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Original Article

Prevalence of hypertension and its relationship with obesity in young adults

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Abstract

Obesity is defined as excess of Adipose tissue. It has become a major public health problem in developed countries. The purpose of this study is to determine the role of elevated body mass index in occurrence of hypertension and its relationship with family history of hypertension among young adults in Telangana and Andhra Pradesh.

Materials and Methods: In our study we selected 806 young adults between 20-25 years and they were classified as overweight and obese based on their BMI (BMI > 25 Kg/m² and 30 Kg/m² respectively) after taking of blood pressure. Subjects were divided into pre-hypertensives and hypertensives.

Results: Prevalence of hypertension is 4.76% prehypertension 26.85% and obesity is 2.2%, overweight is 9.12%. In Males Hypertension is 5.5% Prehypertension is 32.20% In females Pre Hypertension is 8.78% and hypertension is 1.6% prevalence of overweight in hypertensive individuals was 15.06% (P > 0.05) when compared in normotensive individuals 6.12% prevalence of obesity in hypertensive individuals 4.12% (P > 0.05) when compared with normotensive individuals was 1.21% prevalence of family history of hypertensive in hypertensive individuals was 42.15%.

Conclusion: Prevalence of prehypertension is 26.85% and hypertension is 4.76% our results reinforced that overweight and obesity was to be significantly associated with hypertension.

Keywords: Hypertension, young adults, obesity renin angiotensin aldosterone system

Introduction

Obesity is rapidly increasing worldwide. Lack of physical activity and sedentary lifestyle after invention of electronic gadgets is responsible for overweight and obesity [1]. Not only adults, children also becoming obese and the consequences of obesity are increasing in adults and children. Studies conducted by Hall *et al* shows that there is strong association between obesity and hypertension [2] and visceral obesity is begin the imp risk factors the mechanisms involved in hypertension in obese patients are activation of renin angiotensin aldosterone system oxidative stress sympathetic overdrive, endothelial dysfunction and chronic inflammation which leads to thickening of intima and media of vessel wall. [4, 5] obesity is most important factor in increasing prevalence of hypertension.

Decreased physical activity, decreased vegetables increased fatty food, increased salts intake, alcoholism leads to obesity which contributes to hypertension identifying and modifying the risk factors in early age reduces the incidence in young adults. The prevalence of hypertension in India is ranging from 10-30.9%.

In our study we have included 806 subjects males were 527 (65.38%) and females were 254 (31.51%) age group is between 20 years and 25 years.

This study is conducted from July 2016 to March 2017. Subjects were explained about study in their own language. Questionnaire asked for the participants the risk factors included increase BMI, family history of hypertension, dietary habits, exercise, participating in sports and games and addiction like smoking and alcoholism. Anthropometric measurements were taken by trained paramedical staff. Height and weight were measured, using a stadiometer with beam balance with sensitivity of 0.1cm and 0.1kg respectively. BMI was calculated by taking persons weight in kilograms dividing it by square of his/her height in meters

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(Kg/M²) and as per WHO definition of overweight and obesity subjects were defined as overweight and obese if BMI was more than 25 and 30 respectively. Subjects were made comfortable and were explained about procedure to alleviate anxiety for each subject the blood pressure was measured by using mercury sphygmomanometer 2 BP recording were obtained on same day with a minimum of thirty minutes rest between 2 readings in sitting position and mean blood pressure were calculated subjects were considered as hypertensive, if the blood pressure is more than 140mmHg in systolic and diastolic in more than 90mm of Hg. Prehypertension was diagnosed when systolic BP is between 121mmHg and 139mmHg and diastolic BP in between 81mmHg and 89mmHg subject found to have

hypertension on first visit were contacted to undergo 2nd time BP recording after 4 weeks.

Table 1:

Age	Sex	No	Total	Overweight	Obesity
20-25 Years	Males	527	806	59(%)	8(%)
20-25 Years	Females	254	806	18(%)	7(%)

Table 2:

Total	Males	Females	Pre HYN		Hypertension			
			M	32.5%	186 no	M	5.5%	35 no
806	527	254	F	8.78%	26 no	F	1.6%	4 no

Table 3:

Variable	Prehypertension	Hypertension	Normontensions
Overweight 109	32 (43%)	8(12.5%)	33(43.9%)
Obesity 15	6(34%)	5(28.5%)	6(37.5%)

Results

In our study 806 subjects were included among these 806 male were 527 and female were 254 all are between 20 years and 25 years. Over weight was found in 59 males and 50 females and obesity was found in (%) 8 males in (%) and in 7 females. The total prevalence of overweight in males in 9.4% and females in 11.30%. The prevalence of obesity in male in 1.4% and in females was 2.4% total prevalence of prehypertension was 32.5% in males and in females is 8.75% and total prevalence of hypertension in males is 5.5% and in females is 1.6%. The prevalence of pre hypertension in males was more in males when compare to females and the prevalence of hypertension was more in males when compare to females. Among the total subjects the overweight is 109 and 38 were having prehypertension and 8 were having hypertensive. Among the subject who were obese 18 6 had prehypertension and 5 had hypertension in our study prevalence of prehypertension increases with age^[5, 6].

Discussion

The prevalence of prehypertension and hypertension are gradually increases with age, it is variable in different population and different parts of India^[7, 8] similar study was conducted in young adults in Gujarat. The prevalence of pre hypertension and hypertension was 10.8% and 9.2 respectively. A previous study on American Indian adolescent from New York by Jennifer drukliens *et al* found higher prevalence of hypertension 15% and pre hypertension 35%^[9, 10, 11]. The prevalence of overweight and obesity in our study in 9.8% and 1.95% respectively, the present study found significant increases of hypertension with obesity in both sexes around 8% of obese subject had hypertensive and 33% of subjects are having prehypertension the Framingham study also shows increases prevalence of obesity in subjects with hypertension and as well as increases in BP is established obesity family history of hypertension as per previous studies obesity is a major risk factors for various disorders including coronary artery disease diabetes mellitus osteoarthritis, hyperlipidemia which increases the morbidity and mortality.

Conclusion

In our study there is increase in prevalence of hypertension with increase in age prevalence of hypertension with

increases in age and associated with overweight and obesity prevention may be achieved through the physical activity and dietary control there is an urgent need for initial prevention and treatment of obesity in young adults.

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