

Association of obesity and pulse pressure with hypertension in an Iranian urban population

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Abstract

Objective: Nowadays, obesity is an important health problem and pulse pressure (PP) is a good predictor of cardiovascular events. The aim of study was to determine the association of obesity and PP with hypertension (HTN) in individuals aged 30 years or older in the urban population of Jahrom, Iran.

Materials and methods: In this study, we used a multistage stratified sampling method to select participants among the urban population aged 30 years or older. Height, weight, and blood pressure were obtained by a trained physician. Obesity was defined according to the World Health Organization classification. Angina was assessed with reliable and validate Rose questionnaire. Data were record by SPSS-16. Categorical and continues variables analyzed by Chi-squared, independent *t*-test, and one-way ANOVA test. Binary logistic regression analysis method was used for the association of PP and obesity with HTN and Rose angina that adjusted for age, gender, education class, marital status, smoking, total cholesterol, triglyceride, low-density lipoprotein, and high-density lipoprotein. A $P < 0.05$ was considered as statistical significance.

Results: The prevalence of obesity was 18.1% that was greater in women (24.8% vs. 9.9%, $P < 0.001$). The prevalence of Rose angina and HTN in obese individuals were more than in normal weight individuals (24.8% vs. 16.4%, $P = 0.027$) and (42.0% vs. 31.1%, $P < 0.001$), respectively. Furthermore, patients in higher PP groups were older, were more possible to had HTN and had greater diastolic blood pressure (DBP), systolic blood pressure (SBP), and mean arterial pressure (MAP) in compared to individuals in the lower PP group. The individuals with HTN had greater DBP, SBP, MAP, PP, and body mass index (BMI) than individuals without HTN. However, individuals who had Rose angina, only had higher PP and BMI in compared to ones without Rose angina. The obese individuals had 1.97 (1.22-3.17, $P = 0.005$) fold for HTN risk than individuals with normal weight. In addition, PP weakly increased the risk of HTN about 1.09 fold (1.07-1.10, $P < 0.001$). However, Rose angina was associated only to overweight status (odds ratio = 1.51, confidence interval 95%: 1.03-2.20), $P = 0.035$) than individuals in normal weight group.

Conclusion: Obesity and PP were higher in hypertensive individuals and overweight in individuals with Rose angina. It is time to pay more attention to abnormal BMI.

Keywords: Hypertension; mean arterial pressure; obesity; pulse pressure; rose angina.