ORIGINAL RESEARCH ARTICLE

A cross sectional study on prevalence of hypertension and its risk factors among the non-teaching staff of KBNIMS, Kalaburgi, Karnataka, India.

Mohin M. Sakre[1]*, Swati I.A.[2], Syed Mustafa Al Hussaini[1], Sana Nizami[3]
[1]Department of Community Medicine, Khaja Bandanawaz Institute of Medical Sciences, Kalaburgi, Karnataka, India.
[2]Department of Community Medicine, Gulbarga Institute of Medical Sciences, Kalaburgi, Karnataka, India.
[3]Department of Ophthalmology, Khaja Bandanawaz Institute of Medical Sciences, Kalaburgi, Karnataka, India.

Abstract: High blood pressure is one of the most important modifiable risk factors for CVS diseases. It is an extremely common finding in the community and the risk factor for MI, Stroke, end stage renal disease and peripheral vascular disease. To study the prevalence of Hypertension and its associated risk factors in the non-teaching staff of Khaja Bandanawaz Institute of Medical Sciences, Kalaburgi. A cross sectional study was conducted on the prevalence of hypertension among the non-teaching staff of Khaja Bandanawaz Institute of Medical Sciences, Kalaburgi, Karnataka from 26/07/2015 to 20/09/2015. Data was collected regarding their age, sex, smoking and alcohol consumption, smokeless tobacco usage, lifestyle, occupation, type of diet and family history. The age of the non-teaching staff was in the range of 25 to 60 years with 63% males and 37% females. Prevalence of Hypertension was 25%. A majority of 40% belonged to the age group of above 50 years. Maximum prevalence of Hypertension was found among the watchmen (50%). Hypertension was more prevalent among alcohol consumers (83%) followed by smokers (53%), smokeless tobacco users (49%), subjects living a sedentary lifestyle (41%) and study subjects who had a mixed die (27%). A statistically significant association was found between hypertension and smoking, alcohol consumption, life style and smokeless tobacco intake. The prevalence of Hypertension was 25% with many contributing factors. The results show the need for special programs for high risk groups.

Key words: Hypertension; Prevalence; Risk factors; Non-Teaching Staff.

Introduction

Elevated Blood Pressure is one of the most important risk factor for CVS Diseases that is modifiable[1]. Not only is it the risk factor for Myocardial Infarction, Stroke[1], End stage renal disease[2] and peripheral vascular disease[3], it is also an extremely common finding in the community. It has been shown that pharmacological treatment of hypertension significantly decreases the risk of cardiovascular and other complications. Whereas non pharmacological treatment has been immensely emphasized as a useful method for both treatment and prevention of hypertension[4].

In the year 1990, 2.3 million deaths were caused due to cardiovascular diseases and this figure is expected to increase double-fold by the year 2020[5]. 57% of all stroke deaths and 20% of all coronary heart disease deaths in India can be frankly attributed to hypertension[6]. Even the rural population of India has seen a steady increase in the prevalence of Hypertension[7]. In the urban scenario, studies have shown a higher prevalence of hypertension among urban adults, for example; Men 44%, Women 45% in Mumbai; Men 31%, Women 36% in Thiruvananthapuram; 14% in Chennai and Men 36%, Women 37% in Jaipur[5]. The persistently increasing prevalence of hypertension in India can be related to the changing lifestyle factors. Also, the very nature of gene-environment interaction is believed to be escalating the epidemic that is hypertension and needs more studies in the matter[8]. Epidemiological studies believe that 25% urban and 10% rural subjects in India suffer from hypertension, among which at least 70% are believed to be in stage I of hypertension (systolic B. P 140-159 and /or diastolic B. P 90-99 mmHg)[9]. It has been reported that Borderline hypertension (systolic B.P 130-139 and /or diastolic B.P 85-89 mmHg) and stage I hypertension pose a credible cardiovascular threat[9] and therein lies the need to reduce the blood pressure via cost effective strategies that are targeted towards the community. Our study was taken up keeping in mind all the above facts and to know and inform on the prevalence of Hypertension among the non-teaching staff of KBNIMS.

Materials and Methods

A cross sectional study was conducted on the prevalence of hypertension among the non-teaching staff of Khaja Bandanawaz Institute of Medical Sciences, Kalaburgi, Karnataka from 26/07/2015 to 20/09/2015. All the non-teaching staff in the institution were covered during working hours at their work place in the study. At

*Corresponding Author:
 Dr. Mohin M. Sakre,
 (MD) Community Medicine PG student cum Tutor,
 Department of Community Medicine,
 Khaja Bandanawaz Institute of Medical Sciences,
 Kalaburgi, Karnataka. India. 585104.
 E-mail: drmoinsakre@yahoo.com

the end of the study 125 individuals were included in the study. The data was collected via a pre tested, pre designed interview schedule which was followed by Blood pressure recording of the participants using standard mercury sphygmomanometer. Instruments were of the same batch and were calibrated from time to time. The criteria to classify the subjects as Hypertensive was a Blood Pressure greater than that of 140/90 mm of Hg [Based on the CDC criteria][10] and if the person was already on anti-hypertensive medications. Two readings in lying down posture at 10-15 Minutes interval were taken and only second reading (being lower and more realistic) was considered. The staff was initially informed about the aim and intent of the study to achieve 100% cooperation and inclusion. However, even after repeated attempts at persuasion, 9 individuals were unwilling to participate. They were not included in the study. Data was collected regarding their age, sex, smoking and alcohol consumption, smokeless tobacco usage, lifestyle, occupation, type of diet and family history. To categorise individuals as regular smokers, the CDC definition for current smokers[11] was used which states that "Adults who have smoked 100 cigarettes in their lifetime and currently smoke cigarettes every day (daily) or some days (nondaily)" can be included in

the category of current and regular smokers. Only the individuals who fit this criterion were included in the category of regular smokers. The CDC categorization for regular drinking was used to categorise study subjects into the category of regular drinkers and only they were included in the category alcohol consumers (15 drinks or more per week for males and 8 drinks or more per week for women)[12]. This data was further analysed using Microsoft Excel 2015.

Results

In our study, the age of non-teaching staff was in the range of 25 to 60 years with a male predominance of 63%. The prevalence of hypertension (BP > 140/90) was 25% in the study population. Among the hypertensives, a majority of 40% belonged to the age group of above 50 years. As per table Number 1; no significant association was found between age and hypertension(P<0.05). Maximum prevalence of Hypertension was found amongst the watchmen (50%) and the least prevalence of hypertension was found among the technicians (12%) followed by nursing staff and cleaners (Both at 17%) [Figure Number 01].

Table 1: Table showing relation between Hypertension and age among non-teaching staffs.

Age	Blood Pressure		Total
	>140/90 mm Hg.	<140/90 mm Hg.	
20-30 Years	6 (19%)	26 (81%)	32 (26%)
30-40 Years	13 (31%)	29 (69%)	42 (33%)
40-50 Years	6 (17%)	30 (83%)	36 (29%)
>50 Years	6 (40%)	9 (60%)	15(12%)
Total	31 (25%)	94 (75%)	125 (100%)

Table 2: Table showing the relation between Hypertension and Associated Risk Factors.

Risk Factors	Blood Pressure			Chi-Square test and P value (at P<0.05)
	>140/90 mm Hg. [n=31]	<140/90 mm Hg. [n=94]	Total [N=125]	
Family history of hypertension				
Present	6 (25%)	19(75%)	25[20%]	χ^2 Value: 0.0107; P Value: 0.917521
Absent	25(25%)	75 (75%)	100[80%]	
Current Smoker				
Yes	11 (53%)	10 (47%)	21 (17%)	χ^2 Value: 10.2954; P Value:0.001334
No	20 (19%)	84 (81%)	104 (83%)	
Alcohol Consumer				
Yes	6 (83%)	1 (17%)	7 (6%)	χ^2 Value: 14.7535; P Value:0.000123
No	25 (21%)	93 (79%)	118 (94%)	
Diet				
Vegetarian	7 (20%)	29 (80%)	36 (29%)	χ^2 Value: 0.7776; P Value:0.377873
Mixed Diet	24 (27%)	65 (73%)	89 (71%)	
Lifestyle				
Sedentary	24 (41%)	34 (59%)	58 (46%)	χ^2 Value: 15.9487; P Value: 0.000065
Moderately active	7 (11%)	60 (89%)	67 (54%)	
Smokeless Tobacco				
Yes	20 (49%)	21 (51%)	41 (33%)	χ^2 Value: 18.8131; P Value:0.000014
No	11 (13%)	73 (87%)	84 (67%)	

Table 2 showed that out of 20 people with a family history of hypertension, only 25% of them were hypertensive, indicating no positive association between family history of Hypertension and Hypertension. This finding was not statistically significant (P<0.05). A significant association was

found between smoking, alcohol consumption, life style and smokeless tobacco intake. Prevalence of hypertension was 53% among smokers as compared to 19% among non-smokers, 83% of alcohol consumers were hypertensive as compared to 21% of non-alcohol consumers, 41% of

sedentary workers were hypertensive as compared to 11% of moderately active workers and 49% of the staff who consumed smokeless tobacco were hypertensive as compared to 13% among non-consumers of smokeless tobacco. Our study showed that 27% of the study subjects who had a mixed diet were hypertensive and only 20% of the individuals on vegetarian diet were hypertensive. This finding however was not statistically significant (P>0.05).
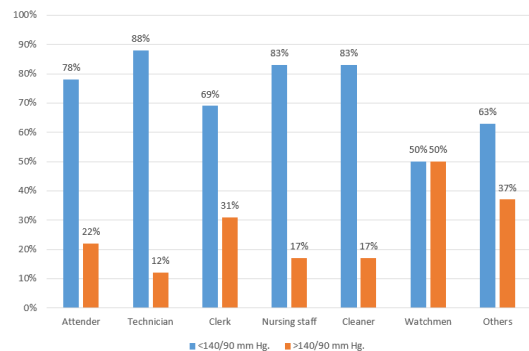

Figure 1: Graph showing distribution of Blood Pressure among non-teaching staff according to their occupation.

Discussion

In our study, the age of all the non-teaching staff who participated in the study was between 25 to 60 years with a male predominance of 63% showing disparity favoring the male gender. A similar study conducted in Iran on prevalence of hypertension and associated variables in hospital staff showed a female majority of 69.5% and only 30.5% of male study subjects[13]. Also, a study conducted in Nigeria on the prevalence of Hypertension and its correlates among employees of a tertiary Hospital showed female predominance at 63.6%[14]. These two findings showed a female predominance in the sector under study; which was contrary to our finding. However, a study conducted on the prevalence of hypertension and its risk factors among staff of Raichur Institute of Medical Sciences, showed a male majority of 62%[15], which was at par with the finding of our study. The age bracket of the study participants in all the above studies was more or less along the same lines as that of our study with a range of + or − 5 years. Among the hypertensives in our study, a majority of 40% belong to the age group of above 50 years. A study in Iran showed the prevalence of pre-hypertension and hypertension above 45 years at 59.4%, which was maximum for any age group in that study[13]. Same was the case with the study by Mr. Decio Mion[16]. These findings were similar to the finding of our study. The study conducted in Nigeria showed the prevalence of hypertension in the age group of above 45 years to be only 16%[14]. This finding was contrary to the finding of our study. In our study, maximum prevalence of Hypertension was found

amongst the watchmen (50%) and the least prevalence of hypertension was found among the technicians (12%) followed by the nursing staff (17%) hinting towards the idea that less prevalence of hypertension was seen among the individuals in more technical jobs and vice-versa. In the study conducted by Sahebi *et al.,* in a medical college in Iran, similar finding was seen where the prevalence of hypertension was less among the nurses as compared to the ones with menial and non-technical jobs[13]. Similarly, a study by Decio *et al.,* on the prevalence of hypertension among the hospital staff opined that less prevalence was found in nurses than in non-technical staff[16]. In our study no relation between familial history and hypertension was found. A study conducted by Oghenekaro Godwin Egbi in Nigeria found positive association between familial history of hypertension and development of hypertension[14]. The same was the case in a study conducted by Mr. Rose Stamler[17]. Both these findings were conflicting to the finding of our study. In this study a positive association was found between smoking, alcohol consumption and hypertension. A study conducted in Bispebjerg University Hospital, Denmark found that smokers had lower blood pressures than non-smokers[18]. Another study conducted by Mr. Green MS also concluded along the same lines that Smoking was associated with reduced levels of blood pressure[19]. A study conducted on the evidence from the health survey for England showed that the association between smoking and hypertension was very trivial and negligible[20]. These findings were surprisingly not in agreement with the finding of our study. On the positive association between alcohol consumption and hypertension found in our study, this finding was in agreement to the finding of a study conducted by Puddey I B, who conferred that Alcohol consumption was co-relatable to increased Blood Pressure[21]. A study on vegetarian diets and blood pressure in Japan inferred that Blood pressure is seen to decrease with vegetarian foods as compared to omnivorous diets[22]. This finding was along the same lines as the finding of our study. In our study it was noticed that individuals who led a sedentary lifestyle had more prevalence of hypertension than the ones who led a moderately active lifestyle. The same was the finding of a study conducted by Mr. Oscar A. Carretero who also found sedentary lifestyle to be an associative factor to hypertension[23]. A study on smokeless tobacco in 97,586 Swedish construction workers revealed that smokeless tobacco consumption was associated with elevated levels of blood pressure. This finding was concordant to the finding of our study [24].

Conclusion

Since this study was conducted in controlled hospital environment with easy access to

information and early diagnosis and treatment, low prevalence of Hypertension was expected. However, the results show the need for special programs for high risk group such as menial workers and non-technical workers. Enhancement of knowledge in regard to alcohol and smokeless tobacco consumption and stress on physical activities are important steps that may have potentially positive effects. In addition, although more studies are needed to investigate the relationship between cigarette smoking and blood pressure, it is absolutely necessary to monitor blood pressure closely in cardiac patients who are obligated to quit smoking.

Acknowledgement

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