ORIGINAL RESEARCH

A Study of Prevalence of Hypertension among Police Personnel

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ABSTRACT

Introduction: Police job nowadays is regarded as a stressful job. Studies conducted in many other countries have found a significant association of the police occupation with stress related disorders like hypertension, diabetes and coronary heart disease. Objective of the study was to study the prevalence and associated factors of hypertension.

Material and method: A cross sectional study was conducted among 129 police personnel over a period of six months. Detailed history as per the questionnaire, blood pressure and anthropometry recording was done as per the standard methods. Statistical tests like odds ratio and chi square were applied for testing the association of various factors with hypertension.

Results: The prevalence of hypertension was 34.1%. Among them, 16.2% were known cases of hypertension and newly diagnosed cases were 17.8%. High normal blood pressure was recorded in 11% of the study subjects. Among the various factors studied like socio economic status (SES), smoking, alcohol consumption, obesity and central obesity, only upper SES was found to be significantly associated with hypertension.

Conclusion: The prevalence of hypertension was high among police personnel. Among all the factors studied, only upper socio economic status was found to be significantly associated with hypertension.

Key words: prevalence, hypertension, obesity, smoking

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INTRODUCTION

Hypertension is a chronic condition of concern due to its role in the causation of coronary heart disease, stroke and other vascular complications. It is the commonest cardiovascular disorder, posing a major public health challenge to population in socioeconomic and epidemiological transition. It is one of the major risk factors for cardiovascular mortality, which accounts for 20-50% of all deaths. The concept of incidence has limited value in hypertension because of the variabil8ity of consecutive readings in individuals, ambiguity of what is normal blood pressure and the insidious onset of the condition.[1]

In some industrialized countries, up to 25% of adults have diastolic pressures above 90 mmHg. Prevalence in the developing countries seems to be similar to that in European or other technically developed societies ranging from 10% to as much as 20% among adults. Only a few populations, either living at high altitudes or belonging to primitive cultures seem to have exceptionally low levels of blood pressure.[1]

In India, the data derived from two well planned studies which screened all the persons aged 20-60 years and followed the World Health Organization (WHO) suggested criteria for the diagnosis has shown that the prevalence of hypertension was 5.9% in males and 6.9% in females in urban population, 3.55% in males and 3.59% in females in rural population of India.

Police job nowadays is regarded as a stressful job. Studies conducted in many other countries have found a significant association of the police occupation with stress related disorders like hypertension, diabetes and coronary heart disease.[2,3] With this background, present study was carried out to study the prevalence of hypertension among police personnel.

MATERIAL AND METHODS

Place of study: Quthbullapur Municipality area, Hyderabad
Period of study: Six months from October 2014 to March 2015
Type of study: Cross sectional study

Sample size

A total of 129 police personnel were included during the study period.

Many could not be included as it was not possible for policemen to participate in the study because of job responsibilities and some did not respond. Out of the total police personnel examined, all cadres like Sub-Inspectors, Head Constables, Home Guards and Police Constables were included.

Materials used for the study were sphygmomanometer, weighing machine and measuring tape. Detailed history, thorough clinical examination including general examina-

tion, systemic examination and anthropometry as well as blood pressure were recorded in the pre tested pre designed questionnaire.

Height was recorded using a height rod. The person was asked to stand on height rod without footwear and look straight and forward. The upper rod was lowered till it touches his head and the height was recorded to the nearest 1 cm.[3]

For recording weight, weighing machine was standardized by asking a person who already knew his weight to stand on the machine. Every time before taking weight, the weighing machine was adjusted to the zero mark. The person was asked to stand on weighing machine without footwear and minimum clothing and his weight was recorded to the nearest one kg.[3]

Blood pressure was taken with the help of a sphygmomanometer. The B.P. Apparatus was placed at the heart level of the subject. The cuff was tightly tied on one arm. Blood pressure was recorded by auscultation method. The blood pressure was classified as per the JNC 7 criteria.[4]

Subjects were classified into different socioeconomic classes as suggested by B.G. Prasad.[5] They were also classified into 3 categories of body mass index (BMI)[1] and 2 categories of waist hip ratio.[1]

Age	Male (%)	Female (%)	Total (%)
20-29	9 (56.3)	7 (43.7)	16 (12.4)
30-39	50 (96.2)	2 (3.8)	52 (40.3)
40-49	38 (97.4)	1 (2.6)	39 (30.2)
50-60	22 (100)	0	22 (17.1)
Total	119 (92.3)	10 (7.7)	129 (100)

Table-1: Age and sex specific distribution of study subjects

Category	Number (%)
Normal blood pressure	71 (55)
High normal	14 (11)
Known cases of hypertension	21 (16.2)
Newly diagnosed cases of hypertension	23 (17.8)

Table-2: Prevalence of Hypertension among the police personnel

There were known cases of Hypertension in the survey and they were included as known hypertensives. Health education was imparted to the police personnel regarding nature of disease and its complications. Importance of prevention of disease by regular exercise, diet etc. were explained to them. Proportions, odds ratio with 95% confidence interval (CI), chi square test were used to analyze the data. P value of less than 0.05 was considered as significant.

RESULTS

In this study 119 were males and 10 were females. 40.3% belonged to the 30-39 years of age group which was the largest group, followed by 30.2% of subjects who belonged to the 40-49 years of age group. 7 out of 10 female subjects belonged to the age group of 20-29 years.

Of the 129 subjects surveyed, 71 (55%) were normotensives. All the female study subjects were normotensive. 14 study subjects (11%) had high normal blood pressure and 44 (34%) had hypertension. Among the hypertensives, 21 (47.7%) were already known cases of hypertension. That is they were told by the physician that they are having the hypertension.

The incidence i.e. newly diagnosed cases of hypertension were 23 (52.3%). Among these newly diagnosed cases, 17 (38.6%) had mild hypertension, 4 (9.2%) had moderate hypertension and 2 (4.5%) had severe hypertension.

It was found that the prevalence of hypertension was 41.2% in subjects belonging to upper classes as compared to 20.5% among subjects belonging to lower classes. This difference was found to be statistically significant. ($X^2 = 4.6$, $p < 0.05$). Subjects belonging to upper classes were 4.6 times more at risk of developing hypertension than subjects belonging to lower social classes. But other factors studied were not significant.

DISCUSSION

Of the 129 subjects surveyed, 71 (55%) were normotensives. All the female study subjects were normotensive. 14 study

Factors		Hypertension		OR (95% CI)	Chi square	P value
		Yes (%)	NO (%)			
SES*	Upper	35 (41.2%)	50 (58.8)	2.72 (1.2-6.4)	4.6	0.03
	Lower	9 (20.5)	35 (79.5)			
Smoking	Yes	7 (31.8%)	15 (68.2)	0.8 (0.3-2.3)	0.00	0.49
	No	37 (39.6)	70 (65.4)			
Alcohol consumption	Yes	27 (36)	48 (64)	1.2 (0.2-2.5)	0.2	0.36
	No	17 (31.5)	37 (68.5)			
Obesity	Yes	35 (30.2)	81 (69.8)	1.92 (0.05-0.6)	6.3	0.006
	No	9 (69.2)	4 (30.8)			
Central obesity	Yes	4 (57.1)	3 (42.9)	2.7 (0.5-12.8)	0.83	0.18
	No	40 (32.8)	82 (67.2)			
Family history of hypertension	Yes	13 (35.1)	24 (64.9)	1.06 (0.47-2.37)	0.002	0.48
	No	31 (33.7)	61 (66.3)			
*SES = socio economic status						

Table-3: Association of various factors with hypertension

subjects (11%) had high normal blood pressure and 44 (34%) had hypertension. Among the hypertensives, 21 (47.7%) were already known cases of hypertension. That is they were told by the physician that they are having the hypertension.

The incidence i.e. newly diagnosed cases of hypertension were 23 (52.3%). Among these newly diagnosed cases, 17 (38.6%) had mild hypertension, 4 (9.2%) had moderate hypertension and 2 (4.5%) had severe hypertension.

When the findings of the present study were compared with the existing studies, it was found that a low prevalence of 22.5% was reported by Meshram FA et al[2] in who the year 2005 of their study titled High prevalence of hypertension among police personnel of Nagpur.

V. Yadav et al[6] found that the prevalence of hypertension was 27% in their study conducted in an urban population. Reddy SS et al[7] in 2008 reported that the prevalence of hypertension among adults in an urban slum area of Tirupati, Andhra Pradesh was 8.6%.

22 of the study subjects had the habit of smoking, out of which 7 (31.8%) were having hypertension while 15 (68.2%) were normotensive. Among non smokers, the prevalence of hypertension was 39.6%. This difference, obviously was not found to be significant ($p > 0.05$). A positive association between smoking habit and hypertension was reported in the study conducted by Meshram FA et al[2], Ahmed N et al[8], and Reddy SS et al[7].

The non significant association between smoking and hypertension in the present may be attributed to small sample size as well as may be unwillingness of the study subjects to reveal their smoking habits.

The prevalence of hypertension among the study subjects who consumed alcohol was 36% while it was 31.5% among people who did not consume alcohol. This difference was not found to be statistically significant ($p > 0.05$). Reddy SS et al 7 found the prevalence of hypertension among alcohol consumers as 20%. Meshram FA et al[2] and Ahmed N et al[8] found a positive association between alcohol consumption and hypertension.

In the present study, the association between obesity and hypertension was statistically non significant ($p > 0.05$). Odds ratio was 2.7 which means that obese persons were 2.7 times more at risk of hypertension compared to non obese persons. But the 95% confidence interval was 0.5837 to 12.8. The lower bound C.I. was less than 1, which means that the observed odds ratio can not be considered as significant and the regular interpretation of it may mislead the observer. Secondly there was a very wide variation in the lower bound and upper bound C.I., from which it can be said that the observed odds ratio was not found to be appropriate. These findings were consistent with the findings reported by Meshram FA et al[2], Ahmed N et al[6] and Reddy SS et al[7].

Central obesity is defined as waist to hip ratio of more than 0.85 among females and more than 1 in males. It is said that the central obesity may be a risk factor for hypertension. We tried to study the association between central obesity and hypertension. It was observed that the association between central obesity and hypertension was not found to be statistically significant ($p = 0.05$).

It was noted that the proportion of subjects who had a family history of hypertension and were themselves hypertensives was only marginally greater than the proportion of subjects who had no family history of hypertension but were hypertensive. Reddy SS et al[7] reported that in their survey, 23% of subjects with a family history of hypertension were hypertensive.

CONCLUSION

The prevalence of hypertension was high among police personnel. Among all the factors studied, only upper socio economic status was found to be significantly associated with hypertension.

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