about the home BP monitoring, 93% of doctors agreed that the awareness towards home BP monitoring has been on the rise. 70% the doctors opined that only less one third of the patients with hypertension complied with home BP monitoring and 30% opined that less than half of their patients comply with regular monitoring of BP at home. 78% of the doctors favoured in-clinic BP monitoring and 22% of doctors favour home BP monitoring. Majority of the doctors (93%) opined that counseling plays an important role and they preferred to counsel the patients at least once a month thus aiming to increase patient compliance and achieve goal BP. All the doctors opined that emphasis on educational campaigns and media programs will be of substantial help in improving awareness about BP control and promoting better management of hypertension.

4. DISCUSSION

Hypertension is one of the common chronic diseases worldwide and there has been a significant increase in the prevalence of Hypertension in the recent years. Hence, the questionnaire was designed to obtain the clinical insights on the hypertension in day to day Indian practice scenario. In our survey, majority of the doctors(78%) expressed that >20 new cases of hypertension are diagnosed every month. 33% of the respondents opined that the newly diagnosed hypertension is seen in 30-40 years, while 52% opined that hypertension is commonly diagnosed in the age group of 40-50 years. Similar studies related to prevalence of hypertension in specific age group (age ≥35 years) has been reported in a cohort study in Kerala(9). 63% of the respondents opined that Hypertension is more common in men, while 37% of the respondents opined that hypertension was more common in women. This observation has been noticed in cross-sectional survey in a rural population of western India(10). In our survey, the 59% of the doctors opined that newly diagnosed patients had systolic blood pressure in the range of 160-179 mm Hg and diastolic blood pressure in the range of 100-109 mm Hg. Similar estimates have been documented in the executive summary survey report published by the Government of India(11).

India has over 100 million adult smokers, the second highest number of smokers in the world after China. The absolute number of male smokers grew from 79 million in 1998 to 108 million in 2015(12). Cigarette smoking acutely exerts hypertensive effect, mainly through the stimulation of the sympathetic nervous system. Hypertensive smokers are more likely to develop severe forms of hypertension, including malignant and renovascular hypertension, an effect likely due to an accelerated atherosclerosis(13,14). Among the patients diagnosed with hypertension 83% of the doctors in this survey opined that more than one third of the patients were smokers.

Compliance to antihypertensive drugs and life style modification play an important role for the control of hypertension. The adherence of patients to diet and exercise was poor. Lack of dietary and physical activities leading to hypertension and other co-morbid conditions has also been reported in similar studies(15,16). Furthermore, majority (89%) of the respondents opined that increasing dietary potassium to reduce blood pressure in those who are not at high risk for hyperkalemia can be beneficial. Ellison et al.(17) in their paper suggest that increasing potassium intake, will attenuate the effects of high-salt diets. Emphasis on diet counseling with salt restrictions and advice on increasing potassium intake can be helpful in the management of hypertension.

Along with diet and exercise, effective control of blood pressure is usually achieved only with the use of
effective antihypertensive medications. Doctors (78%) in the study expressed that aggressive BP lowering provides beneficial clinical outcomes in the Indian population. The doctors also concurred with the recent landmark study SPRINT trial which demonstrated that intensive BP management of goal 120/80 mmHg reduces CV events, stroke and death. Among the antihypertensive medications, 67% of the doctors prescribed ARBs and Telmisartan was the most commonly used by 52.7% of the doctors in our study. 37% of the doctors co-prescribed the Telmisartan + Amlodipine combination in patients who have poor BP control with monotherapy with co-morbid Diabetes Mellitus. Ahrens K et al. in their study concluded that telmisartan and amlodipine combination is effective for difficult-to-control hypertensive patients at cardiovascular risk, including those with diabetes, or those who are obese, elderly, not controlled by monotherapy. Majority of the doctors also expressed that telmisartan aids in reduction in microalbuminuria in patients with hypertension. Similar observations were noted in a post hoc analysis which demonstrated that telmisartan prevents the progression of microalbuminuria in patients with hypertension and type 2 diabetes mellitus. Furthermore, 42% of the doctors in our HEART study chose telmisartan followed by amlodipine (31%), Olmesartan (14%) and Metoprolol (13%) in the management of hypertension in chronic smokers. There is no published Indian data on this parameter and this can be a valuable insight for the better management of hypertension in chronic smokers. Diuretics play an important role in management of hypertension along with ARBs, CCBs, and have been used for >50 years. In our survey, 53% of the doctors chose chlorthalidone, as a diuretic for the management of hypertension, Sagarad et al. showed that among patients with hypertension who do not achieve the goal blood pressure on telmisartan and hydrochlorothiazide can be switched on to the telmisartan and Chlorthalidone combination which is effective and well tolerated. Furthermore, Dyslipidemia, was observed as the most common co-morbid condition by 46% of the doctors as compared to Diabetes Mellitus, Hypothyroidism and Chronic Kidney disease. This can be attributed to sedentary lifestyle and changing dietary pattern in the Indian population. An important component of hypertension management is cardiovascular risk reduction. Clinical trial like ASCOT have reported that management of dyslipidemia using statins leads to greater reduction of clinical events as compared to isolated BP control. In our study shows that majority of the patients with hypertension had comorbid dyslipidemia and Atorvastatin is the most commonly used lipid lowering agent among the Doctors (70.6%) in HEART study. Doctors in our survey expressed that one fifth of the patients require 3 drugs for achieving goal BP. In our study, 74% of the doctors expressed that the triple drug combination of telmisartan, amlodipine, and hydrochlorothiazide aids in patients with uncontrolled Hypertension to achieve desired goal BP. For patients requiring 3 drugs, the combination of antihypertensive agents with complementary mechanisms of action shall be useful to achieve goal BP. Maladkar M et al. in their study concluded that the triple drug combination of telmisartan, amlodipine and HCTZ may serve a potential role in achieving desired BP goals, in patients with essential hypertension, which are otherwise poorly managed by either monotherapy or dual drug therapy.

Studies have established that home blood pressure monitoring is a good predictor of future cardiovascular risk. Furthermore, Home blood pressure monitoring is convenient to monitor blood pressure in hypertensive patients. Almost all the doctors agreed that the awareness towards home BP has been on the rise. But the doctors opined that only less than one third of the patients with hypertension complied with home BP monitoring. Majority of the doctors expressed that despite being counseled for regular intake of antihypertensives, less than 50% of the patients comply with the medication. Doctors were of the view that nearly half of the patients stop the medication intermittently once the symptoms improve. When the doctors in this survey were asked about the patient’s follow-up visits, majority of the doctors expressed that 50% of the patients never return on the stipulated schedule for BP monitoring and routine follow-up. Similar findings were reported by Osamor PE et al. In this regard, all the doctors expressed that there is an urgent need to educate for improving awareness on hypertension, compliance to medication and diet. Majority of the doctors (93%) opined that counseling plays an important role and they preferred to counsel the patients at least once a month. Doctors also expressed that it is essential to promote hypertension treatment and control by using public health measures like health campaigns and media programs.

To conclude, the clinical insights expressed by the doctors in cardiology practice from major Indian cities shows that Hypertension continues to be a major health
burden despite the advances in health care. Hypertension in the younger population is attributed to sedentary lifestyle and smoking. Unlike published studies, doctors in our study opined that dyslipidemia is the common co-morbid condition. In our study, ARBs are the most common choice among the majority of doctors and Telmisartan was most commonly preferred in the management of hypertension. Furthermore, increasing number of patients requires more than one drug for effective management of hypertension. Our study data demonstrates that current rates for awareness, compliance to diet, exercise, compliance to medication, routine follow-up are very low among patients with hypertension. There is a need to educate the patients on the importance of home BP monitoring since awareness on the advantages of Home BP monitoring is lacking. Emphasis on diet counseling with salt restrictions and advice on increasing potassium intake can be helpful in the management of hypertension. Doctors also expressed that it is essential to promote awareness about complications of uncontrolled hypertension. Additionally the results of our study suggest that particular emphasis on educational campaigns and media programs will be of substantial help in improving awareness about BP control and promoting better management of hypertension.

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LIMITATIONS

This is only the opinion of all doctors in cardiology practice taken on small sample size. Further study comprising large sample with more epidemiological determinants are to be included in conduct of the study.

DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

Manjula Shamanna and KrishnaKumar M are employees of Micro Labs Ltd, India.

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