

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.

Correlations of body weight, body mass index, waist and waist/hip ratio with blood pressure

* P<0.05, ** p<0.01, *** p<0.001

		BW kg	BMI kg/m ²	WEIST cm	WEIST /HIP
TA sys mm/Hg	p	0.16	0.20	0.37	0.29
	p	0.1253	0.0566	0.0004 ***	0.0052 **
TA dia mm/Hg	p	0.22	0.17	0.28	0.11
	p	0.0369 *	0.1092	0.084 **	0.3069

Correlation of insulin and HOMA-R index with blood pressure

* p<0.05

		Insulin	HOMA-R Index
TA sys mm/Hg	P	0.21	0.22
	p	0.0439*	0.0334*
TA dia mm/Hg	p	0.20	0.26
	p	0.0337*	0.0144*

Correlations of leptin and adiponectin with blood pressure

* p<0.05, ** p<0.01

		Leptin ng/ml	Adiponectin mikg
TA sys mm/Hg	P	0.37	-0.17
	p	0.0004**	0.1155
TA dia mm/Hg	P	0.25	-0.16
	p	0.0194*	0.1391

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:

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