Influence of anthropometric parameters, leptin, adiponectin and insulin resistance on blood pressure in obese women

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Objectives: Relationship of body weight and blood pressure is very complex and still incompletely explained. Obesity, especially visceral, is one of the strongest predictors of arterial hypertension. Hypertension is six times higher in obese than in lean people, with its prevalence increases with an increase in BMI progressively. The mechanisms underlying hypertension in obese are not fully defined. The aim of this research was to determine the influence of various parameters on blood pressure and assume the possible pathogenetic mechanisms.

Methods: The study included 90 obese women who were determined of average values of blood pressure, anthropometric parameters, levels of leptin, adiponectin, insulin levels and HOMA-R index and established their mutual correlation.

Results:

The mean values of blood pressure of patients was 146 ± 15,68mmHg for systolic and 92 ± 10,83mmHg for diastolic blood pressure. 33% of the subjects were normotensive. Correlation of anthropometric parameters and blood pressure values established their positive correlation, with a statistically significant impact of a waist circumference (p<0.001) and waist/hip ratio (p<0.01). Insulinemia and HOMA-R index correlated positively and significantly with the values of systolic and diastolic blood pressure (p<0.05). Leptin levels correlated positively and statistically significant with the systolic (p<0.001) and diastolic blood pressure (p<0.05). Correlations between adiponectin levels with the systolic and diastolic pressure are negative and not statistically significant. There is statistical significance of the negative correlation of adiponectin with fasting insulin levels and HOMA-R index.

Conclusions:

Waist circumference, waist / hip ratio, insulin resistance and leptin levels have statistically significant effect on blood pressure, and thus the occurrence of hypertension in obese women. Adiponectin through impact on insulin sensitivity probably contributes to the development of arterial hypertension.

References: