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Prevalence of Hypertension and its Associated Risk Factors among Secondary School Teachers of Belagavi City

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Abstract

Background: Hypertension is an important risk factor for CVD and a major public health problem in developing countries around the world. All over the world among all annual deaths, 12.8% deaths are due to hypertension which is about 7.5 million deaths, which accounts 57 million disability-adjusted life years (DALY'S). *Objectives:* (a) To estimate the prevalence of hypertension among secondary school teachers of Belagavi city. (b) To know the associated risk factors influencing hypertension. *Material and Method:* A cross sectional study was conducted from Feb 2014 to Oct 2014 in Belagavi city among 400 secondary school teachers. Pre-tested questionnaire was used to collect information about demographic and socio-economic factors. Anthropometric measurements were taken for assessment of risk factors of hypertension. An analysis of data was done by using SPSS software version 20 and percentage for prevalence and chi-square to find out association. *Result:* Prevalence of hypertension among secondary school teachers was 13.25% (14.1% in males and 13.0% in female). Hypertension increases as age advances in both males and females. Hypertension was associated with age, marital status and body mass index. *Conclusion:* The prevalence of hypertension among secondary school teachers was high. Sex, marital status and body mass index were significantly associated with hypertension.

Keywords: Hypertension; School Teachers; Blood Pressure; BMI; Socio-Economic Status.

Introduction

Non-communicable diseases especially cardio-vascular diseases are on rise in developing countries like India due to epidemiological, nutritional, demographic, and socio-economic and life style transition, other factors like gene-environmental interactions and early life influences of foetal under-nutrition are likely to cause increased burden of CVD in India [1].

As per the World Health Organization Statistics 2013, globally cardiovascular disease accounts for approximately 17 million deaths a year. The complications of hypertension accounts for 9.4 million deaths worldwide annually. Hypertension is responsible for about 45.0% of deaths due to heart disease and 51.0% of deaths due to cardiac stroke. The prevalence of hypertension is highest in the African region among adults aged 25 and above at 46.0%, while the lowest prevalence at 35.0% is found in the Americans [2].

All over the world among all annual deaths, 12.8% deaths are due to hypertension which is about 7.5

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million deaths, which accounts 57 million disability-adjusted life year (DALY'S). Globally the overall prevalence of hypertension in adults aged 25yrs and above was 40.0% in 2008 [3].

Hypertension being important risk factor for CVD and a major public health problem in developing countries around the world [4]. According to WHO, Hypertension is third 'killer' disease, accounting for one in every eight deaths worldwide. It's been expected that number of hypertensives may rise from 118 million in 2000 to 214 million in 2025. Though being major public health concern hypertension is a modifiable risk factor for CVD [1].

Hypertension exhibits iceberg phenomenon where unknown morbidity exceeds known morbidity [4]. Prevalence of hypertension in India, for last three decades has increased about 30 times among urban population over a period of 55yrs and 10 times among rural population over a period of 36 yrs. Prevalence of hypertension varied around the world with the lowest prevalence in rural India 3.4% in males and 6.8% in females [5].

In 2010, the overall prevalence of hypertension in Karnataka was 32.1%. Life style factors like smoking was present in 12.6% participants; alcohol intake was present in 13.0%. Among vegetarian and non-vegetarian diet groups, prevalence of hypertension was reported as 35.5% and 64.5% subject's respectively [6].

Several risk factors are responsible for hypertension which is modifiable and non-modifiable factors. Modifiable factors are smoking, obesity, salt intake, saturated fat, alcohol, physical activity, socio-economic status and non-modifiable factors are age, sex and genetic factors [7].

Teachers are an asset to any country, however due to sedentary life style, dietary intake and lack of knowledge on coronary heart diseases, there is a high prevalence of risk factor among them. Hence we proposed to carry out our study on this particular section of our society.

Objectives

1. To estimate the prevalence of hypertension among secondary school teachers of Belagavi city.
2. To know the associated risk factors influencing hypertension.

Materials and Methods

A cross sectional study was conducted from February to October 2014 in Belagavi city among 400 secondary school teachers. The sample size was calculated by using formula $n = 4pq / d^2$ and sample size was calculated as 400. Systematic random sampling was used to select the school teachers. Pre-tested questionnaire was used to collect information about demographic and socio-economic factors, family history, lifestyle factors and also risk factors for hypertension. Anthropometric measurements and blood pressure were taken, which were required for assessment of risk factors for hypertension. This includes measurement of height, weight, waist and hip circumference. Before starting data collection all instruments had been calibrated daily. Teachers who were on long leave were excluded in this study and school teachers between the age group of 20-59 years were included in this study. Data were coded and entered into SPSS sheet and analyzed by using SPSS software (SPSS 20.0 Version). Percentage was calculated wherever required from frequency tables. Chi- square test was used to see the statistical significance of different study variables. Ethical clearance from institutional ethics committee of J.N.M.C, KLES was obtained. Informed consent was taken from all participants before data collection.

Results

Total 400 secondary school teachers were included in the study. Among them 322 (80.5%) were females and 78 (19.5%) were males. 70.25% were Graduate, 56.0% did not carry out physical activity, 48.5% had abdominal obesity, 46.75% belonged to class I followed by 38.50% belonged to class II, according to Modified B. G. Prasad classification of socio-economic status. The prevalence of hypertension among school teachers was 13.25% (males 14.1% and female 13.0%). Prevalence of hypertension increases as age advances in both males and females and highest subjects i.e. 21 (16.7%) were in the age group of 40-49 years followed by 20 (30.3%) in the age group of 50-59 years (Table 1).

Table 2 shows that among married teachers, 42 (13.6%) were hypertensives. Among unmarried teachers, 7(8.3%) were having hypertension. The difference was statistically significant. Prevalence of hypertension increases with increase in weight and the prevalence of hypertension was high among overweight and obese teachers (Table 3).

Table 1: Association between hypertension and age

Age (In years)	Hypertension		Total
	YES	NO	
20 – 29	1	78	79
30 – 39	11	118	129
40 – 49	21	105	126
50 – 59	20	46	66
Total	53	347	400

X^2 = 30.352 df = 3 p = 0.001

Table 2: Association between hypertension and marital status

Marital status	Hypertension		Total
	YES	NO	
Married	42	267	309
Unmarried	7	77	84
Divorced	3	3	6
Widow	1	0	1
Total	53	347	400

Fisher exact p = 0.005

Table 3: Association between hypertension and BMI

BMI	Hypertension		Total
	YES	NO	
Underweight and Normal weight	8	168	176
Overweight	26	137	163
Obese	19	42	61
Total	53	347	400

X^2 = 29.642 df = 2 p = 0.001
[X^2 for linear trend = 29.329 p = 0.001]

Discussion

Using the latest Joint National Committee Report VII for detecting hypertension, in this study among 400 school teachers, the prevalence of hypertension was 13.25%. The prevalence was high when compared to the studies conducted at Jeddah, Basrah, Nellore and Bansal where the prevalence were 25.2%, 21.3%, 29.3% and 32.2% respectively [8, 9, 10, 11]. In the study it is observed that prevalence increases with age from 16.7% in 40-49 years to 30.3% in 50-59 years. Similar study conducted on school teachers in Jeddah, the prevalence of hypertension in the age group of 30-39 years to be 13.7% and increased to 64.0% in the age group of 60-69 years [8]. Significant association between hypertension and marital status was observed in the present study. This finding was similar to the study done in Ethopia [12]. In this study it was observed that prevalence of hypertension increases with increase in weight. The present study showed that the prevalence of hypertension was associated with the BMI. In subjects with underweight and normal weight only 4.5% were hypertensives and 16.0% subjects with overweight were hypertensives, followed by 31.1% of subjects with obese had hypertension. Similar study conducted in Basrah showed that in obese, 29.6% subjects were hypertensives whereas in overweight 22.4% subjects were hypertensives [9]. There was significant association between hypertension and BMI which was similar to the findings of present study.

Conclusion

In this study, the prevalence of hypertension among secondary school teachers was high. Majority of teachers having hypertension were aware that they had hypertension. Sex, marital status and body mass index were significantly associated with hypertension.

Recommendation

Establishment of screening programs for detecting hypertension among obese, overweight persons. Establish an environment in school which is free from smoking and motivate teachers for increasing physical activity and controlling weight are recommended. Training of teachers regarding hypertension and non communicable diseases and their prevention. Strengthening health education programs to promote hypertension awareness and focusing on preventive measures.

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