

Pukajło Katarzyna, Łaczmanski Łukasz, Kolackov Katarzyna, Kuliczowska-Płaksej Justyna, Bolanowski Marek, Milewicz Andrzej, Daroszewski Jacek

Department of Endocrinology, Diabetes and Isotope Therapy, Wrocław Medical University, Poland

OBJECTIVES

Irisin (Ir), a recently identified adipo-myokine is suspected to take part in the differentiation of a white adipocytes into brown fat and improve metabolic homeostasis. While exact mechanism of Ir secretion and its function hasn't been describe yet, Ir is the subject of numerous studies engaged in problem of obesity, and obesity-related diseases .

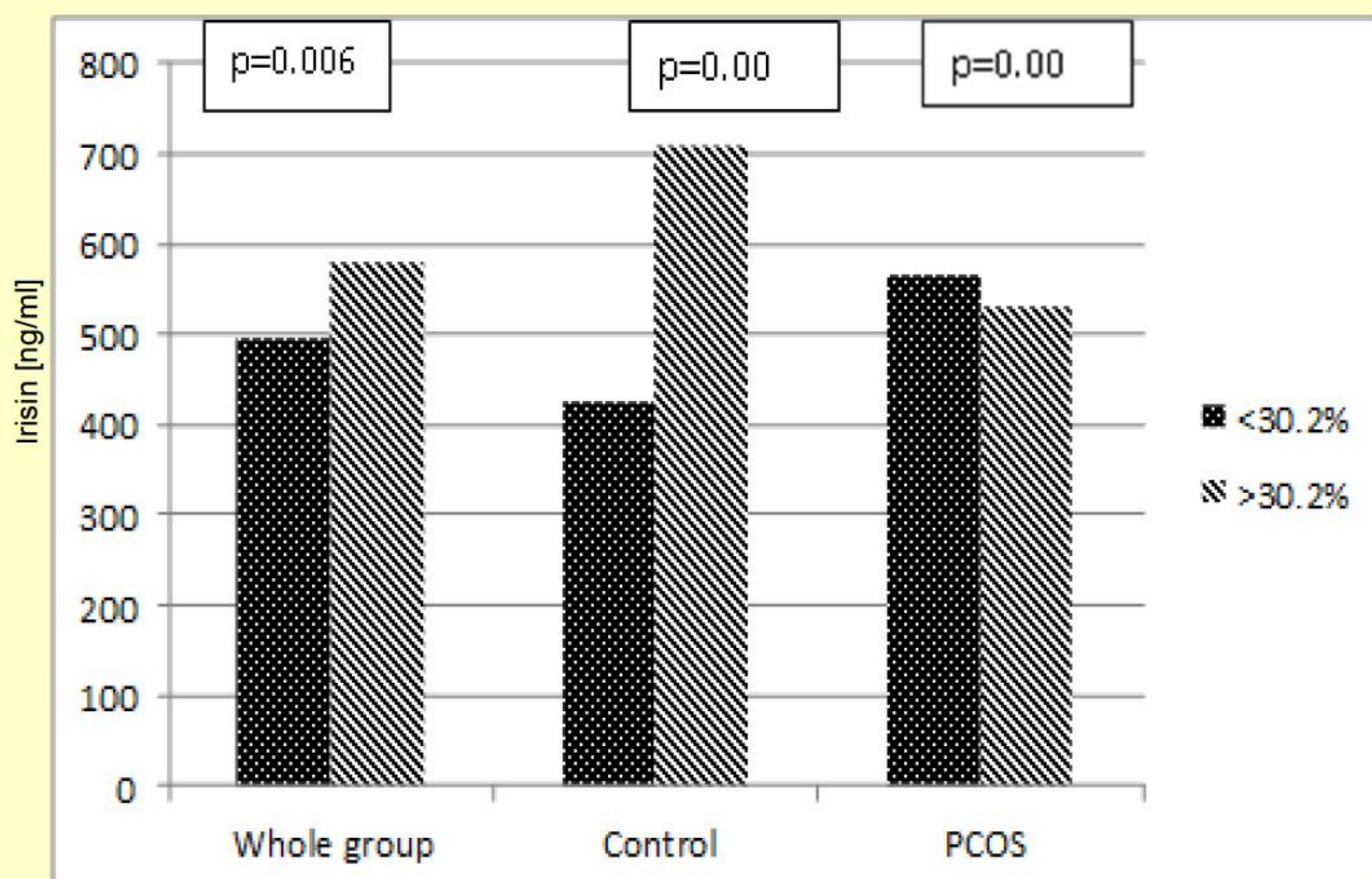
Patients with polycystic ovary syndrome (PCOS), metabolic syndrome (MS) and with excess of android fat but normal BMI (MONW - metabolically obese but normal weight) are burden to metabolic alterations leading obesity-related disorders (diabetes and cardiovascular diseases). The aim of our study was to evaluate the relationship between Ir plasma concentrations in PCOS patients and healthy control group in the context of adipose tissue deposits.

METHODS

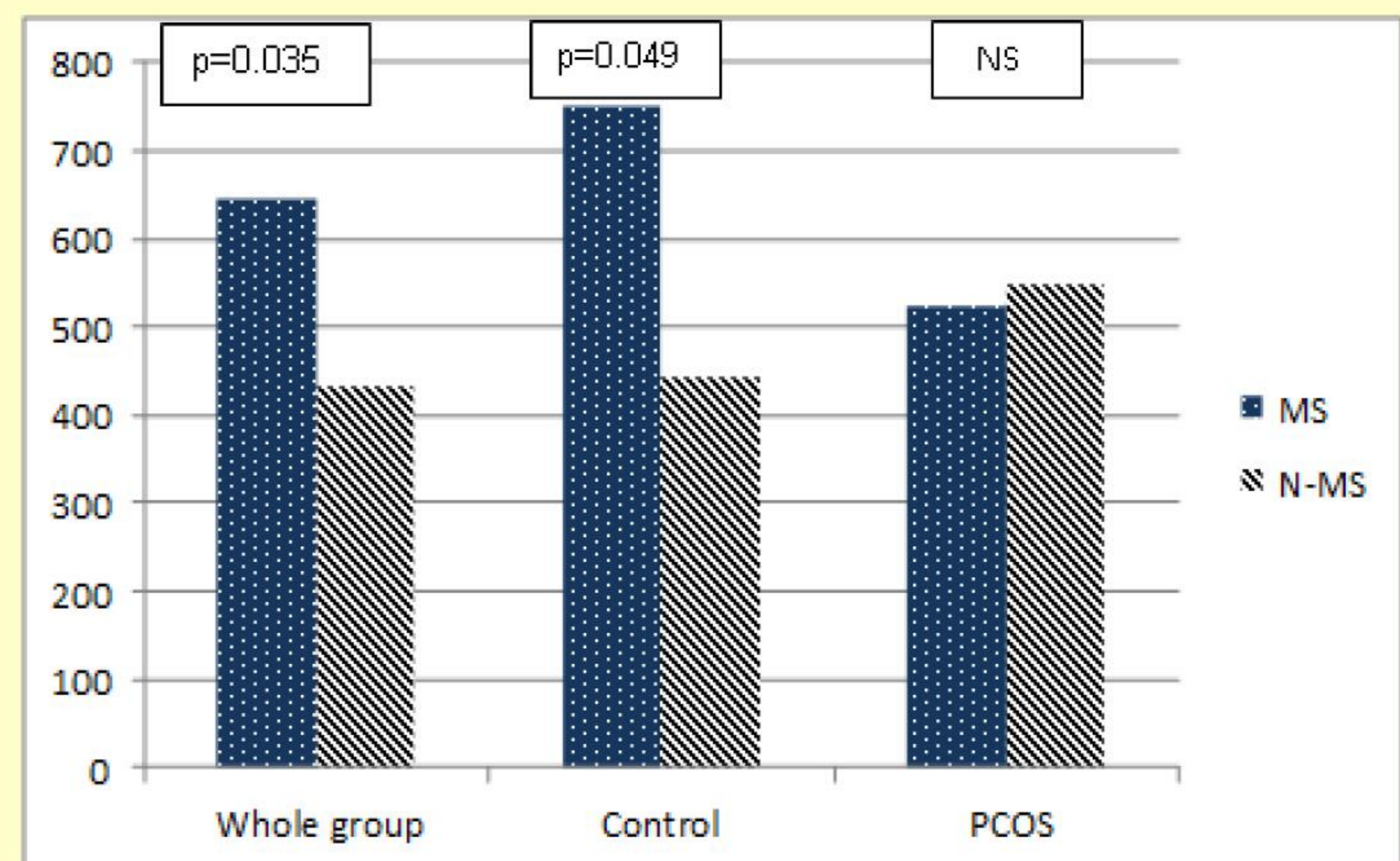
- Ir plasma concentration was measured using the Enzyme Immunoassay Kit (BioVendor)
- The study group consisted of 179 patients with PCOS aged 20-35 years and a population of 122 control group
- According to the National Cholesterol Education Program – Adult Treatment Panel III and WHO criteria we isolated groups with the presence of MS features
- Adipose tissue body content was assessed by means of dual-energy X-ray absorptiometry (DXA)
- There were isolated a MONW patients from whole study group using DXA criteria of depA (android fat deposit > 30.2% and BMI < 25) for the Polish population.
- There was also selected group with abdominal obesity - the depA > 30.2% as population burdened with obesity-related disease

RESULTS

- Ir plasma concentration in PCOS patients was 544±767 ng/ml and did not differ from controls (508±522 ng/ml).
- There was a statistically significant positive association between Ir concentration and depA> 30.2% – in the whole study group (579.5 ng/ml) and the control group (710.1 ng/ml) observed.
- Our observation showed a negative association between abdominal adipose tissue content and Ir in the PCOS group (529.3 vs 566.2 ng/ml).
- We found a positive connection of the Ir plasma level and MS in the whole study group (p=0.035) and in controls (p=0.049) but not in PCOS group
- There was a positive association between Ir levels and BMI - in the whole study group with BMI > 29 Ir plasma median concentration was 376 ng/ml (p=0.0035), in the control group 471 ng/ml (p=0.002), and in patients with PCOS the Ir plasma level was 340 ng/ml (p=0.018)
- In the MONW patients we observed a negative connection with Ir concentration.



Differences between irisin concentration in patients with abdominal obesity – in the whole group, control group and PCOS patients.



Irisin concentration in patients with metabolic syndrome (MS) in whole study group, control group and PCOS patients (N-MS – not meet the criteria for MS).

CONCLUSIONS

- Ir concentration is connected with type of body fat distribution
- Therefore adipose tissue must be considered as a significant place of Ir secretion.
- An increased Ir secretion in obesity could result from an adaptive response or irisin-resistance but the suggestion of the irisin resistance mechanism should be verified.