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A STUDY ON RELATIONSHIP BETWEEN OBESITY AND HYPERTENSION AMONG FIRST YEAR MEDICAL STUDENTS

Physiology

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ABSTRACT

In last few years, prevalence rate of Obesity and overweight has significantly raised in the young generation, especially among the adolescents. The students studying in medical streams also suffer from this health hazard. **Objective:** To study the association Obesity with Hypertension among first year students of a Medical College. **Methodology:** The study design was cross sectional, comprises 200 1st year medical students of both sexes of Institute of Medical Sciences. BMI was calculated by the formula weight in kg/height2 in meter, and based on the BMI criteria by the World Health Organization, the students were classified into four groups: Underweight, normal, overweight, and obese groups. The blood pressure was measured by sphygmomanometer. **Results:** The analysis revealed significant association between BMI and both Systolic and Diastolic B.P., both with p value<0.05. **Conclusion:** The above study reveals a significant association between Obesity and changes in blood pressure in medical students.

KEYWORDS:

Obesity, Hypertension, Medical students

INTRODUCTION

It is well known that obesity is one of the most important public health problems worldwide [1]. It is a major independent risk factor for chronic diseases such as cardiovascular disease (CVD) and diabetes mellitus; obesity is also associated with high morbidity and mortality [2], [3]. Over the past 20 years, the prevalence of obesity has increased greatly worldwide [4] and in China, in particular [5]. A relationship between obesity, including both general obesity and central obesity, and hypertension has been suggested in many studies [6]–[9]. Among the adolescents, Hypertension is often not diagnosed and remains unmanaged. Two of the most commonly used anthropological indices in clinical practice and population surveys are the body mass index (BMI) and the waist circumference (WC), indicating general obesity and central obesity, respectively.

The relationship between obesity and hypertension depends on the particular standard of obesity. Anthropometric indices vary greatly across different ethnic groups [10]–[13]; although the standard international criteria for the measurement of body fat based on the BMI and the WC were defined by the World Health Organization (WHO) [14]

AIM AND OBJECTIVES

The aim and objectives is to study the association between obesity with hypertension among first year students of a Medical College.

MATERIALS AND METHOD

The present work was carried out in the Department of Physiology of IMS and SUM Hospital, Bhubaneswar during the period of January 2015 to July 2016 on 200 1st year medical students of Institute of Medical Sciences, Bhubaneswar.

The study design was cross sectional, comprises 200 1st year medical students of both sexes , all the students were between 18 to22 years of age and exactly fitted into the study age group.

Blood pressure was measured from the right arm using a standard mercury sphygmomanometer with the subject in sitting position (both values were taken after 5 min rest). Hypertension was defined as SBP >140 mmHg, and diastolic blood pressure as > 90 mmHg.

BMI was calculated by the formula weight in Kg/Height2 in meter, and based on the BMI criteria by World Health Organization, the students were classified into four groups: Underweight, normal, overweight, and obese groups. Students with BMI <18.5 were considered as underweight, BMI of 18.5-24.9 were considered non-obese or normal, BMI of 25-29.9 were considered overweight and with BMI >30 as obese. Data obtained were statistically analyzed by Pearson Chi-square test, and p<0.5 was considered significant.

The exclusion criteria were the students who had engaged in strenuous physical activity during the previous 12 hour of the study.

RESULTS

In our study 200 medical students were taken to study the relationship between obesity and hypertension among first year medical students. The number of males were 55 (27.5%) and the number of females were 145 (72.5%). There are more females than males in the study population.

TABLE No-1: DISTRIBUTION OF OVERWEIGHT AND OBESITY AMONG BOTH SEXES

SEX	OVERWEIGHT BMI 25 – 29.9 Kg/m2	OBESE BMI > 30kg/m2
MALE	8 (14.5%)	4 (7.3%)
FEMALE	16(11%)	6 (4.14%)
TOTAL	24(12%)	10 (5%)

The table shows that: 24 students are overweight (12%), 10 students are obese (5%)

Number of male students who are overweight are 8(14.5%). Number of male students who are obese are 4(7.3%). Number of female students who are overweight are 16(11%). Number of female students who are obese are 6 (4.14%).Overweight and obesity was found to be more in males.

TABLE No-2 DISTRIBUTION OF HYPERTENSION AMONG BOTH SEXES

SEX	HYPERTENSIVE STUDENTS	PERCENTAGE
MALE	3	5.45%
FEMALE	5	3.45%
TOTAL	8	4%

The table No. 2 shows that: Number of hypertensive males are 3(5.45%), number of hypertensive females are 5(3.45%). The total numbers of hypertensives are 8(4%) . The study shows that the male

students are more hypertensive than the female students.

Therefore this study shows that out of 55 male students 3(5.45%) were hypertensive and out of 145 female students 5(3.45%) were hypertensive. The analysis revealed significant association between BMI and both Systolic and Diastolic B.P., both with p value<0.05

DISCUSSION

The prevalence of obesity has increased worldwide and has nearly doubled between 1980 and 2008[15] . A large number of studies have shown that the risk of obesity increases in those with hypertension, and the relationship between obesity and hypertension differs according to age, gender, geographical area and race[16][17] . Thus, in this study, we examined the relationship between obesity and hypertension among first year medical students.

In our study out of 200 medical students, the number of males were 55 (27.5%) and the number of females were 145 (72.5%). There are more females than males in the study population, which corroborates with the study of Shu- Kang- Wang et al[18].
Hypertension is closely associated with obesity [19][20] , and in this study we confirmed the correlations between hypertension and overweight and general obesity. The results of our study were similar to those of a previous large population survey conducted [21] .

The independent association between BMI and either SBP or DBP is in line were also seen with previous findings [22][23][24].

CONCLUSION

By this Study we conclude that subjects with overweight/obesity will have a significantly high risk of developing hypertension than normal weighing subjects. The Study has shown that increase in BMI is useful indices for predicting the risk of hypertension. The results of study highlights the necessity to initiate effective preventive and health promotion programmes targeting the young adult age group. It can also help in providing health education and modification of life style among the students to prevent development of various complic ations resulting from Obesity and Hypertension.

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