Insulin resistance does not play a major role in lipid and apolipoprotein profile in obese women

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BACKGROUND AND AIMS

Obesity is associated with increased atherogenesis through alterations in lipids, among other potential factors. Some of those abnormalities might be mediated by insulin resistance.
The aims of this study were: 1) to compare lipid and apolipoprotein profile between lean and obese women;
2) to evaluate the influence of insulin resistance on lipid and apolipoprotein profile, in obese women.

MATERIALS AND METHODS

After approval by the Hospital s Ethical Committee we studied 112 obese and 100 lean premenopausal women without known cardiovascular disease. Both groups were characterized for anthropometrics and a fasting blood sample was collected for assessment of glucose, insulin, triglycerides, cholesterol (total, LDL and HDL), and apolipoproteins A-I, A-II, B, C-II, C-III, and E; insulin resistance was assessed by the homeostatic model assessment (HOMA-IR). We compared lipids between obese and lean women; we looked for correlation of those levels with anthropometrics and insulin resistance (independently from anthropometrics) in obese women. Statistical analysis was performed with the Statistical Package for the Social Sciences (SPSS) program, v20.0.
The established limit for statistical significance (p) was 0.05.

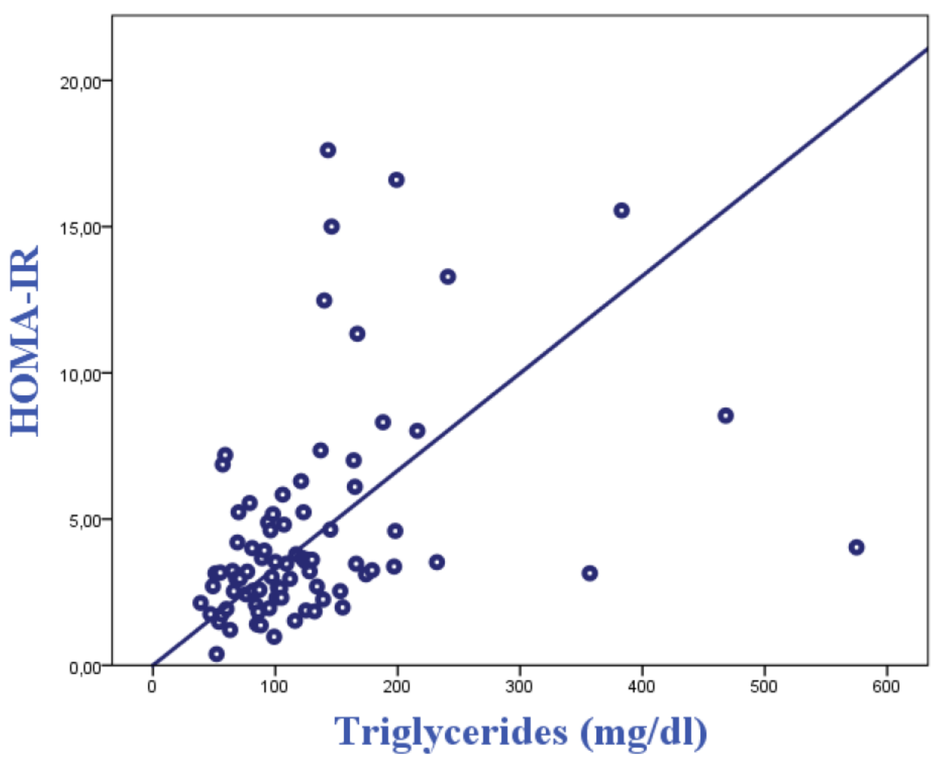
RESULTS

	Obese women	Lean women	p
Age (years)	34.6 8.3	34.2 8.3	ns
BMI (kg/m^2)	43.6 7.9	21.4 1.7	**<0.001**
Waist circumference (cm)	117.5 15.1	71.7 5.8	**<0.001**
HOMA-IR	4.28 3.5	1.21 0.76	**<0.001**
Total Cholesterol (mg/dl)	187.6 32.8	173.6 28.3	**0.001**
LDL Cholesterol (mg/dl)	120.2 27.1	103.7 26.9	**<0.001**
HDL Cholesterol (mg/dl)	50.9 11.5	66.3 13.8	**<0.001**
Triglycerides (mg/dl)	119.1 76.9	79.0 29.1	**<0.001**
Apolipoprotein A-I (mg/dl)	166.4 36.5	191.4 40.1	**<0.001**
Apolipoprotein A-II (mg/dl)	31.6 7.1	34.2 8.1	**0.037**
Apolipoprotein B (mg/dl)	68.8 13.5	65.5 15.9	ns
Apolipoprotein C-II (mg/dl)	2.4 1.2	2.2 0.9	ns
Apolipoprotein C-III (mg/dl)	5.7 3.5	5.4 2.5	ns
Apolipoprotein E (mg/dl)	3.0 1.3	2.9 1.1	ns

Direct correlations of HOMA with lipid/apolipoprotein profile in obese women

	no adjustment	adjusted for waist circumference
Total Cholesterol	ns	ns
LDL Cholesterol	ns	ns
HDL Cholesterol	**p=0.048 r=-0,187**	ns
Triglycerides	**p<0.001 r=0,343**	**p=0.001 r=0,339***
Apolipoprotein A-I	ns	ns
Apolipoprotein A-II	ns	ns
Apolipoprotein B	ns	ns
Apolipoprotein C-II	ns	ns
Apolipoprotein C-III	ns	ns
Apolipoprotein E	ns	ns

*ns=non significant; * correlation displayed at the graphic below*



CONCLUSIONS

- ✓ We confirm that obese women present worst lipid and apolipoprotein profile.
- ✓ With the exception for triglycerides, insulin resistance *per se* does not play a major role in lipid and apolipoprotein abnormalities observed in obese women.

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