Epidemiological Survey on the prevalence awareness and effective medication of hypertension

Amisha Maheshwari*, Divya Juyal, Deepak Kohli

Department of Pharmacy, Himalayan Institute of Pharmacy & Research, Dehradun, India
Email: amishamaheshwari64@gmail.com

ABSTRACT

Hypertension is an important public health challenge worldwide. Hypertension is defined as systolic blood pressure of 120 mmHg or higher or diastolic blood pressure of 80 mmHg or higher. It can be classified into two groups. First is Primary hypertension and another is Secondary hypertension. Hypertension is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease deaths in India. Food intake plays an important role in hypertension disease as high salt intake increases the risk of hypertension and cardiovascular disease. Hypertension was significantly higher in those who take alcohol and in subjects with raised total cholesterol level but in multivariate analysis only age, education and cholesterol level were in dependently associated in hypertension. Hypertension has been associated with increased risk of coronary artery disease and is an independent risk factor for cardiovascular and cerebrovascular disease. A meta-analysis also reported that lower values of blood pressure are associated with higher risk of cardiovascular disease and also with chronic kidney disease. The Present study deals with the survey on the awareness and the effective medication that could take place to reduce the risk of hypertension. The study include around 50 patients of hypertension on the basis of their prescription given to them. The aim and objective is to reduce the side effect and lesser toxicity, diet to be followed during the treatment and observe the patients of hypertension with effective medication in different hospitals.

Keywords: Hypertension, Patients, Health.

Introduction

Hypertension is a term used to describe high blood pressure. Hypertension is defined as values >140mmHg SBP and>90mmHg DBP, based on the evidence from RCTs that in patients with these BP values treatment-induced BP reductions are beneficial.[1]Blood Flow is based on the beat of which the heart pumps blood. The pressure of the heart does not stay at the same level at all times. It varies based on activities at a particular point in time. Hypertension occurs as a result to long duration of abnormal pressure of the main arteries[2]**.**Hypertension is grouped into two main categories. These include primary and secondary hypertension. **Primary hypertension** is also known as essential hypertension and it affects 95% of persons suffering from the disease. Causes of hypertension are not yet known, however, factors as age, high salt intake, low potassium diet, sedentary lifestyle, stress as well as genes have been found as contributing to hypertension. **Secondary hypertension** occur as a result to a consequence of another disorder or a side effect of medication. Such disorders may include renal failure or reno-vascular disease. This type of blood pressure is evident in about 5% to 10% of cases[2].

Classification of Hypertension

Classification	SBP (mmHg)	DBP (mmHg)
Normal	<120	and <80
Prehypertension	120–139	or 80–89
Stage I hypertension	140–159	or 90–99
Stage II hypertension	≥160	≥100

According to World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India. In 2020 AD, 2.6 million Indians are predicted to die due to coronary heart disease which constitutes 54.1 % of all CVD deaths.

Risk factors for hypertension

Hypertension is not only one of the major risk factors for most forms of cardiovascular disease but that it is a condition with its own risk factors. A WHO scientific group has recently reviewed the risk factors for essential hypertension. These may be classified as:

1) Non modifiable risk factors
2) Modifiable risk factors

Non Modifiable Risk Factors

Age

Blood pressure rises with age in both sexes and the rise is greater in those with higher initial blood pressure.

Sex

Early in life there is a little evidence of a difference in blood pressure between the sexes. However, at adolescence, men display a higher average. This difference is most evident in young and middle aged adult.

Genetic factors

There is considerable evidence that blood pressure levels are determined in part by genetic factors, and that the inheritance and polygenic. The evidence is based on their and family studies. Twin studies have confirmed the importance of genetic factors in hypertension. The blood pressure values of monozygotic twins are usually more strongly correlated than those of zygotic twins. Family studies have shown that the children of two normotensive parents have 3% possibility of developing hypertension, whereas this possibility is 45% in children of two hypertensive patients.

Ethnicity

Population studies have consistently revealed higher blood pressure levels in black communities than other ethnic groups. Black Americans of African origin have been demonstrated to have higher blood pressure levels than white. **Modifiable Risk Factors**

Obesity

Epidemiological observations have been identified obesity as a risk factor for hypertension. The greater the weight gain, the greater the risk of high blood pressure.

Salt Intake

There is an increasing body of evidence to the effect that a high salt intake (i.e7-8g per day) increases blood pressure proportionally. Besides sodium, there are other mineral elements such as potassium which are determinants of blood pressure potassium antagonizes the biological effects of sodium and thereby reduces blood pressure of mild to moderate hypertensive. Other cations such as calcium, cadmium and magnesium have also been suggested as of importance in reducing blood pressure levels.

Saturated Effect

The evidence suggests that saturated fat raises blood pressure as well as serum cholesterol.

Dietary Fibre

Several studies indicate that the risk of CHD & hypertension is immensely related to the consumption of dietary fibre. Most fibers residue plasma total and LDL cholesterol.

Alcohol

High alcohol intake is associated with an increased risk of high blood pressure. It appears that alcohol consumption raises systolic blood pressure more than the diastolic.

Heart Rate

When groups of normotensive and untreated hypertensive subjects unmatched for age and sex are compared, the heart rate of the hypertensive group is invariably higher.

Environmental Stress

The term hypertension itself implies a disorder initiated by tension or stress. Virtually all studies on blood pressure and catecholamine levels in young people revealed significantly higher noradrenaline levels in hypertensives than in normotensives. This supports that the contention that over activity of the sympathetic nervous system has an important part to play in the pathogenesis of hypertension.

Physical Activity

Physical activity reduces body weight which has an indirect effect on blood pressure[3]**.**

Symptoms of Hypertension

People who have hypertension normally will not experience symptoms. However, people experiencing a hypertensive crisis may exhibit symptoms such as:

- Severe headache
- Nosebleeds
- Vision Change
- Nausea or vomiting
- Breath inhibition
- Chest pain

Classification of antihypertensive drugs

1. Diuretics:
Thiazide: Hydrochlorothiazide, Chlorthalidone, Indapamide.
High ceiling: Furosemide etc
K^+ Sparing: Spironolactone, Amiloride

2. ACE inhibitor:
Captopril, Enalapril, Lisinopril, Perindopril, Ramipril, Fosinopriletc

3. Angiotensin (AT1 receptor) blockers:
Losartan, Candesartan, Irbesartan, Valsartan, Telmisartan

4. Direct renin inhibitor:
Aliskiren

5. Calcium channel blocker:
Verapamil, Diltiazem, Nifedipine, Felodipine, Amlodipine, Nitrendipine, Lacidipineetc

6. Beta Adrenergic blockers:
Propenolol, Metoprolol, Atenolol, etc

7. Beta + Alpha Adrenergic blockers:
Labetalol, Carvedilol.

8. Alpha Adrenergic blockers:
Prazosin, Terazosin, Doxazosin, Phentolamine, Phenoxybenzamine.

9. Central sympatholytics:
Clonidine, Methyldopa

10. Vasodilators:
Arteriolar: Hydralazine, Minoxidil, Diazoxide.
Arteriolar + Venous: Sodium nitroprusside[4].

Methodology

Study Sites:
The study was carried out in different hospitals and private clinics of Paonta Sahib. The study was carried out only on those patients of hypertension who follows the treatment with a selected category of antihypertensive therapy. Before the start of study with in these hospitals, the permission was taken from the Institute and appropriate written permission with proper discussion related to the process involved in the study, from authorized personnel of hospital or clinic was also undertaken.

Intervention Study
For intervention data 50 case sheets will collect and analyse. The following method is follow for intervention. The case record of patients will examine for details of prescription, to fill the data collection form. The doctors on duty/concerne with cardiologist for clarification whenever require.

Study Period
The study will conduct from September 2017 to Feb 2018.

Source of Data
Patient data relevant to study was obtained from following sources
- Patient data collecting form
- Direct patient interview
- Patient knowledge, attitude, and patient questionnaire

Results: Baseline characteristics of study population

S. No.	Age groups	No. of patients
1.	Less than 50	16
2.	50-59	18
3.	60-69	12

Housing locality	
Urban	28
Rural	22
4.	More than 70	4

Current marital status	
Married	39

Unmarried	11
Current education	
Elementary school	6
High school	15
Graduation and above	29
Current smoking	
Yes	12
No	38

S. No.	Age groups	Mean of B.P.(mmHg)	Type of medication
1.	Less than 50	159/94	Beta Adrenergic blockers, Calcium channel blocker
2.	50- 59	165/100	Calcium channel blocker, Angiotensin (AT1 receptor) blocker, Diuretics
3	60- 69	155/90	Angiotensin (AT1 receptor) blocker, Calcium channel blocker
4.	More than 70	160/85	Calcium channel blocker, Angiotensin (AT1 receptor) blocker, Diuretics

Conclusion

From the epidemiological survey, it provides a insight that hypertension is most prevailing in the adult patients. The prevalence of this public health problem is increasing in low and middle income countries (LMICs) both in urban and rural communities. The prevalence of awareness, treatment and control also differs in different setting. Our results highlights a clear need to focus on increasing awareness in different age groups, current marital status, current smoking, current education and control in LMICs.

Acknowledgment

The work was supported by H.I.P.R, Dehradun and we are grateful for the assistance Dr. Ramandeep Singh and other participants for their collaboration.

Source of Support: Nil
Conflict of Interest: Nil

Reference

1. G.Mancia, R. Fagard, K.Narkiewicz et al., "ESH/ESC guidelines for the management of arterial hypertension: the task force for the management of arterial hypertension of the European society of hypertension (ESH) and of the European society of cardiology (ESC)," Journal of Hypertension, vol. 25, no. 9, pp. 1751–1762, **2007**.
2. Cunha J. P & Marks J, W. 2011. High blood pressure (hypertension). Availablehttp://www.medicinenet.com/high_blood_pressure/article.htm.Accessed 27 February **2011**
3. Park K. Park's Textbook of preventive and social medicine. 20th ed. Jabalpur: Banarsidasbhanot; **2009**. P. 325-326.
4. K.D. Tripathi. Essential of Medical Pharmacology: Indian Journal of Pharmacology**2006.**