

FACTORS ASSOCIATED WITH HYPERTENSION AMONG ADULT PATIENTS IN BIRATNAGAR

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ABSTRACT

Hypertension: a major public health challenge worldwide and it is also considered as a major public health challenge, affects one billion persons worldwide. The aim of study was to identify risk factors of hypertension. Hospital based case-control research design was used for this study. The study was conducted at Koshi Zonal Hospital in Biratnagar. Non probability purposive sampling technique was used. The total sample size was 192. A semi- structure an interview schedule consisting semi-structured questionnaires were used to measure the risk factors of hypertension. The data was analyzed by using both descriptive and inferential statistics. The finding of this study revealed that more than forty four percent cases and controls was age 40-50 years. Fifty six percent of cases and controls were male. About forty three percent of cases and thirty three percent of controls were overweight. Forty three percent of cases and nine percent of controls were past smoker. Seventy three percent of cases were alcoholic whereas only thirty four percent of cases were non alcoholic. Hypertension was no significant association with obesity, family history, smoking, alcoholism and exercise. Above results concluded that it can be association with obesity, family history of hypertension, smoking, and alcohol consumption and doing light exercise.

Keywords: Hypertension, Cases, Control Selected socio-demographical factors, Personal behavior factors (personal habits) and Obesity

INTRODUCTION

Hypertension has been identified as a leading risk factor for mortality and ranked third as a cause of disability adjusted life years worldwide. More than a quarter of the world's adult population totaling one billion had hypertension in 2000, and this proportion will increase to 29%

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or 1.56 billion by 2025 (Ezzati et al., 2002). The World Health Organization (WHO) has estimated that about (62%) of cerebrovascular disease and (49%) of ischemic heart disease burden worldwide are attributable to suboptimal blood pressure levels where by high blood pressure is estimated to cause 7.1 million deaths annually, accounting for about (13%) of all deaths globally (Kumar & Halesh 2010)

In a study shows that hypertension was the most common risk factor for acute myocardial infarction, followed by diabetes mellitus, smoking, infection, and alcohol. Indeed coronary heart disease (CHD) has emerged as the leading cause of death among older Africans (Fastone et al. 2011). Hypertension and stroke occur at a relatively younger age in Asians and the risk of hypertension increases at lower levels of body mass index of 23-25 kg/m². Overweight, sedentary behavior, alcohol, higher social class, salt intake, diabetes mellitus and smoking are risk factors for hypertension in most of the countries of Asia (Singh et al. 2000).

Overall prevalence of hypertension in various parts of Nepal in recent years seems to range was (19.7%) to (22.7%) Prevalence of hypertension seems rapidly increasing in Nepal tripling (33.8%) in a Nepalese community during 25 Years of period in a repeat cross-sectional study in rural Kathmandu (Shrestha, & Dhungel 2012). Hypertension is a cardiovascular disorder rapidly emerging as a major public health problem in Hypertension, one of the major risk factors for CVD, was estimated to be present in (27.8%) of Nepalese adults aged 25 years and above. a community-based screening for CVD risk factors in eastern Nepal, showed a hypertension prevalence of (33. 20), (13. 9%) among adults 20 years of age and above (Dhital & Karki 2013).The largest of these studies, a community-based screening for CVD risk factors in eastern Nepal, showed a hypertension prevalence of (33.9%) among adults 20 years of age and above (Dhital & Karki 2013).

RESEARCH METHODOLOGY

Case -control research design was used to assess the factors associated to hypertension among adult patients. The study was conducted in Koshi Zonal Hospital, is situated in Biratnagar Sub-metro politician. Koshi zonal Hospital was chosen purposively. The respondents were all the cases of hypertension above 40 years, attending at Koshi Zonal Hospital; Biratnagar during data collection period meeting the inclusion criteria was taken as sample. Data collection period was used 4 weeks; from 16th October to 16th November 2015. The estimated sample size was 192 (96 cases and 96 controls). Cases were including the patient with diagnosed hypertension and controls were including age and sex matched attendants

without having hypertension attending Koshi Zonal Hospital Biratnagar. One age and sex matched patient for each case from the other minor disease as common cold, gastritis was diagnosed by physician, and attending the same hospital other than not having hypertension were taken as controls. While matching the age, 1 year to plus minus was taken. The estimated sample size of cases and controls were taken in the ratio of 1:1. A modified semi-structured interview schedule was developed the based on of WHO STEPs wise approach to chronic disease risk factor surveillance- Instruments step 1 and 2 Questionnaire, which is developed by WHO (WHO 2010). This instrument was developed both English and Nepal version too. Validity of the instrument was established by consultation with subject experts and physician expert. Pretesting of the instrument was conducted with 10% of sample in Golden Hospital in Biratnagar as modified as needed. Instrument consisted of two parts: Part I: Items on socio-demographic information such as age, sex, education level, Ethnicity, height weight and hypertension related item etc. Height was measured as same inch tape and weight was measured as same pointer weight machine by the researcher herself. Part II: Questions related to risk as family history and risk habit e .g. smoking, alcohol consumption and activity exercise. This instrument consists of 24 items. Smoking was categorized smoker (current and past user) and non smoker (never user) which was measure as sticks (Primatesta et al. 2004; Islam 2013). Alcoholism was categorized as current, never and past user and low, moderate and high (Shrestha 2012). The amount of alcohol was measured as tea glass as 150 ml. Activity and exercise was measured as hours and minutes. Physical activity is categorized as (1) Low physical activity defined as light level of action (less than 30 minutes) and leisure time physical activity (2) moderate, defined as subjects who reported only one of the light levels of occupational, types of moderate-to-high physical activity; and (3) high, defined as subjects who reported two or three types of moderate-to-high physical activity (Hu et al. 2004). Data was collected after getting approval from Tribhuvan University Research Division of Kritipur Kathmandu. Written permission was taken from Koshi Zonal Hospital for data collection. Verbal informed consent was obtained from the each subject prior to data collection by explaining the purpose of the study. Data was taken about 20-30 minutes small cabin (area) that partition by screen. Confidentiality was ensured and maintained privacy by collecting the data each cases and control separately. The obtained information was used only for the purpose of study and was maintained throughout the data collection and study period. The information was taken in equal proportion of cases and controls in each day. Collected data was checked, edited, organized, coded and entered in SPSS software program for analysis. Both descriptive and inferential statistics was used for data analysis.

RESULTS AND DISCUSSION

Demographic characteristics of the cases and controls

The study result showed that more than half (43.7%) cases and controls were age 40-50 years. More than half (56.2%) cases and controls were male. Among ethnicity more than third fourth (84.3%) cases and controls (80.2%) were Brahmin and Chhetri. Among the respondent; forty seven percent of cases and fifty three percent of controls had primary education. Similarly less than half (44.7%) of cases and only (34.3%) of controls were overweight.

Blood pressure, family history of hypertension, activity and exercise among cases and controls

The study result showed that more than (71.8%) cases and (21.8%) had systolic blood pressure had 130-170 mmHg and only (5.2%) cases had systolic pressure was above 180 mmHg. similarly most of cases (53.1%) and control (7.2%) had diastolic blood pressure was 90-120 mmHg. More than half of cases (73.9%) and had family history of hypertension whereas only (26.0%) of controls had family history of hypertension. Twenty-four percent of cases had no family history of hypertension where as seventy-six percent of control had no family history of hypertension. Almost of the cases (84.3%) had done less than 30 minutes activity exercise whereas only 29.1 percent of controls had done less than 30 minutes activity exercise. Similarly most of cases (76.0%) were doing house hold whereas 41.6 percent of controls were doing hold work. Regarding smoking more than one third of cases (43.7%) and 9.3 percent of controls had past smoker. About forty-four percent of cases and only twenty-three percent of controls had taken less than 5 sticks per day. Likewise alcohol, more than half of cases (72.9%) had alcoholic whereas only (33.9%) of controls had alcoholic. Similarly fifty-nine percent of cases had taken less than 150 ml (1 glass) alcohol consumption whereas only thirty-two percent of controls had taken less than 150 ml alcohol consumption. Similarly the result of Univariate Analysis of risk factors of hypertension, which showed that hypertension is no significant association with the obesity ($p=0.193$, $OR=0.684$, $CL; 0.387-1.211$). Obese patient is 0.684 times more likely to being hypertension than non obese. Hypertension is significant association with family history of hypertension ($p=<0.000$, $OR=9.014$, $CL; 4.688-17.332$). Hypertension

occurs 9.014 times more likely to family history of hypertension than no family history of hypertension. Hypertension was significant association with smoking ($p < 0.000$, OR=9.553, CL; 4.942-18.464). Hypertension occurs 9.553 times more likely to smoker than nonsmoker. Hypertension was significant association with alcohol consumption ($p < 0.000$, OR= 5.058, CL; 2.729-9.377). Hypertension occurs 5.058 times more likely to alcoholic than non alcoholic and hypertension was significant association with light exercise ($p = 0.000$, OR= 6.538, CL; 3.484-12.127). Hypertension occurs 6.538 times more likely to do light exercise than high exercise.

Table 1: Percentage distribution of smoking among the cases and controls
n=192

Characteristics	Cases no. (%)	Controls no. (%)	Totals no. (%)
Current	23(23.9)	7(7.2)	30(15.6)
Never	31(32.2)	88(91.6)	111(57.8)
Past	42(43.7)	9(9.3)	51(26.5)
Frequency of smoking			
Less than 5 sticks	42(43.7)	22(22.9)	64(66.6)
More than 5 sticks	13(13.5)	4(4.1)	17(8.8)
Mean± SD	1.337±0.475		

Table 2: Percentage distribution of alcohol consumption among cases and controls
n=192

Characteristics	Cases no. (%)	Cases no. (%)	Totals no. (%)
Alcoholic	70(72.9)	33(33.9)	103
Non alcoholic	26(27.0)	63(65.6)	89(46.3)
Per day use			
Less than 150ml (1glass)	57(59.3)	31(32.2)	88(45.8)
More than 150ml (1glass)	13(13.5)	32(33.3)	45(23.4)
Mean ±SD	1.5000±0.5013		

Table 3: Univariate analysis of risk factors of hypertension among the case & control

Risk factors	Cases	Controls	OR (95% CI)	p-value
	(n=96) No.	(n=96) No.		
(n=192)				
Obesity of patient				
Obese	48	57	0.684 (0.387-1.211)	0.193
Non Obese	48	39		
Family history				
Yes	71	25	9.014(4.688-17.332)	< 0.000*
No	23	73		
Smoking				
Yes	71	25	9.553 (4.942-18.464)	< 0.000*
No	22	74		
Alcohol consumption				
Alcoholic	70	27	5.058 (2.729-9.377)	< 0.000*
Non alcoholic	33	63		
Activity/exercise				
Light	68	28	6.538(3.484-12.271)	< 0.000*
High	26	70		

CI (confidence interval), OR (odds ratio).

*indicates association.

The present study result showed that hypertension was the significant association with obesity ($p=0.193$, $OR=0.684$, $CL; 0.387-1.211$). A Cohort study of 300 Japanese-Americans which was studied conducted by (Kotsis et al. 2005) studied revealed that body mass index was a contributory factor for high blood pressure. This result is the consistency with present study finding may be similar setting or may be similar characteristics of respondents. Another study conducted by (Mishra et al. 2005) report revealed that for men the risk of hypertension was strongly positively associated with BMI only at BMI levels about 25, but for women a positive relationship was observed at all BMI level. This finding was consistency with present study finding may be the similar social cultural factors.

One study conducted by (Yankeleviz et al. 2013) result revealed that moderately obese adults have double the risk of hypertension than

people with normal weights this result was consistency with present study finding may be the similar study variables or may be the similar diet habit.

A cross-sectional study among the 244 woman (15-45 years) at Amtalab Raichure conducted by Chandrashekhar and Basagoudar (2013) studied finding revealed that hypertension occurrence was significantly higher among those Overweight and obesity ($p = 0.02$). This finding was similar to the present finding may be the sedentary life style or may be the no high activity and exercis. A Cohort study of 300 at Banepa, Nepal (Manandhar et al. 2012) revealed that hypertension was seen positively associated with more than 25 body max index. This finding was similar to present study finding may be the similar physical structure or may be the similar cultural factor

The present study result showed that hypertension was the significant association with family history of hypertension than no family history of hypertension ($p < 0.000$, OR= 9.014, CL; 4.688-17.332). A case-control, outpatients-based study of adolescents, aged 11 to 19 years, (n= 91 cases and 182 controls) (Maria et al., 2007) revealed that a positive association between hypertension in adolescence and having both mother and father with high blood pressure (OR = 8.6; 95% CI 3.51-20.59) and than having just one hypertensive parent (OR = 2.17; 95% CI 1.18-3.99). This finding supported present study finding may be the similar type of study or may be the similar hereditary characteristics of respondent.

The present study result showed that hypertension was significant association with smoker than non smoker ($p < 0.000$, OR=9.553, CL; 4.942-18.464). Hypertension occurs 9.553 times more likely to smoker than non smoker. A population- based survey on Vietnam participant (n=910) (Thuya et al., 2010) showed that smoking was significant association (1.67, 95% CI 1.25–2.23, $P < 0.01$) with hypertension than non smoker. This study finding consistence with present study may be similar behavior characteristic of respondents. A population-based cross-sectional study in Kathmandu, Nepal conducted by (Vaidhya, Pathak & Pandey 2012) showed that tobacco use is significantly associated with hypertension odd ratio 1.34 (1.04–1.72). This finding is supported the present study finding may be the similar ethnic group of respondent or may be the similar cultural groups.

The present study result showed that hypertension was significant association with alcohol consumption than not consumption of alcohol ($p < 0.000$, OR=5.058, CL; 2.729-9.377). Hypertension occurs 5.058 times more likely to consume alcohol than not consumed alcohol. A study had conducted by (Sesso et al. 2013) result revealed that a strong positive association between higher alcohol consumption and an increased risk of

developing hypertension. This finding supported present study finding may be the similar response in both studies. A cross-sectional study in Banepa in Nepal (405 subjects of people) was conducted by (Manandhar et al. 2012) result showed that hypertension was seen positively associated with alcohol consumption. This finding consistence in present study finding may be the similar characteristics of respondents or may be the cultural habit of respondents.

The present study result showed that hypertension was significant association with light Exercise ($p= 0.000$, $OR=6.538$, $CL; 3.484-12.271$). Hypertension occurs 6.538 times more likely to do light exercise than high exercise. A prospective cross-sectional study ($n= 496$) conducted by (Tsiachris et al. 2011) result revealed that physical activity was positively correlated to systolic BP ($r = 0.139$, $P = 0.003$) and pulse pressure. This finding supported present finding study may be similar response to researcher by the respondents. A cross sectional study was conducted by (Chataut et al. 2011) result revealed that the positive association of hypertension with physical inactivity. This finding was similar to present study finding may be nearly about sample size or may be similar types variable of respondents. A population-based cross-sectional study conducted by (Vaidhya et al. 2012) in Bhadrabas village area of Kathmandu Valley showed that physical activity is significantly associated with hypertension odd ratio 2.34 (1.59–3.44) confidences. This study finding was consistence in present study finding may be the similar sample size or may be similar socio-cultural factors.

CONCLUSION

This study concluded that hypertension is significantly association with obesity, family history, smoking, alcoholism and exercise and activity.

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