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STUDY OF RISK FACTORS AND PREVALENCE OF HYPERTENSION IN ARBAN AREAS OF PATNA

Medicine

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ABSTRACT

Background: Hypertension is the major public health problem both in developing and developed nations. There is disparity in prevalence of hypertension in rural and urban areas. Data is available on the prevalence of hypertension in both urban and rural areas but studies on migratory population are limited. Methods: A community based cross sectional study conducted in urbanized village of Patna BIHAR. WHO STEPS questionnaire was used collect the data. Total of 451 persons were interviewed by stratified random sampling method. Data analysis was done using SPSS version 16.

Results: Prevalence of hypertension was 16.4%, high age group, high income, body mass index more than 23 and duration of stay in urban area were significantly associated with prevalence of hypertension.

Conclusions: Older age group, higher BMI and longer duration of stay in urban area have significant associations with the higher prevalence of hypertension.

KEYWORDS

Prevalence, Hypertension, Urbanization, Body mass index, Age

Introduction

Hypertension is an important public health problem in developed and developing countries like India. Hypertension is the leading modifiable risk factor for cardiovascular mortality worldwide. According to the World Health Organization (WHO), at least 7.5 million deaths are attributable to hypertension every year.1 Despite the high prevalence of hypertension, prevention, detection, treatment and control are suboptimal in developing countries such as India.2

Hypertensive subjects are known to have a twofold higher risk of developing coronary heart disease (CHD), four times higher risk of congestive heart failure and seven times higher risk of cerebro-vascular disease and stroke compared with normal subjects.3 Hypertension has been identified as one of the leading risk factors for mortality and is ranked as the third leading cause of disability-adjusted life-years (DALY).4 There is a strong correlation between changing lifestyle factors and the increase in hypertension in India. Epidemiological studies have shown that hypertension is present in 25% and 10% of the urban and rural population in India.5 Urbanization is found to be associated with a sedentary lifestyle, higher calorie food intake and stressful condition, which might contribute to the increasing prevalence of non-communicable diseases (NCD).6,7 Precise and dependable information about the epidemiology of hypertension across the Indian subcontinent is imperative to design suitable national health policies for its prevention and control. Hence this study was carried out in urbanized village of Patna to find the prevalence and its risk factors hypertension.

METHODS

This is community based cross sectional study, was conducted in department of medicine ,PMCH Patna (Bihar) from October 2015 to April 2017. Persons residing in Patna for more than 6 months and aged more than 20 years of age were included in the study.

Sample size was calculated with an anticipated prevalence of hypertension of 27.5%, 5% absolute precision, 95% confidence interval; the sample size came out be 307. [8] Finally 451participants were included in the study. The study participants were selected by multistage systematic random sampling. WHO steps instrument was used to collect the information regarding study subjects. Purpose of the study was explained to the person selected in their own language and they were also assured of confidentiality of the results. Written informed consent was taken before including all participants in study.
In brief, demographic, socio-economic, self-reported behavioral information (smoking, alcohol intake, physical activity and diet), objective measures of anthropometry (height, weight, waist and hip circumferences). Body mass index (BMI) – was calculated by using the formula weight (kg)/ [height (meters)].2 WHO cut off values for South Asian Countries were used to define participants as overweight and obese.9

Hypertension in adults was defined as systolic blood pressure of ≥140 mm Hg and/or diastolic blood pressure of ≥90 mm Hg or any level of blood pressure in patients taking antihypertensive medication.10,11
Study participant's natives of Patna (Bihar) were considered as permanent residents. Participants belonging to other states, not native of Patna were considered as migrant population. Those who were residing in Patna for more than six months were included in the study as tenants.

Analysis

The data collected using questionnaire was entered in a Windows Excel spread sheet. Statistical analysis was done using SPSS software version16. Prevalence of hypertension for different groups was calculated. Chi- square test was used to compare the prevalence of hypertension among different groups. To study the association of various factors with the prevalence of hypertension multiple logistic regression analysis was done and adjusted odds ratios were calculated. Prevalence of hypertension was taken as dependent variables for multiple logistic regressions.

RESULTS

The prevalence of hypertension in the present study was 16.4%. There was no significant gender difference in the prevalence of hypertension. Higher educational status and higher the family income per month higher was the prevalence. Clerks, semiprofessional and professionals had significantly higher prevalence of hypertension. Physical activity, family history of hypertension, consumption of alcohol and tobacco did not show any significant association. Association of hypertension was assessed in relation to duration of stay in Patna (urban area), study participants were classified as participants who resided in Patna for more 10 years and less than 10 years. It was found that participants who were staying for more than 10 years had significantly higher prevalence of hypertension Table 1.

Table 1: Hypertension and its predictors.

variables	Prevalence in hypertension %	OR unadjusted 95% CI	OR adjusted 95% CI
Age in group years			
20-30	18(9.7)	1	1
31-40	24 (14.3)	1.50(0.81-2.98)	1.5 (0.80-2.98)
41-50	9(17)	1.90(0.80-4.54)	1.78(0.74-1.28)
>50	23 (52.3)	10.22(4.7521.98	8.10 (3.62-18.15)
Gender			

Male	45 (18.2)	1	1
Female	29(142)	0.74(0.44-1.23)	0.92(0.52-1.60)
Education			
Illiterate	29(17. 5)	1	1
Primary, middle school	18 (15.8)	0.88 (0.46-1.68)	1.36 (0.65-2.85)
Secondary, higher secondary	16(13)	0.70(0.36-1.36)	1.06(0.51-2.21)
Graduation, post graduation	11 (22.9)	1.40 (0.64-3.07)	2.53 (1.04-6.11)
Occupation			
Unemployed	31(14.9)	1	1
Unskilled, Semi and Skilled	29(15.2)	1.02(0.59-1.77)	1.24(0.54-1.90)

DISCUSSION

The overall prevalence of hypertension in the study was 16.4%. It was observed that higher age group; high income of the family, BMI more than 23 has been positively associated with high prevalence of hypertension. Similar findings have been observed in the studies conducted in past.13 However, published reports suggest that the association between predictive risk factors and the risk of hypertension varies considerably in different populations across the country. An earlier study from South India revealed that age, body mass index, smoking, serum cholesterol and triglycerides are strongly associated with hypertension.14 Similarly, increasing age, body mass index, waist to hip ratio, impaired glucose tolerance and diabetes were strongly associated with hypertension in a North Indian population.15 There was significant difference in prevalence of hypertension in different education classes in the present study. Similar results have been observed in Wang et al.16 No significant association was noted with persons who consumed tobacco products, alcohol consumption and physical activity.

Urbanization is associated with changes in diet and in exercise that in turn lead to obesity, which increases the risk of type II diabetes and cardiovascular disease.17 A recent review of hypertension in sub-Saharan Africa brought together the relatively few studies that have compared urban and rural areas and found that rates were consistently higher in urban compared to rural areas.18 Similar results have been reported for India.19 In China, however, there is some evidence that the excess rates in urban areas that were apparent in the 1980s are disappearing as the prevalence of hypertension has been rising rapidly in rural areas.20,21

The present study observed that participants who resided for more than 10 years in Patna (urban area) had higher risk of suffering from hypertension as compared to participants who resided for less than 10 years, this difference in prevalence was statistically significant with p value <0.001. When adjusted for other variables in logistic regression it remained significant with p valve 0.026 and adjusted odds ratio to be 2.19 (1.24-3.86, 95% CI).

CONCLUSION

High prevalence of hypertension indicates the environmental factors may encompass a strong role for the rising prevalence of hypertension in urbanizing population. Study found that, longer the duration of stays in urban area higher the risk of suffering from Hypertension. Hence urgent intervention is needed to carry out in urban area irrespective of the economic status of the residents.

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