

Original Article

Prevalence of Risk Factors of Hypertension in Nepalese Population

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ABSTRACT

Background: Hypertension is a major risk factor for several cardiovascular Vascular Disease. The prevalence of hypertension is increasing in Nepal especially in Urban Area. The objective of the study was to estimate the prevalence of hypertension and its risk factor in urban area of Nepal. **Methods:** We conducted a case control study involving the participant between 40-80 years of age between. Data on socioeconomic status, tobacco use, alcohol use, life style, family history of hypertension were collected using WHO protocol. Hypertension and Prehypertension were defined according to JNC-7. **Results:** On analyzing the study result among 130 hypertensives and 130 normotensives we found that 40(30.80%) of the hypertensive were alcoholic. In Normotensive but alcoholic group the prevalence of Hypertension was 53(40.80%). Similarly, the smoking habit was also assessed with relation of Hypertension and we found that 50(38.50%) of smoker were Hypertensive. The incidence of Hypertension decreased to 40(30.80%) in Normotensive population. 72(55.40%) people who had sedentary type of life style were hypertensive. On the other hand, 43(33.10%) of the people who had non-sedentary were hypertensive. We also had studied the relation of family with Hypertension. We found that 75(57.70%) of the people were hypertensive. The incidence decreased to 50(38.50%) to the patients who had no family association. **Conclusions:** The prevalence of Hypertension is high among our study population. The population based interventional programs and policies for increased awareness about risk factors like smoking, alcoholism, sedentary life style, familial association and life style modification are essential for prevention of Hypertension.

Key words: Hypertension, Smoking, Alcohol, Prevalence

Section – Anatomy

INTRODUCTION

In general Blood Pressure is defined as pressure exerted by column of blood in the arterial wall. Hypertension is defined as increase in systolic blood pressure >140 mm of Hg and diastolic blood pressure >90 mm of Hg. Sir George Peckering first formulated a concept that blood pressure in population is distributed continuously as a ‘bell shaped curve’ with no real separation between normotension and hypertension. Hypertension is an “iceberg” disease. It became evident in early 1970s that

only about half of the hypertensive subjects in the general population of most developed countries were aware of the condition, among them only half were being treated and among treated only half of them were adequately treated.^[1] Hypertension is more common in some ethnic group, particularly in Black Americans, Japanese and approximately 40-60% is explained by genetic factors. High salt intake, heavy consumption of alcohol, obesity, lack of exercise and impaired intra uterine growth are other environmental factors for increase in blood pressure.^[2]

Blood pressure depends on a combination of two factors namely (a) how forcefully the heart pumps blood through the blood vessels and (b) how narrowed or relaxed the lumens of blood vessels are? Thus, hypertension results when blood is forced through the arterial lumen at an increased pressure.^[3]

In adults, there is a continuous incremental risk of cardiovascular disease, stroke, and renal disease acrossing levels of both systolic and diastolic blood pressure. Cardiovascular disease risk doubled for every 20mm/Hg and 10mm/Hg increases in systolic and diastolic pressure respectively. Among older individuals, systolic blood pressure and pulse pressure are more powerful predictors of

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cardiovascular disease than diastolic blood pressure. It has been estimated that hypertension accounts for 6% of death worldwide. Normally blood pressure increases steadily during the first two decades and then reaches to the normal adult value.^[4]

Since essential hypertension is one of the most common disease in the world affecting an estimated 20% of adult population and it is also associated with high risk of morbidity and mortality.^[5]

Classification schemes for hypertension provide definitions of different categories of hypertension and are helpful to assess risk, determine prognosis and guide management. Methods commonly practiced to diagnose hypertension usually rely on either the level of blood pressure (diastolic, systolic or both), level of relative risk, absolute risk or both. Absolute risk reflects the sum of the all factors that contribute to the causation of a cardiovascular disease.⁶

METHODS

The present study is a case control in nature. The study was carried out in 260 subjects. The subjects were 130 hypertensives and 130 non-hypertensive cases of Kathmandu Valley who were ranging from 40 to 80 years of age.

Type of Study: Case control Study

Study Period: 1 Year

Sample Size:

The sample size was calculated using formula

$$n = z^2 pq / d^2$$

Where,

N= total number of subjects to be included in the study

Z= constant (1.96)

P= Prevalence of disease

q = (100-prevalance of disease)

d= standard error (7-10%)

Since the prevalence of hypertension in Nepal according to NHRC (Nepal Health Research Council) is 20%.⁷

Sample size needed in the present study is calculated according to the formula

$$n = z^2 pq / d^2$$

P= 20%

q= 80%

d=7%

$$n = 1.96^2 \times 20 \times 80 / 7^2$$

$$n = 4 \times 20 \times 80 / 25$$

$$n = 6400 / 25$$

$$n = 130$$

One hundred and thirty patients who were diagnosed as hypertensive were taken as case and 130 normotensive patients were taken as control group who were characterised by exclusion criteria.

RESULTS

On analyzing the study result among 130 hypertensives and 130 normotensives, we found that 40(30.80%) of the hypertensive were alcoholic. In Normotensive but alcoholic group the prevalence of Hypertension was 53(40.80%).

Similarly, the smoking habit was also assessed with relation of Hypertension and we found that 50(38.50%) of smoker were Hypertensive. The incidence of Hypertension decreased to 40(30.80%) in Normotensive population.

72(55.40%) people who had sedentary type of life style were hypertensive. On the other hand, 43(33.10%) of the people who had non-sedentary were hypertensive.

We also had studied the relation of family with Hypertension. We found that 75(57.70%) of the people were hypertensive. The incidence decreased to 50(38.50%) to the patients who had no family association.

Table 1: Distribution of subjects according to risk factor

Type	Case (Hypertensive) Frequency Percentage	Control (Normotensive) Frequency Percentage
Alcoholic	40 30.80	53 40.80
Non-Alcoholic	90 69.20	77 59.20
Smoker	50 38.50	40 30.80
Non-smoker	80 61.50	90 69.20
Sedentary	72 55.40	43 33.10
Non-Sedentary	58 44.60	87 66.90
Family Association	75 57.70	50 38.50
No Family Association	55 42.30	80 61.50

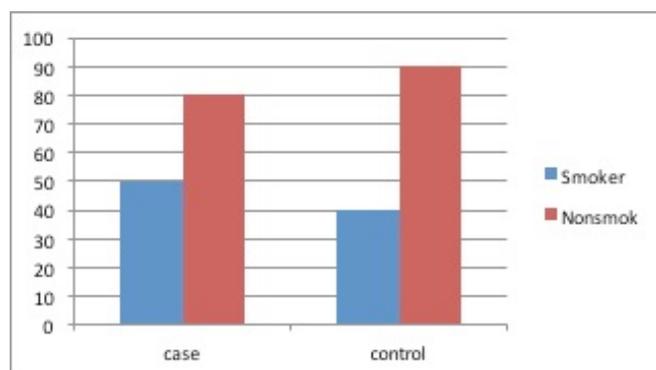


Figure 1: Bar diagram showing the distribution of people according to their habit of smoking

DISCUSSION

The present study was designed with the rationale to observe the prevalence of the risk factors with patient with essential hypertension and to compare with normotensive people. The present study included 130 hypertensives (63 male and 67 female) and 130 normotensives (64 male and 66 female) patients.

Result of present study showed that 55.40% of the hypertensive patients have sedentary type of lifestyle and most of them were overweight. This value is similar to the value observed by Kaur and Kaur⁸ where they reported 47.94% of hypertensive patients had sedentary life style.

Fuchs *et al*^[9] in his research came with the conclusion that there was increased risk of hypertension in those who consumed large amount of alcohol compared to those who had not consumed alcohol. Present study also demonstrated that the alcoholic people are more prone to hypertension,

which showed that 30.80% of the alcohol consuming people were hypertensive.

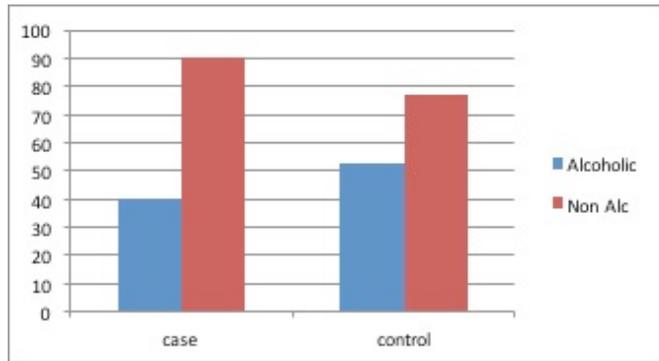


Figure 2: Bar diagram showing the distribution of people according to their habit of alcohol ingestion

Present study has also demonstrated that the smokers are more prone to hypertension. The study showed that 38.5% of the smokers were hypertensive. This value is similar to the study carried out by Thuv *et al*^[10] showed that there were significant trends of increasing prevalence of hypertension with increased smoking. Present study has demonstrated that 57.7% of the patient had family association with hypertension. This value is in contradicted to the research carried out by Marianne *et al*^[11] which showed only 8% had family association (family history of hypertension).

CONCLUSION

From the above results, the authors concluded that hepatic and renal involvement occurs in patients suffering from dengue fever. Hence, multidisciplinary approach should be carried out while treating such patients.

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