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PREVALENCE OF HYPERTENSION AND TREATMENT OUTCOME IN TERTIARY ARE

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Abstract:

INTRODUCTION: High blood pressure (BP) is ranked as the third most important risk factor for attributable burden of disease in south Asia. Raised blood pressure is a major risk factor for chronic heart disease, stroke, and coronary heart disease. WHO rates hypertension as one of the most important causes of premature death worldwide[i]. In India 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths are due to hypertension. Other than coronary heart disease and stroke, complications include peripheral vascular disease, heart failure, renal impairment, retinal hemorrhage, and visual impairment.

MATERIAL AND METHODS: Study population was adult patients who had been receiving anti-hypertensive treatment at hospital for at least 6 months. Interviews were conducted with all the participants and the questionnaires were filled. Demographic and anthropometric data were obtained for the patient who includes height and weight, BMI (Body Mass Index), personal medical history was obtained, and diagnosis of hypertension and other co-morbid conditions were recorded.

RESULTS: A total of 200 patients were included in this study were observed and traced up to 6 month period of the study. 200 patients were included in the study of which 117 (58.50%) were male and 83 (41.50%) were female. Mean age of male patients was 52 ± 18.29 while in female it was 53 ± 17.88. We have divided our patients into four groups in <20 years only one male patient (0.85%) was having hypertension. In 20 – 39 years age group 16 (13.67%) male and 8 (9.63%) female were observed. In 40 to 59 age group 47 (35.04%) male and 31 (37.35%) female were observed. In >60 age group there were 53(45.30%) male and 44 (53.01%) female were observed. Maximum number of cases were observed in the >60 age group in both the sexes. 46 male (39.32%) and 35(42.17%) female had history of hypertension with Less than 5 years. while 71 (60.68%) male and 48 (57.83%) female had hypertension for more than five years. Out of 117 male 13 (11.11%) were normal weight, 85 (72.65%) were overweight and 19 (16.24%) were obese. In female 4 (4.82%) were normal weight, 69 (85.13%) were overweight and 10 (12.50%) were obese. Hypertension was most prevalent in overweight group in both the sexes. Diabetes was observed in 71 (60.68%) male and 56 (67.47%) female. 46 (39.32%) male and 27(32.53%) of female had myocardial infarction. Before start of the study 68 (58.12%) had controlled blood pressure, 42 (35.90%) had uncontrolled BP, Hypertensive crisis was seen in 5 (4.27%) patients and Resistant hypertension was seen in 2 (1.71%) cases. After study period 58 (49.57%) had controlled blood pressure, 22 (18.80%) had uncontrolled BP, Hypertensive crisis was seen in 2 (1.71%) patients and Resistant hypertension was seen in 1 (0.85%) case.

CONCLUSION: Chronic uncontrolled high blood pressure which can be reduced by proper management, counselling and lifestyle modification. Prevalence of hypertension in males was slightly higher than female counterparts .Control of hypertension was more in female patients. Also patient assessment should be improved in order to increase the identification and management of hypertension

Keywords: Hypertension, Diabetes, coronary heart disease (CHD), management

Introduction

Hypertension (HTN) is leading public health problem in both economically developed and developing countries[ii]. Hypertension is a major public health problem and is considered to be a major risk factor for cardiovascular diseases and other complications[iii]. High blood pressure (BP) is ranked as the third most important risk factor for attributable burden of disease in south Asia. Hypertension (HTN) exerts a substantial public health burden on cardiovascular health status and healthcare systems in India[iv]. World Health Organization study report about 40% of people aged more than 25 years had hypertension in 2008[v]. Raised blood pressure is a major risk factor for chronic heart disease, stroke, and coronary heart disease. WHO reported as hypertension is one of the most important causes of premature death worldwide[vi]. In India 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths are due to hypertension[vii]. In 2005, around 20.6% of Indian men and 20.9% of Indian women were suffering from HTN[viii]. Age is consider as an important risk factor for hypertension[ix], systematic study in Iran showed overall prevalence of HTN as aged 30-55 years and older than 55 years was reported to be around 23% and 50%, respectively[x]. In 2008, WHO estimates that, the prevalence of hypertension in Indians was 32.5% (33.2% in men and 31.7% in women). Other than coronary heart disease and stroke, complications include peripheral vascular disease, renal impairment, heart failure, retinal hemorrhage, and visual impairment[xi]. High blood pressure or hypertension can be defined as abnormally high arterial blood pressure. According to the Joint National Committee 7, normal blood pressure is considered as systolic blood pressure < 120 mmHg and diastolic blood pressure < 80 mm Hg. Hypertension is defined as when systolic blood pressure is ≥140 mmHg and/or diastolic blood pressure is ≥ 90 mmHg. The range between 120–139 mmHg systolic BP and 80–89 mmHg diastolic BP is defined as "prehypertension" (JNC7)[xii],[xiii]. Therefore genuine information about hypertension is essential to provide in the development of nation with local level health policies for prevention and control of hypertension. The major objective of this study is to find prevalence of hypertension.

MATERIAL AND METHODS

Present study was conducted at Chandulal Chandrakar memorial Medical College in the Department of Medicine. In this study included adult patients who had been receiving antihypertensive treatment at hospital for at least 6 months. All eligible patients who were ready to participate in the study were included and their written informed consent was obtained. Structured questionnaire designed specifically for this study. Interviews were conducted with all the participants and the questionnaires were filled. Demographic and anthropometric data were obtained for the patient which includes height and weight, BMI (Body Mass Index), personal medical history was obtained, and diagnosis of hypertension and other co-morbid conditions were recorded.

Data was analysed using SPSS for Windows (Version 22.0). Results were summarised as count and percentages for qualitative variables and mean ±SD (Standard Deviation) for quantitative variables. All data was entered in the Excel sheet and outcome variable set as uncontrolled blood pressure, adherence to medication, increase or decrease in the no of hypertensive drugs, change in body mass index.

Patients were considered as normal weight if BMI is<25 kg/m^2, overweight if BMI is 25.0-29.9 kg/m^2 or obese if BMI is ≥30.0 kg/m^2. If systolic BP of < 140 mmHg and a diastolic BP < 90 mmHg then it was defined as controlled hypertension. According to JNC7 stage I hypertension was defined as BP ≥140/90 mmHg, stage II hypertension if BP ≥160/100 mmHg. Hypertensive crisis was defined as systolic BP ≥180 mmHg and/or diastolic BP ≥120 mmHg and resistant hypertension was defined as BP > 160/100 mmHg despite the use of at least 3 different antihypertensive drugs of which one is diuretic.

RESULTS

A total of 200 patients were included in this study were observed and traced up to 6 month period of the study. 200 patients were included in the study of which 117 (58.50%) were male and 83 (41.50%) were female. Mean age of male patients was 52 ± 18.29 while in female it was 53 ± 17.88.

Table 1: Hypertension according to age group

n=200	Male	%	Female	%
Total	117	58.50%	83	41.50%
Age groups, years		0.00%		0.00%
<20	1	0.85%	0	0.00%
20 - 39	16	13.67%	8	9.63%
40 - 59	47	35.04%	31	37.35%
>60	53	45.30%	44	53.01%

We have divided our patients into four groups in <20 years only one male patient (0.85%) was having hypertension. In 20 – 39 years age group 16 (13.67%) male and 8 (9.63%) female were observed. In 40 to 59 age group 47 (35.04%) male and 31 (37.35%) female were observed. In >60 age group there were 53(45.30%) male and 44 (53.01%) female were observed. Maximum number of cases were observed in the >60 age group in both the sexes.

Table 2: Duration of hypertension

Duration of hypertension	Male	N=131	Female	N= 92
Less than 5 years	46	39.32%	35	42.17%
More than 5 years	71	60.68%	48	57.83%

46 male (39.32%) and 35(42.17%) female had history of hypertension with Less than 5 years. while 71 (60.68%) male and 48 (57.83%) female had hypertension for more than five years.

Table 3: Body mass index calculation

BMI classification, kg/m^2	Male	N=117	Female	N= 83
Normal weight	13	11.11%	4	4.82%
Overweight	85	72.65%	69	83.13%
Obese	19	16.24%	10	12.50%

Out of 117 male 13 (11.11%) were normal weight, 85 (72.65%) were overweight and 19 (16.24%) were obese. In female 4 (4.82%) were normal weight, 69 (85.13%) were overweight and 10 (12.50%) were obese. Hypertension was most prevalent in overweight group in both the sexes.

Table 4: Co morbid conditions associated with hypertension

Co-morbidities	Male	n=117	Female	n=83
Diabetes Mellitus	71	60.68%	56	67.47%
Myocardial infarction	46	39.32%	27	32.53%

Diabetes was observed in 71 (60.68%) male and 56 (67.47%) female. 46 (39.32%) male and 27(32.53%) of female had myocardial infarction.

Table5: Treatment outcome

	Before treatment N= 117	%	After treatment of 6 months	%
Controlled blood pressure	68	58.12%	58	49.57%
Uncontrolled blood pressure	42	35.90%	22	18.80%
Hypertensive crisis	5	4.27%	2	1.71%
Resistant hypertension	2	1.71%	1	0.85%

Before start of the study 68 (58.12%) had controlled blood pressure, 42 (35.90%) had uncontrolled BP, Hypertensive crisis was seen in 5 (4.27%) patients and Resistant hypertension was seen in 2 (1.71%) cases. After study period 58 (49.57%) had controlled blood pressure, 22 (18.80%) had uncontrolled BP, Hypertensive crisis was seen in 2 (1.71%) patients and Resistant hypertension was seen in 1 (0.85%) case.

DISSUSION

India is a developing country and is going through a rapid demographic and epidemiological transition. According to World Health Organization WHO (2015), the prevalence of hypertension in India was 23.5% and gender specific prevalence was 24.2% and 22.7% among the men and women, respectively[xiv].

Present studies were conducted on 200 patients and were followed up up to 6 months. In our study 58.50% male and 41.50% female were observed. There was slight preponderance of male population in this study. It was opposite to the study by Singh H et al[xv] in which 301 (47%) were male subjects and 339 (53%) were female also The median age (±SD) of the study subjects was 39.0 (±11.9) years and for male and female it was 40.0 (±11.9) years and 38 (±11.8) years, respectively in Singh H et al. In this study Mean age of male patients was 52 ± 18.29 while in female it was 53 ± 17.88 which was higher. It may be due to geographic variation and other habits and prevalence. Some studies reported as men had higher prevalence of HTN than female.[xvi],[xvii] the reason could be due to biological sex difference and may be due to behavioural risk factors like smoking, alcohol consumption, or physical activity.

Age is an important risk factor for hypertension with the advancing age hypertensive cases increases. In this study, in 20 – 39 years age group 16 (13.67%) male and 8 (9.63%) female were observed. In 40 to 59 age group 47 (35.04%) male and 31 (37.35%) female were observed. In >60 age group there were 53(45.30%) male and 44 (53.01%) female were observed. Maximum number of cases were observed in the >60 age group in both the sexes. Same theory was proposed by Abebe S et al[xviii].

This study found positive correlation observed between increasing BMI and increasing rate of hypertension. Out of 117 male 13 (11.11%) were normal weight, 85(72.65%) were overweight and 19 (16.24%) were obese. In female 4 (4.82%) were normal weight, 69 (83.13%) were overweight and 10 (12.50%) were obese. Hypertension was most prevalent in overweight group in both the sexes. Similar results were observed in other studies[xix],[xx].

In this study diabetes was observed in 71 (60.68%) male and 56 (67.47%) female. 46 (39.32%) male and 27(32.53%) of female had myocardial infarction. These co morbid conditions again increase the risk of hypertension and associated complications.

Lifestyle changes which includesproper diet, increased physical activity and weight control lower blood pressure and may reduce the need for antihypertensive drugs, thus facilitating drug step down or withdrawal in patients with well-controlled hypertension[xxi]. Similar results were observed in our study before start of this study 68(58.12%) had controlled blood pressure, 42 (35.90%) had uncontrolled BP, Hypertensive crisis was seen in 5 (4.27%) patients and Resistant hypertension was seen in 2 (1.71%) cases. After study period 58 (49.57%) had controlled blood pressure, 22(18.80%) had uncontrolled BP, Hypertensive crisis was seen in 2 (1.71%) patients and Resistant hypertension was seen in 1 (0.85%) case.so there was reduction in the hypertension was seen. Most of the patients in this study had also conformed than change in the lifestyle had positive impact on the reduction of Hypertension.

CONCLUSION

There was a high prevalence of chronic uncontrolled high blood pressure which can be reduced by proper management, counselling and lifestyle modification. Prevalence of hypertension in males was slightly higher than female counterparts. Control of

hypertension was more in female patients. Also patient assessment should be improved in order to increase the identification and management of hypertension and its related complications and comorbid conditions.

REFERENCES

1. [i]Mackay J, Mensah G. Atlas of heart disease and stroke. Geneva:World Health Organization; 2004
2. [ii] P. M. Kearney, M. Whelton, K. Reynolds, P. K. Whelton, and J. He, "Worldwide prevalence of hypertension: a systematic review," Journal of Hypertension, vol. 22, no. 1, pp. 11–19, 2004.
3. [iii]Abebe SM, Berhane Y, Worku A, Getachew A. Prevalence and associated factors of hypertension: a crossectional community based study in northwest ethiopia.PLoS One. 2015; 10(4):e0125210.
4. [iv]Leeder S, Raymond S, Greenberg H, Liu H. A race against time. The challenge of cardiovascular disease in developing economies. New York:Columbia University; 2004
5. [v] World Health Organization, "Global brief on hypertension," 2013, http://apps.who.int/iris /bitstream/10665/79059/1/WHO DCO WHD 2013.2 eng.pdf?ua=1.
6. [vi]Mackay J, Mensah G. Atlas of heart disease and stroke. Geneva:World Health Organization; 2004
7. [vii]Gupta R. Trends in hypertension epidemiology in India.J Hum Hypertens. 2004 Feb; 18(2):73-8.
8. [viii]Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data.Lancet. 2005 Jan 15-21; 365(9455):217-23
9. [ix] Whelton PK, He J, Muntner P. Prevalence, awareness, treatment and control of hypertension in North America, North Africa and Asia. J Hum Hypertens. 2004;18:545–551.
10. [x]Haghdoost AA, Sadeghirad B, Rezazadehkermani M. Epidemiology and heterogeneity of hypertension in Iran: a systematic review. Arch Iran Med 2008; 11(4): 444-52.
11. [xi]Mendis S. World Health Organisation; 2010. Global status report on non communicable diseases 2010.http://www.who.int/nmh /publications /ncd_report2010/en/
12. [xii]Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, Jones DW, Materson BJ, Oparil S, Wright JT Jr, Roccella EJ, Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National Heart, Lung, and Blood Institute., National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Hypertension. 2003 Dec; 42(6):1206-52.
13. [xiii]Kumar M. R., Shankar R., Singh S. Hypertension among the adults in rural Varanasi: a cross-sectional study on prevalence and health seeking behavior. *Indian Journal of Preventive and Social Medicine*. 2016;47(1-2):78–83.
14. [xiv]World Health Organization. Global Health Observatory data repository 2015. 2015 http://apps.who.int/gho/data/view.main.2464EST?lang=en.
15. [xv]Singh S, Shankar R, Singh GP. Prevalence and Associated Risk Factors of Hypertension: A Cross-Sectional Study in Urban Varanasi. Int J Hypertens. 2017;2017:5491838.
16. [xvi]Gao Y., Chen G., Tian H., et al. Prevalence of hypertension in China: a cross-sectional study. *PLoS ONE*. 2013;8(6) doi: 10.1371/journal. pone.0065938.e65938
17. [xvii]Singh R., Sinha R. K., Mani C., Singh R., Pal R. Burden and vulnerability of hypertension in a rural population of Patna, Bihar, India. *South East Asia Journal of Public Health*. 2013;1(1) doi: 10.3329/seajph.v1i1.13221
18. [xviii]Abebe S. M., Berhane Y., Worku A., Getachew A. Prevalence and associated factors of hypertension: a crossectional community based study in Northwest Ethiopia. *PLoS ONE*. 2015; 10 (4)doi: 10.1371/journal.pone.0125210.e0125210
19. [xix]Rani R., Mengi V., Gupta R. K., Sharma H. K. Hypertension and its risk factors—a cross sectional study in an urban population of a North Indian District. *Public Health Research*. 2015;5 (3):67–72.
20. [xx]Tabrizi J. S., Sadeghi-Bazargani H., Farahbakhsh M., Nikniaz L., Nikniaz Z. Prevalence and associated factors of prehypertension and hypertension in Iranian population: the lifestyle promotion project (LPP) *PLoS ONE*. 2016;11(10)
21. [xxi]Appel LJ, Champagne CM, Harsha DW, Cooper LS, Obarzanek E, Elmer PJ, Stevens VJ, Vollmer WM, Lin PH, Svetkey LP, Stedman SW, Young DR, Writing Group of the PREMIER Collaborative Research Group Effects of Comprehensive Lifestyle Modification on Blood Pressure Control Main Results of the PREMIER Clinical Trial. JAMA. 2003;289:2083–2093.