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AN EPIDEMIOLOGICAL STUDY OF HYPERTENSION IN RURAL AREAS OF AMROHA, UP

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ABSTRACT

In developing countries like India the prevalence of non communicable diseases is slowly assuming alarming proportions and Hypertension is the commonest NCD and it accounts for a large proportion of cardiovascular deaths. Objectives: To estimate the prevalence of Hypertension in rural areas of Amroha (U.P). To assess the risk factors and its strength of association with Hypertension. To study the treatment seeking behavior in hypertensive. Study period: June 20014 to June 20015. Materials and Methods: A house to house survey was conducted and 81 study subjects 20 years of age and above were screened in a village using a pre tested questionnaire. Two independent BP readings were taken in sitting position by visiting each participant at their home. Hypertension was defined using JNC7 criteria. It defines hypertension as blood pressure more than 140/90 mmHg. Statistical tests: Percentiles, chi square test. Results: Prevalence of Hypertension was 8.06%. There were various risk factors significantly associated with hypertension like age, sex, BMI, smoking, alcohol, salt intake etc. Conclusion: The overall (85.95%) patient were aware of their disease and only 72% were taking regular treatment.

KEYWORDS: Hypertension, prevalence, risk factors, treatment.

INTRODUCTION

Hypertension is not a disease but an important risk factor for cardiovascular complications. It can be defined as a condition where blood pressure is elevated to an extent where clinical benefit is obtained from blood pressure lowering.

Hypertension (HTN) or high blood pressure, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than normal to circulate blood through the blood vessels. Blood pressure is summarized by two measurements, systolic and diastolic, which depend on whether the heart muscle is contracting (systole) or relaxed between beats (diastole) and equate to a maximum and minimum pressure, respectively. Normal blood pressure at rest is within the range of 100-140mmHg systolic (top reading) and 60-90mmHg diastolic (bottom reading). High blood pressure is said to be present if it is persistently at or above 140/90 mmHg.[1]

Hypertension is classified as either primary (essential) hypertension or secondary hypertension; about 90–95% of cases are categorized as "primary hypertension" which means high blood pressure with no obvious underlying medical cause. The remaining 5–10% of cases (secondary hypertension) are caused by other conditions that affect the kidneys, arteries, heart or endocrine system.[2]

Hypertension is a major risk factor for stroke, myocardial infarction (heart attacks), heart failure, aneurysms of the arteries (e.g. aortic aneurysm), peripheral arterial disease and is a cause of chronic kidney disease. Even moderate elevation of arterial blood pressure is associated with a shortened life expectancy. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of associated health complications, although drug treatment is often necessary in people for whom lifestyle changes prove ineffective or insufficient.

Types of Hypertension

(A) Primary hypertension

Primary (essential) hypertension is the most common form of hypertension, accounting for 90–95% of all cases of hypertension.[2] In almost all contemporary societies, blood pressure rises with aging and the risk of becoming hypertensive in later life is considerable.[4] Hypertension results from a complex interaction of genes and environmental factors. Numerous common genetic variants with small effects on blood pressure have been identified[5] as well as some rare genetic variants with large effects on blood pressure[6] but the genetic basis of hypertension is still poorly understood. Several environmental factors influence blood pressure. Lifestyle factors that lower blood pressure include reduced dietary salt intake,[7][8] increased consumption of fruits and low fat products (Dietary

Approaches to Stop Hypertension (Dash diet), exercise,[9] weight loss[10] and reduced alcohol intake.[11] Stress appears to play a minor role[4] with specific relaxation not supported by the evidence.[12][13] The possible role of other factors such as caffeine consumption,[14] and vitamin D deficiency[15] are less clear cut. Insulin resistance, which is common in obesity and is a component of syndrome X (or the metabolic syndrome), is also thought to contribute to hypertension.[16] Recent studies have also implicated events in early life (for example low birth weight, maternal smoking and lack of breast feeding) as risk factors for adult essential hypertension,[17] although the mechanisms linking these exposures to adult hypertension remain obscure.[17]

(B) Secondary hypertension

Secondary hypertension results from an identifiable cause. Renal disease is the most common secondary cause of hypertension.[3] Hypertension can also be caused by endocrine conditions, such,as Cushing's,syndrome, hyperthyroidism, hypothyroidism, acromegaly, Conn's,syndrom or hyperaldosteronism, hyperparathyroidism and pheochromocytoma.[3][18] Othercauses of secondary hypertension include obesity, sleep apnea, pregnancy, coarctation of the aorta, excessive liquorice consumption and certain prescription medicines, herbal remedies and illegal drugs.[3][19]

Classification of Antihypertensive Drugs[20]

Diuretics

Thiazides; Hydrochlorothiazide, Chlorthalidone, Indapamide,

High ceiling; Furosemide, etc.

K^+ sparing; Spironolactone. Amiloride.

(2)ACE inhibitor;

Captopril, Enalapril, Lisinopril, Perindopril, Ramipril, Fosinopril, etc.

(3)Angiotensin (AT_1 receptor) blockers;

Losartan, Candesartan, Lerbisartan, Valsartan, Telmisartan,

(4) Direct rennin inhibitor;

Aliskiren

(5)Calcium channel blocker;

Verapamil, Diltiazem, Nifedipine, Felodipine, Amlodipine, Niteronidipine, Lacidipine, etc

(6)β Adrenergic blocker;

Propranolol, Metoprolol, Atenolol, etc.

(7)$\beta + \alpha$ Adrenergic blockers;

Labetalol, Carvedilol.

(8)α Adernergic blockers;

Prazosin, Terazosin, Doxazosin, Phentolamine, Phenoxybenzamine.

(9)Central sympatholytics.

Clonidine, Methyldopa.

(10)Vasodilators;

Arteriolar.

Hydralazine, Minoxidil, Diazoxide

Arteriolar + venous;

Sodium nitropruside

OBJECTIVE

1. To examine hypertension prevalence in rural areas of Amroha district of UP.
2. To create patient awareness in rural areas of Amroha district of UP.
3. To examine treatment methodology used in the treatment of hypertension in rural areas of Amroha district of UP.
4. To determine patient compliance in rural areas of Amroha district of UP.

5. **Plan of work**

Visit to rural areas of Amroha

⇩

Question-Answer based on the Hypertension Questionnaire

⇩

Interpretation of Results

⇩

Feedback to villagers

⇩

Documentation of data

METHODOLOGY

Methodology is based on a set of Questionnaire, given below.

Questionnaire

1. Code- 2. Age- 3. Sex- M/F.

4. Educational Background

Illiterate	Matriculation	Intermediate
Graduate	Post-Graduate	Higher

1. Martial Status: Single/ Married

2. Date of the first diagnosis of high blood pressure: _____/_____/_____
   D M Y

3. Please provide the blood pressure reading when diagnosed:
   _____

4. Since when are you under treatment?
   _____

5. Name and dosage of the prescribed medication(s):
   _____
   _____

6. Do you take your medication(s) on a regular basis? □ Yes □ No

7. If no, provide the complete details:
   _____

8. Please provide the dates of, and your last 3 blood pressure readings:
   Date: _____/_____/_____ Blood Pressure Reading:
   D M Y
   Date: _____/_____/_____ Blood Pressure Reading:
   D M Y
   Date: _____/_____/_____ Blood Pressure Reading:
   D M Y

9. Do you know about DASH (Dietary Approach to Stop Hypertension)- Yes/No
10. Are you suffering from any chronic disease- Yes/No

    If yes, name the disease(s) _____

11. Whether you are doing exercises on a daily basis- Yes/No

12. Whether you are drinking alcohol- Yes/No

13. Whether you are smoking/consuming tobacco product(s)- Yes/No

14. Name and address of the attending hospital/physician:

    _____

    _____

15. Date of the last consultation: _____/_____/_____

    D M Y

16. Follow-up consultations: Every : □ week □ 15 days □ 1 month □ 2 months

    Other : _____

17. Have you ever had an electrocardiogram (ECG)? □ Yes □ No

    Date(s):_____/_____/_____

    D M Y

    Result(s):_____

18. Have you ever been hospitalized for high blood pressure: □ Yes □ No

    If yes, provide the date:_____/_____/_____

    D M Y

    location:_____

19. Have you ever had any complications such as:

    □ Cerebrovascular Accident (CVA):_____

    □ Transient Ischemic Attack (TIA):_____

    □ Numbness:_____

    □ Paralysis:_____

    □ Kidney Disorder:_____

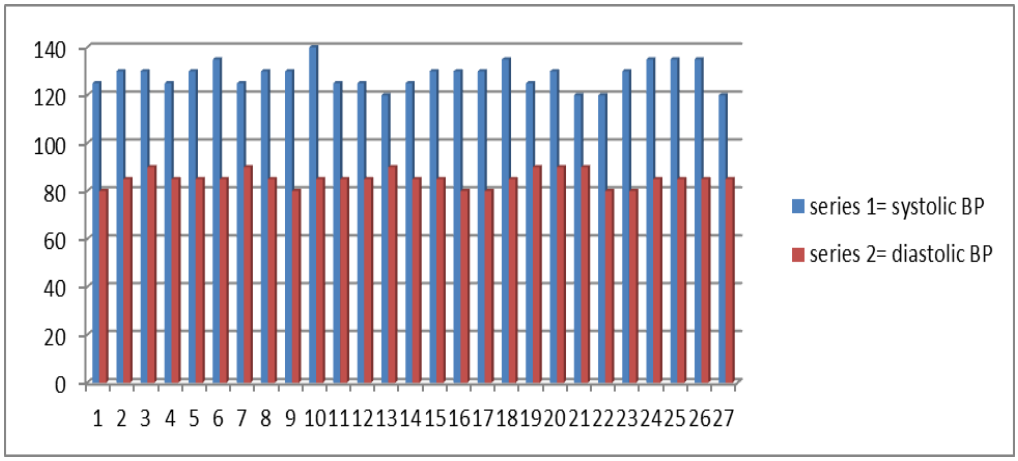
20. Please provide any additional important information:

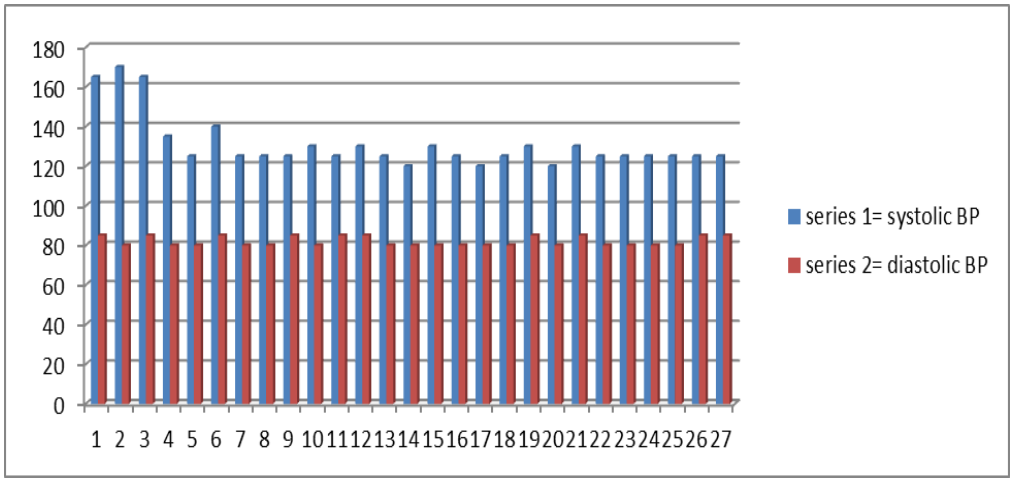
_____

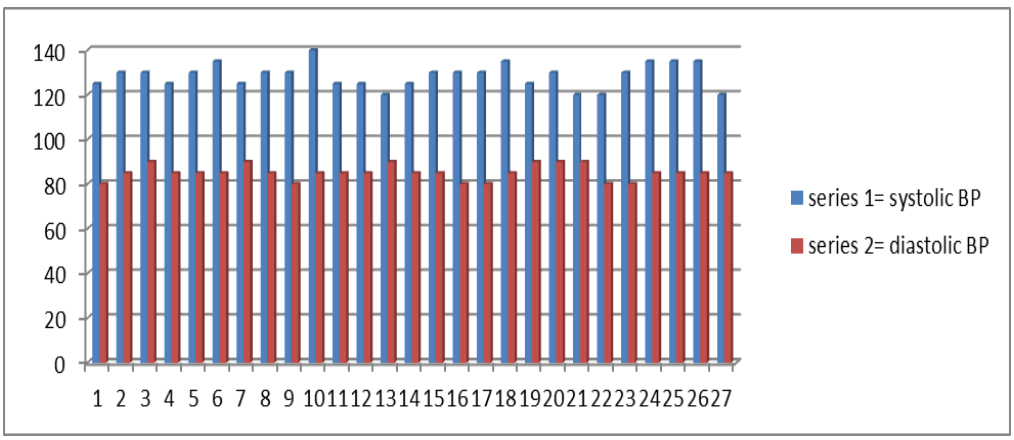
RESULT AND DISCUSSION

Epidemiological study of hypertension was conducted in rural area of Amroha district of UP.

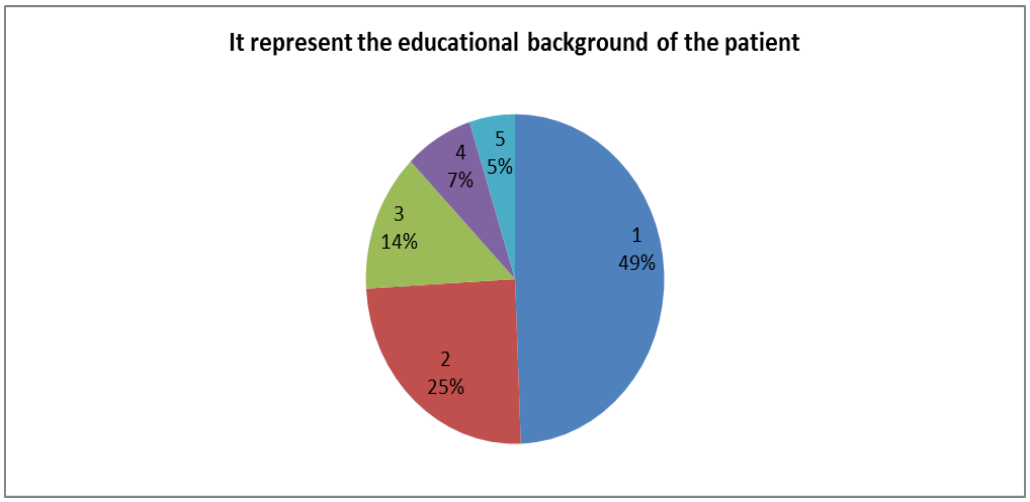
1. This bar diagram represents the last systolic and diastolic BP readings of the patient.







2. This diagram represent that how many people are illiterate, matriculate, intermediate, graduate and postgraduate.



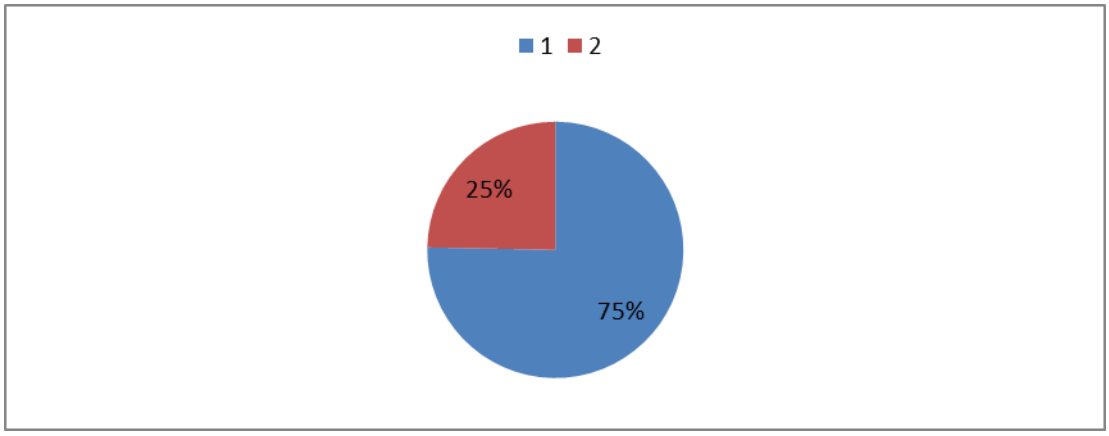
1= Illiterate 2 = Matriculate

3 = Intermediate 4= Graduate 5= Postgraduate

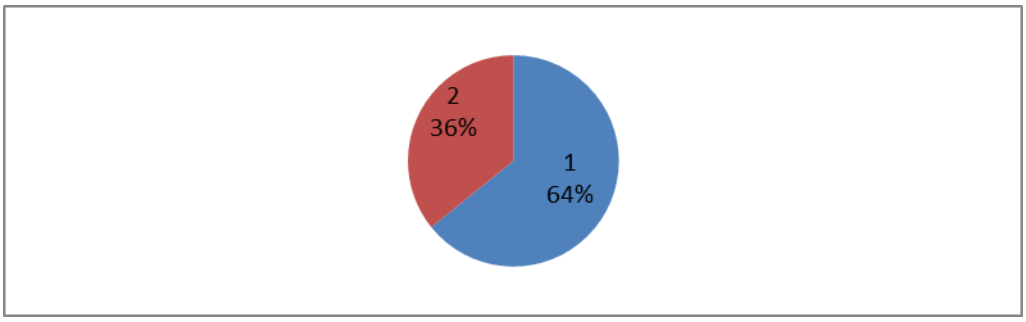
3.This diagram represents that how many people are taking medicines on regular basis.

1 is represent that how many people taking medicine regular basis.

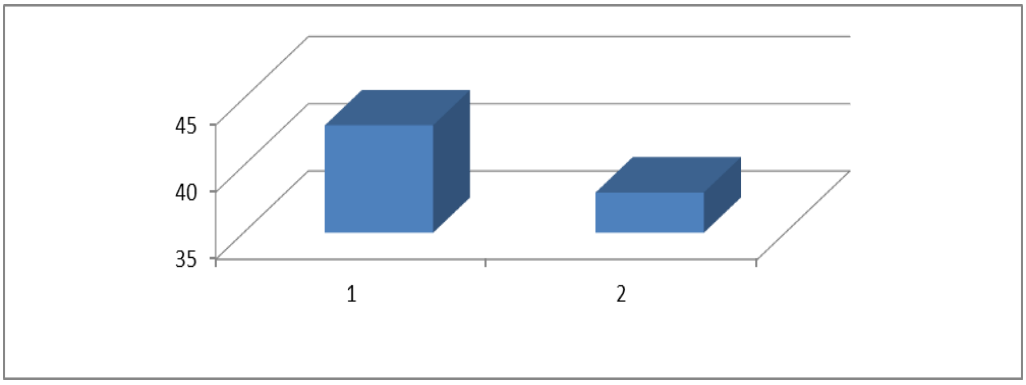
2 is represent that how many people do not take medicine in regular basis.



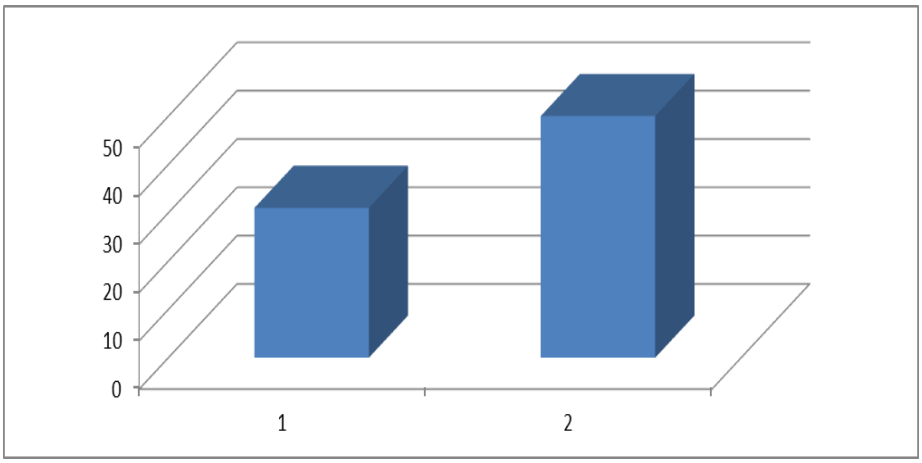
3. In this diagram First series represents that how many people know about DASH and Second series represents that how many people don't know about DASH.



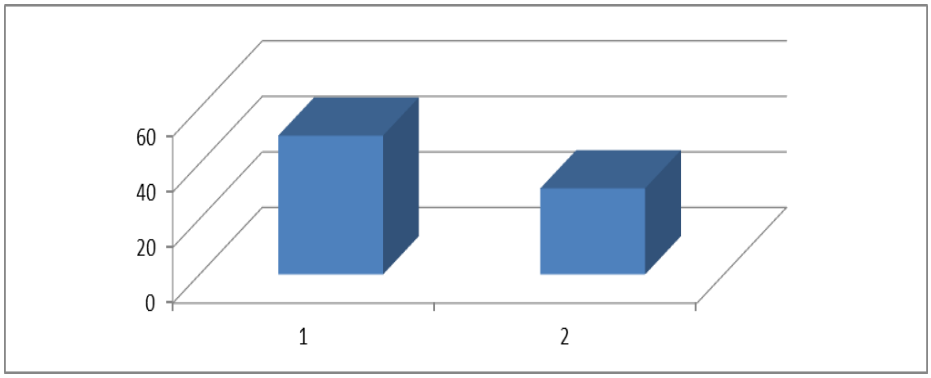
4. In this diagram First series represent that how many people's are doing exercise daily. And Second series represent that how many people's are not doing exercise daily.



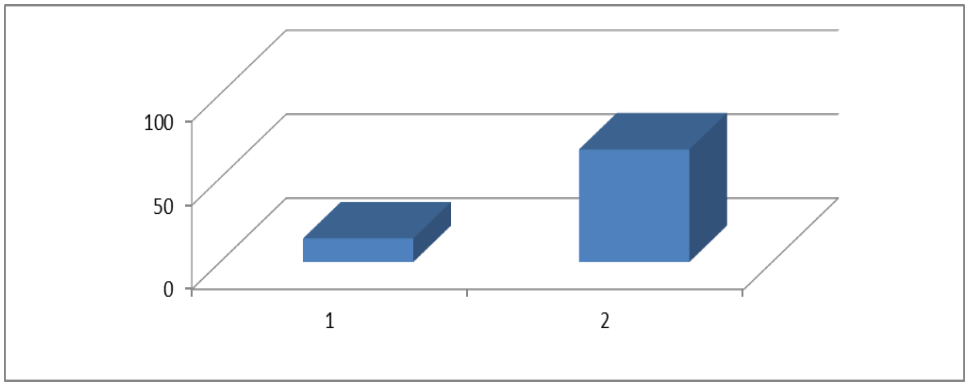
5. In this diagram First series represent that how many people drinking alcohol. And Second series represent that how many people do not drinking alcohol.



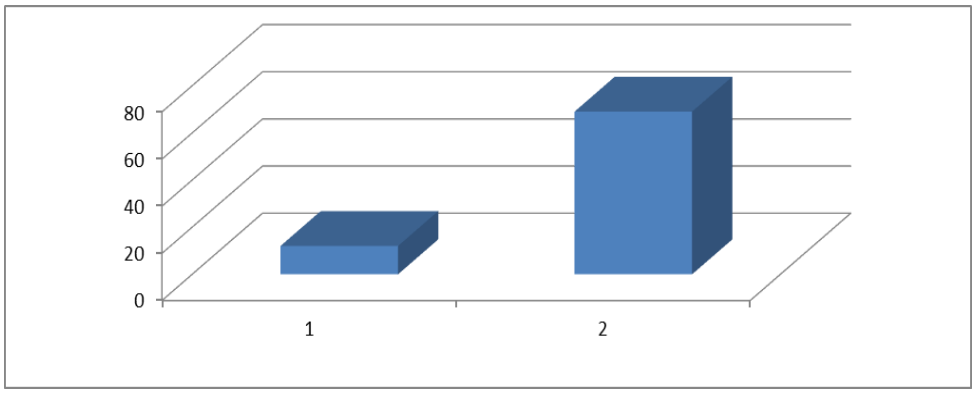
6. In this diagram First series represent that how many people smoking / consuming tobacco product. And Second series represent that how many people don't smoking/ consuming tobacco product.



7. In this diagram First series represent that how many people have ECG. And Second series represent that how many people have no ECG.



8. In this diagram First series represent that how many people have hospitalized for high BP. And Second series represent that how many people have not been hospitalized for high BP.



DISCUSSION

The rise of BP with age is said to be ageing process due to atherosclerotic changes in blood vessels, especially in those under stress and unknown factors. This also could be because of the sedentary lifestyle by the age of 55 years and the subsequent increase in BMI. Also increased levels of stress in the family due to social factors such as providing higher education, marriages of children etc. Further it was interesting to note that hypertension has set in as early as 25 years indicating a shift in onset of this disease to younger age groups.

The prevalence of hypertension was more in males (9.6%) compared to females (3.1%) This could be possibly because of the increased prevalence of risk factors of hypertension in males. The prevalence of hypertension did not vary among the different occupational groups Thus in unemployed it was 5.1%, unskilled workers or manual workers it was 5.3%. The present study has also revealed a higher proportion of hypertension in males, the overweight and obese with BMI >25, alcoholics, smokers and "additional high salt intake" group. In the current study being obese increased the odds of getting hypertension by 15 times. Association between additional salt intake, smoking, alcohol and hypertension has been observed. However other risk factors such as exercise, sedentary life style could not be measured due to standardization problems for measurement at a community level. As the present study is a cross sectional community based study, the authors have been able to find a significant association with influencing factors such as BMI, alcohol intake and smoking. The strength of the association should be further studied by longitudinal study. Such attempts by epidemiologists will help the physician to recommend preventive and control measures best suited for the community that s/he practices.

Age wise distribution of the hypertensive; The proportion of hypertension as well as mean these findings are coherent with those reported in the study conducted among rural area of systolic and diastolic blood pressures were found to increase steadily with the increase in age. Moradabad. Such changes of blood pressure with age might be due to changes in vascular system. Cross-sectional surveys, as well as prospective observational cohort studies, have consistently demonstrated a positive relation between age and blood pressure in most populations With diverse geographical, cultural and socioeconomic characteristics.

Gender wise distribution of the hypertensive; The proportion of hypertension was slightly higher among females compared to that in males but the difference was not statistically

significant. In contrast greater proportion of hypertension was observed among males (42.9%) as compared to females (34.2%) among rural population of Moradabad.

CONCLUSION

Epidemiological study was conducted on 81 patients of rural areas of Amroha district of UP. About 72% of patients have shown compliance to the therapy and 28% of patients have discontinued the therapy because of various reasons. This study shows that there is a huge need of creating patient awareness among rural areas of Amroha district of UP. There is a heavy need of patient counseling by health care professionals and pharmacists can play a key role here. This study reveals high prevalence of hypertension in rural areas of Amroha, which is definitely an alarming sign for society and healthcare professionals. It reflects that hypertension not only affects the urban people but also endangers the health of rural population; which constitutes maximum proportion of total Indian population. Rapid changes in lifestyle of rural people is the most probable cause. But fortunately most of the risk factors of hypertension are modifiable and can be prevented effectively by appropriate preventive measures. So, there is urgent need for appropriate and effective government strategies for promotion and restoration of healthy life styles, and prevention of hypertension, even in rural areas of the country.

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