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Original Research Article

Study on prevalence of hypertension in gazetted officers

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ABSTRACT

Background: There was a strong correlation between increase in hypertension and changing lifestyle factors. The problem which lies with the hypertension is that it cannot be cured completely. And its management requires lifelong medication with some life-style modifications. Decreased physical activities coupled with increased mental tension are important contributors of hypertension. They are usually seen amongst employees of the profession where working is typically sedentary. The main objectives were to study on prevalence of hypertension and risk factors among Government Gazetted officers of Maharashtra, India.
Methods: A cross sectional study was carried among gazetted officers working in various departments of state Government for a period of one year in Solapur district. 355 Gazetted Government officers of class I & class II cadre were studied. Blood pressure was measured with a standard mercury sphygmomanometer. Chi-square test was applied to assess risk factors.
Results: In present study, the prevalence of hypertension among Gazetted officers was observed 20.28%. There was significant positive association was found between age and prevalence of hypertension. And also it was found significantly higher in men than women. The association between education and hypertension found to be statistically significant ($P<0.001$), while there was no association between socioeconomic status and hypertension was found ($P=0.33$). Prevalence of hypertension was noted higher at every level of BMI. Prevalence of hypertension was significantly higher in smokers, alcoholic and had significant association ($P<0.05$).
Conclusions: We conclude that, because of high prevalence of hypertension in Gazetted officers, periodically they should be screened for the same.

Keywords: Hypertension, Lifestyle, Risk factors, Type of work

INTRODUCTION

It was reported that the prevalence of hypertension is speedily increasing and is one of the leading causes of death and disability in developing countries.[1] In India, the prevalence of hypertension is reported as ranging from 10 to 30.9%.[2] It seems to be that, the prevalence will increase even further unless broad and effective preventive measures are implemented. Epidemiological studies should be conducted to assess the prevalence of hypertension and to suggest are essential plan for preventive strategies and promote the health.

The cause of hypertension is often unknown and high blood pressure of unknown origin is usually referred as essential or primary hypertension. Most investigations consider high blood pressure to be a quantitative deviation from the norm and this view has fostered the epidemiological approach to hypertension, in which the distribution, determinants and development of blood pressure are investigated its approach has lead to the

notion that essential hypertension in adults is the result of a process that starts early in life.[3]

Blood pressure levels are evidently determined in part by genetic factors, but environmental influences operate as well. They are especially apparent when people from one society previously free of hypertension manifest it upon migration to a new environment. It follows that, if it were possible to identify and modify the environmental influences causing progressively increasing blood pressure, essential hypertension could be prevented.[4]

It has been reported that most of the hypertensive patients remain asymptomatic, only some of them develop some kind of symptoms like headache, giddiness and irritability. It was known to be as silent killer due to this reason. The diagnosis is quite easy, when it is symptomatic, but in case of asymptomatic, look for hypertensive is possible only during routine health checkups, active surveys or screening programmes. In case majority of the hypertensive are asymptomatic, it is a matter of worry, because such patients are unaware of the disease and they are at risk for developing more complications. Likelihood of getting heart attack, heart failure and kidney related diseases would increase if hypertension is not controlled or prevented in early stage. The relationship between blood pressure and risk of CVD events is continuous, consistent, and independent of other risk factors also.[5,6]

It was reported that, the prevalence of hypertension over a period of 55 years, has increased by 30 times in urban population and over a period of 36 years, around 10 times in the rural population.[7] With the hypertension, the problem which lies that it cannot be healed completely. And its treatment requires lifelong medication with some life-style modifications. The only way to curb the problem of hypertension is by its prevention. Reduced physical activities coupled with increased mental tension lead to main contributors for hypertension. They are commonly seen in employees of the profession where working is mostly sedentary.

Though several studies have been carried out among the general population in India but very little studies have been conducted among Gazetted officers population. Therefore, higher prevalence of hypertension was reported from employees of such profession. The government employees fit in this picture and due to this reason, present study was carried out among Gazetted government employees, to study on prevalence of hypertension and risk factors among Government Gazetted officers of Maharashtra.

METHODS

A cross sectional study was conducted in Solapur district of Maharashtra. The study was conducted among gazetted officers working in various departments of state government for a period of one year. The minimum sample size estimated for the present study was 354, based on the anticipated prevalence of hypertension in gazetted officers as 18% with confidence level of 95% and absolute precision of 4%. In sum, 355 gazetted government officers of class I & class II cadre were studied. The semi-structured questionnaire designed for the study was pretested and modified during the pilot study was used for present study. The questionnaire which includes demographic profile, working pattern and risk factors of respondents was used to collect the data. The socioeconomic status (SES) measured by modified B.G. Prasad classification. Blood pressure was measured with a standard mercury sphygmomanometer and 12.5 cm wide cuff while participant seated comfortably in the chair in his or her office cabin. At the interval of 5 minutes, three readings of blood pressure were taken, and average of these readings was considered as a final reading. Hypertension was defined on the basis of 7th report of Joint National Committee of Hypertension which provides a classification of Blood pressure for adults aged 18 years or older. As per their definition, a person said to be have hypertension, if systolic blood pressure ≥140 mmHg or Diastolic blood pressure ≥100 mmHg.[8]

Statistical analysis

Descriptive statistics such as mean, SD and percentage were used to present the data. Chi-square test was applied to find out association factors with hypertension. Data was analyzed using window excel & Epi info.

RESULTS

The present study was conducted among gazetted officers working in various departments of state government for a period of one year. Average age of respondents was 42.5 years with SD 9.5 years. The prevalence of hypertension among Gazetted officers was found to be 20.28% (Figure 1).

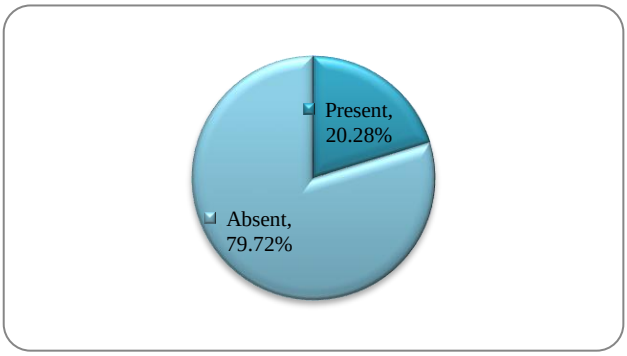

Figure 1: Prevalence of hypertension among gazetted officers.

The majority of respondents with hypertension were from age group 51-60 years (34.61%). The association between age and hypertension found to be statistically significant (P<0.001).

In the study, among 355 respondents 318 (89.58%) were males and 37 (10.42%) were females. Out of these males 22% and only 5% females were hypertensive. The association between sex and hypertension found to be statistically significant (P<0.001). Risk ratio was 4.94 i.e. risk of being hypertensive was almost five times more in males as compared to females.

The majority of respondents with hypertension were Undergraduate (36%). The association between education and hypertension found to be statistically significant (P<0.001) while there was no association between Socioeconomic status and hypertension (P>0.05) (Table 1).

In the study, among 117 Class I workers 23% were hypertensive while in Class II workers 18.90% were hypertensive. The association between Cadre and hypertension no statistical significance (P>0.05). Although risk of hypertension in class I officer was 1.29 times more than class II officer, but it was not statistically significant (p>0.05).

The hypertensive respondents were majority in service more than 30 years (41.02%). There was a highly statistical significant association between years of service done and hypertension (P<0.001). It was also observed that from the table, as number of years of service increases, the proportion of hypertension also increases.

The type of work had no statistical significance association with hypertension (P>0.05) (Table 2).

Table 1: Distribution of respondents according to demographic characteristics and hypertension.

Demographic Characteristics	Hypertension		χ^2 value, df, p-value
	Present (n=72) (%)	Absent (n=283) (%)	
Age group (years)			24.67, 3, p<0.001
21-30	01 (02.22)	44 (97.78)	
31-40	11 (11.58)	84 (88.42)	
41-50	33 (24.08)	104 (75.92)	
51-60	27 (34.61)	51 (65.39)	
Sex			4.67, 1, 0.03, RR = 4.94
Male	70 (22.00)	248 (78.00)	
Female	02 (05.00)	35 (95.00)	
Education			6.21, 2, 0.04
Undergraduate	13 (36.00)	23 (64.00)	
Graduate	36 (18.60)	158 (81.40)	
Post graduate	23 (18.40)	102 (81.60)	
Socioeconomic status			0.94, 1, 0.33
I &II	28 (17.95)	128 (82.05)	
III, IV & V	44 (22.11)	155 (77.89)	

Table 2: Distribution of respondents according to working characteristics and hypertension.

Working characteristics	Hypertension		χ^2 value, df, p-value
	Present (n=72) (%)	Absent (n=283) (%)	
Cadre			0.35, 1, p=0.43 RR=1.29
I	27 (23.00)	90 (77.00)	
II	45 (18.90)	193 (81.10)	
Years of service			32.35, 4, p<0.001
0-5	01 (01.81)	54 (98.19)	
6-10	06 (09.37)	58 (90.63)	
11-20	25 (20.83)	95 (79.16)	
21-30	24 (31.17)	53 (68.83)	
31-40	16 (41.02)	23 (58.98)	
Type of work			2.14, 2, 0.34
Technical	17 (17.71)	79 (82.29)	
Administrative	14 (16.67)	70 (83.33)	
Both	41 (23.43)	134 (76.57)	

From the table, for BMI, as BMI goes on increasing, proportion of respondents suffering from hypertension also increases and also shows that, there is statistical association between them (p=0.004).

Alcohol consumption and hypertension showed statistically significance association (P<0.05). Risk ratio 1.92 i.e. the respondents who were consuming alcohol are almost two times at higher risk for developing hypertension than those who are not consuming.

Smoking habit showed highly statistical significant association with hypertension (P<0.0001). Risk ratio was 2.39 i.e. the risk of hypertension was 2.39 times more in smokers as compared to non-smokers.

The extra salt intake and lack of exercise found to be not associated significantly with hyper tension (P>0.05). By observing RR, it was found that extra salt intake and exercise had no effect on hypertension (Table 3).

From above table, it was observed that, hypertension was more associated with diabetes than any other disease (Table 4).

Table 3: Association of lifestyle factors and hypertension among respondents.

Lifestyle factors	Hypertension		χ^2 value, df, p-value
	Present (n=72) (%)	Absent (n=283) (%)	
BMI			
<25 (Normal)	24 (13.71)	151 (82.29)	
25-30 (I)	39 (25.00)	117 (75.00)	11.22, 2, p=0.004
30-40 (II)	08 (34.78)	15 (65.22)	
>40 (III)	01 (100)	00 (00)	
Alcohol consumption			
Present	36 (27.06)	97 (72.94)	6.07, 1, p<0.05
Absent	36 (16.20)	186 (83.80)	RR = 1.92
Smoking habit			
Present	28 (37.84)	46 (62.16)	17.82, 1, p<0.0001
Absent	44 (15.66)	237 (84.34)	RR = 2.39
Exercise			
Present	30 (02.05)	106 (77.95)	0.27, 1, p=0.60
Absent	42 (19.17)	177 (80.83)	RR = 1.15
Extra salt intake			
Present	21 (16.8)	104 (83.20)	1.13, 1, p=29
Absent	51 (22.17)	179 (77.83)	RR = 0.76

Table 4: Distribution of respondents according to associated diseases.

Associated disease	Hypertension		Total (%)
	Present (n=72) (%)	Absent (n=283) (%)	
Diabetes	16 (53.33)	14 (46.66)	30 (8.45)
Hyperthyroidism	1 (100)	0	1 (100)
IHD	2 (33.67)	4 (67.33)	6 (1.69)
Renal disease	1 (50)	1 (50)	2 (0.56)
No disease	52 (16.45)	264 (83.55)	316 (89.01)

DISCUSSION

The present analytical cross sectional study was carried out to study the profile of hypertension in Gazetted officers. The prevalence of hypertension among Gazetted officers of an urban area found to be 20.28%, which falls in the range stated by a study conducted by Padmavati S.[2] Among 72 officers, who had hypertension 70 (97%) officers been already on hypertensive drugs and only 2 (3%) officers diagnosed during the study. In the study done by Chor D et al among 1183 employees found 18% prevalence of hypertension.[9]

In present study significant positive association was found between prevalence of hypertension and age. And also it was observed that, prevalence of hypertension increased as age increased, it was highest in more than 50 years of age group. This can be explained by the fact that

at higher ages, there was increase in atherosclerotic changes in blood vessels along with increase in the other associated risk factors. In a study conducted by Desai and Kumar P amongst 985 employees at Surat, they too reported increase in prevalence of hypertension with increasing age.[10] By contrast to the experience in most countries, in isolated population, there was little evidence of an age related change in blood pressure. This finding indicates that age related changes are not a biological necessity.

In present study, overall prevalence of hypertension was found significantly higher in men (22%) than women (5%). Our findings are consistent with the findings of Beggum R, who found higher prevalence of hypertension in males as compared to females in the age group of 25-64 years (84). In a study done by Mionjr D et al among 810 employees of a University General Hospital in Brazil, it was found that overall prevalence of hypertension was higher (32%) in men than women (22%).[11] In our study not single women had given history of smoking, and alcohol consumption.

The association between education and hypertension found to be statistically significant (P=0.04) while there was no association between Socioeconomic status and hypertension (P=0.33). As our study shows that almost all officers are falling in upper class, according to modified Prasad's classification, therefore socio-economic status may not be having any effect on hypertension.

In the present study, type of work and Cadre showed no association with hypertension. As there is no strict compartmentalization of work as far as for gazette officers the effect of associated risk factors with work pattern is nullified. Thus all the gazette officers working in different sectors are equally susceptible for getting hypertension. But the gazette officers showed association between years of service and hypertension ($p<0.001$). This may be attributed due to increase in age.

BMI is widely used in adults to assess overweight and obesity, which is a known risk factor in hypertension and other life style related diseases. Prevalence of hypertension was noted higher at every level of BMI. In a study carried out by Mion Jr D et al prevalence of hypertension was found higher ($P <0.05$) whose BMI was in the range of overweight and obesity levels.[11]

Smoking is considered as an additional independent risk factor for the development of hypertension probably due to short term pressure effect of nicotine. The nicotine content in cigarette smoke acutely raises blood pressure, even in addicted smokers. No tolerance develops, so the blood pressure remains high as long as the individual continues to smoke.[12] This was supported by the present study that prevalence of hypertension was significantly higher in smokers and had significant association. In a similar study done by Gupta R et al also showed similar results; among 2122 subjects from the urban population of Jaipur had found higher prevalence of hypertension among smokers.[7]

Amongst alcoholics risk of hypertension was higher in past, heavy and regular alcoholics. Yoshita et al measured blood pressure among 3900 men aged 20-59 years annually for 7 years. The baseline systolic BP was higher in drinkers consuming 200-299 and ≥300 g alcohol/week, respectively, than in non-drinkers ($P<0.001$).[13]

In the present study there was no significant association between exercise and hypertension. But role of healthy habits like yoga, jogging, walking and swimming etc. is as a stress relieving factor in improving blood circulation and reduce body weight. This knowledge indicates that those who adopt healthy life style and do regular exercise of any kind will naturally have lower risk of hypertension. In a study done by Kokkinos P F et al among African-American men found that people who were physically active and fit may develop less hypertension, and those who are hypertensive may lower their blood pressure by regular isotonic exercise.[14]

In the present study there was no significant association between extra salt intake and hypertension. Salt is an important factor that contributes to development of hypertension. Puska P et al in their follow up study found that salt intake had direct relation with hypertension.[15]

CONCLUSION

It can be concluded that, there was significant burden of hypertension in gazzeted officers. Ages, gender, education, year of service, BMI, alcohol, smoking habits were independent risk factors of hypertension. From present study, it was observed life style affects blood pressure, which in turn indicates healthy habits should be promoted among this type of group by different types of interventions. The present study outcome may help in finding out the common profile of hypertensive persons at risk, which may further help out in identifying the risk group and planning the group specific IEC interventions. This study also put emphasis on the need for epidemiological studies among this population.

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REFERENCES

1. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. Lancet. 2005;365:217-23
2. Padmavati S. A meta-analysis-National Heart Institute, New Delhi. Ind Heart J. 2002;54:99-102.
3. Blood pressure studies in children. Report of WHO expert committee. WHO TRS No. 628, 1978.

4. Primary prevention of Essential hypertension, Report of WHO Scientific Group. WHO TRS No. 686, 1983.
5. Shaughnessy AF, Slawson DC, Bennett JH. Becoming an information master: A guidebook to the medical information jungle. J Fam Pract. 1994;39:489-99.
6. Anderson KM, Wilson PWF, Odell PM, Kannel WB. An updated coronary risk profile. A statement for health professionals. Circulation January. 1991;83(1):356-62.
7. Gupta R. Meta-analysis of prevalence of hypertension in India. Indian Heart J. 1997;49(1):43-8.
8. Chobanion AV, Bakris GL, Black HR, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC VII). U.S. Department of Health and Human Services: National Institutes of Health (US); August 2004.86p.
9. Chor D. Hypertension among bank employees in Rio de Janeiro. Lifestyle and treatment. Arq Bras Cardiol. 1998;71(5):653-60.
10. Kumar P, Desai VK, Kosambia JK. Prevalence of Hypertension Amongst the Employees of a Mega-Industry of South. Indian J Community Medicine. 1995;27(1):19-25.
11. Mion DJr, Pierin MGA, Bambirra AP. Hypertension in employees of a University General Hospital. Rev Hosp Clin Fac Med S Paulo. 2004;59(6):329-36.
12. Verdecchia P, Borgioni C, Porcellati C, Ciucci A, Zampi I, Battistelli M, et al. Cigarette smoking, ambulatory blood pressure and cardiac hypertrophy in essential hypertension. J Hypertens. 1995;13(10):1209-15.
13. Yoshita K, Miura K, Morikawa Y, Ishizaki M, Kido T, Naruse Y, et al. Relationship of alcohol consumption to 7-year blood pressure change in Japanese men. J Hypertens. 2005;23(8):1485-90.
14. Kokkinos P F, Narayan P, Colleran JA, Pittaras A, Notargiacomo A, Reda D, et al. Effects of regular exercise on blood pressure and left ventricular hypertrophy in African-American men with severe hypertension. N Engl J Med. 1995;333(22):1462-67.
15. Puska P, James M. Controlled randomized trial of the effect of dietary fat on blood pressure. The Lancet. 1983;1(8):1-6.

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