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Research Article

PREVALENCE OF HYPERTENSION AND DIABETES MELLITUS AMONG GROUP C AND GROUP D STAFFS IN A RURAL MEDICAL COLLEGE AND HOSPITAL, INDIA

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ABSTRACT

Objective: Our aim of this study is to assess prevalence of hypertension and diabetes among Group C and Group D staffs in a Rural Medical College and Hospital of West Bengal, India as well as to assess whether there is difference of these parameters among two groups.

Methods: After getting clearance from the Institutional Ethics Committee, this cross-sectional observational unicentric study was done with 44 Group C Staffs and 80 Group D staffs.

Results: The study showed that the prevalence of hypertension among the staffs was 8.87% and the prevalence of diabetes mellitus among the staffs was 6.45%. The difference of mean blood sugar among two groups of staffs was not significant, but the difference of mean blood pressure was significant among two groups.

Conclusion: As the study involved the health status of important staffs of medical teaching institutes, it will help to implement healthy lifestyle to avoid development of hypertension and diabetes in future among different categories of staffs.

Keywords: Diabetes mellitus, Hypertension, Prevalence, Medical College.

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INTRODUCTION

Hypertension and diabetes are major public health problem across the globe and as there are no obvious initial signs or symptoms making the persons unaware of that condition. According to the World Health Organization around 1.3 billion people, around the world suffers from hypertension and less than one in five have their blood pressure (BP) under control [1]. Moreover, it is also one of the leading causes of premature mortality [1]. Hypertension as well as diabetes are also the major cause of morbidity and mortality in Indian population [2]. Nearly, 10.8% of all deaths in India are attributed to hypertension [3]. The number of people with hypertension is projected to increase from 118 million in 2000 to 214 million in 2025, with approximately equal numbers of men and women [4,5]. Although so many studies on hypertension were conducted all over the world including India, there is still lack of data on the prevalence and risk factors for hypertension among Group C and Group D Staffsin India who are the pillar of health-care system in the hospitals.

Diabetes mellitus (DM) is a chronic, metabolic disorder characterized by polyuria, polydipsia, and unexplained weight loss and there are elevated levels of blood glucose either by defects in insulin secretion or insulin resistance. According to American diabetes association, a person can be diagnosed as diabetic if there is fasting blood sugar ≥126 mg/dL or 2 h postprandial blood sugar ≥200 mg/dL or random blood sugar ≥200 mg/dL, along with the presence of symptoms. DM is increasing drastically among the Indians and within few years India will be "Diabetes capital of the World" [6,7]. It is predicted that by 2030 DM may afflict up to 79.4 million individuals in India [8]. It is estimated that by the end of 2025, the prevalence rate of hypertension among Indian men and women will be 22.9% and 23.6%, respectively [9].

Group "C" posts perform supervisory as well as operative tasks and render clerical assistances in ministries and field organizations. Group "D" posts are meant for carrying out routine duties. Although there is increased focus on the morbidity status of healthcare workers, Group C and Group D Staffs are also employed within the health-care institution/hospital are often neglected and their burden remains unnoticed. Several studies have assessed the burden of hypertension among several cadres working in hospitals such as doctors, nurses, laboratory technicians, and administrative staffs [10-13]. There is still a narrow focus on the burden of hypertension and diabetes among the Group C and Group D staffs and as we know that they are mostly come from middle and lower socioeconomic group their health status often being neglected. Hence, our aim of this study is to assess prevalence of hypertension and diabetes among Group C and Group D staffs in a Rural Medical College and Hospital of West Bengal, India.

METHODS

Primary objective

The primary objective of this study was to find out the prevalence of hypertension, high blood glucose among Group C and Group D Staffs in a tertiary care teaching Hospital in Malda, West Bengal.

Secondary objective

The secondary objective of this study was to assess whether there is difference of these parameters among two groups.

This was a cross-sectional observational unicentric study. The study began after getting clearance from the Institutional Ethics Committee. Group C and D staffs of Malda Medical College and Hospital, Malda were provided with the protocol and their consent for participation in the study was asked for. Total 44 Group C Staffs and 80 Group D were included in the study after obtaining their consent.

After taking consent, following data were collected:

1. Age
2. Sex
3. Body weight

4. BP
5. Random blood sugar
6. Addiction history
7. Drug history
8. Monthly family income.

Aneroid sphygmomanometer was used to measure the BP. It was ensured that the participants were at adequate rest and no smoking or caffeine ingestion half an hour before the checking of their BP. A cuff bladder encircling at least 80% of the arm circumference was applied to the non-dominant arm. The disappearance of phase V Korotkoff sounds was taken as the diastolic reading. The mean of three readings recorded 2 min apart was taken. Random blood sugar was tested, as well as routine urine examination was done to detect any glycosuria. The staffs were asked to bring the Medicine outpatient department ticket of the hospital, where advice for doing random blood sugar and routine urine examination was written. All the tests were done from the central laboratory of the Medical College Hospital. Appropriate statistical analysis was done after obtaining the results. Collected data were checked for completeness, analyzed, and presented using tables and figures. The Statistical Package for the Social Sciences version 20 of Computer software was used for analysis.

RESULTS AND DISCUSSION

Total 44 Group C Staffs and 80 Group D were included in this study. All the included staffs were male. The study found that BP of all the staffs was below 140/90 mm of Hg, that is, nobody had hypertension as per JNC 7 guideline. However, the study found that 5 Group C and 6 Group D were taking antihypertensive drugs. Hence, the prevalence of hypertension among the staffs was (11/124×100=8.87%). Furthermore, 3 Group C and 5 Group D staff were taking antidiabetic drugs, so the prevalence of DM among the staffs was (8/124×100=6.45%). Mean BP was measured for all the staffs. Average mean BP of 80 Group D staffs was 98.90 mm of Hg, with standard deviation of 3.57. Among the 44 Group C staffs, average mean BP was 92.26 mm of Hg, with standard deviation of 5.68. Independent sample t-test was done to compare the means and it revealed t-value 7.9861 with p=0.001. Hence, the difference of mean BP among two groups of staffs was significant (Table 1). Random blood sugar was measured in all the staffs. Mean of the random sugar of 80 Group D staffs was 90.69 mg/dL, with standard deviation of 10.52. Mean of random blood sugar among 44 Group C Staffs was found to be 88.75 mg/dL, with standard deviation of 10. Independent sample t-test was done to compare the means of the two groups, and it revealed t-value was 0.98846 with p-value in between 0.2 and 0.5. Hence, the difference of mean blood sugar among two groups of staffs was not significant. The study did not find any staffs having BP in the hypertensive range, that is, above 140/90 mm of Hg and no staff also had random blood sugar in the diabetic range, that is, above 200 mg/dL. However, out of 80 Group D staffs, six staffs were known hypertensive and taking medicine for that, and five staffs were known diabetic (Type II) and were taking antidiabetic drugs regularly. Hence, the prevalence of hypertension was less than the average prevalence of these two diseases in India, as almost 20% Urban Indian population and 10% or rural Indian population are hypertensive. If we take reference from other previous studies, mostly done abroad, we found higher prevalence of hypertension than the results from our study. In a study from Chennai involving 2600 subjects, hypertension was present in 20% subjects [13]. Age, body mass index, smoking, serum cholesterol, and triglycerides were found to be strongly associated with hypertension [13]. In a study from Iran, overall prevalence of type 2 DM was 12.8% was 12.8%, among 189 hospital staffs [14].

In our study, difference of mean blood sugar among two groups of staffs was not significant, but the difference of mean BP was significant among two groups.

In a study on prevalence of prehypertension and hypertension among doctors of the same institution (Malda Medical College and Hospital, Malda) done last year as ICMR project showed that 14.82% of the doctors had hypertension and 60.49% had prehypertension and smoking habit significantly increased development of hypertension and prehypertension among the doctors. As the study involving the health status of security staffs of medical teaching institutes in India are lacking, few more studies are required to understand their health status overall, and thus, it will help to motivate to implement healthy lifestyle to avoid development of hypertension and diabetes in future.

Table 1: Independent sample t-test for comparison of mean BP and blood sugar among two groups

Parameters	t-value	p-value	Significant
Comparison of random sugar between two groups	0.98846	0.2 <p <0.5	No
Comparison of BP between two groups	7.9861	0.001	yes

BP: Blood pressure

CONCLUSION

Blood sugar and BP among the security staffs (both Group C and D) were well controlled. Addiction of smoking was quite high among the staffs. The prevalence of hypertension and DM among the staffs was lower than that of general population. There was significant difference among mean BP among two groups of staffs, whereas significant difference was not found among mean of random blood sugar among two groups of staffs.

CONFLICTS OF INTEREST

None.

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