



# THE RELATIONSHIP BETWEEN THE SERUM IRISIN LEVELS AND THE METABOLIC CONTROL IN ADOLESCENTS WITH TYPE 1 DIABETES

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## AIM

Irisin is an adipomyokine secreted by many tissues. Because it has known relationships with the energy metabolism and exercise, its relationships with obesity and type 2 diabetes (T2D) are being focused on. Its relationship with type 1 diabetes (T1D) is unknown. In this study, the relationships between the serum irisin level and the metabolic control were investigated in adolescents with T1D.

## METHODS

The study was carried out on patients who were admitted to the Kocaeli University Pediatric Endocrinology and Diabetes outpatient clinic between January and July 2014. 125 type 1 diabetic patients (66 boys and 59 girls, mean age:  $14.74 \pm 2.26$  years), an obese control group (22 boy, 35 girl with mean age  $14.11 \pm 2.23$  years) and a normal control group (13 boy, 31 girl with mean age  $13.09 \pm 2.13$  years) were enrolled to the study. The patients were selected among those who aged between 10 and 18 years. The study included patients who were followed-up by the Pediatric Endocrinology outpatient clinic of our hospital with the diagnosis of hyperglycemia and classified as type 1 according to ISPAD 2011. The metabolic parameters, anthropometric characteristics and body fat distributions and z-scores (by DXA) were measured and relationships of these with the serum irisin levels were examined.



Hormone IRISIN was named after the Greek goddess and messenger Iris

## RESULTS

- ❖ Among all three groups height SDS values did not show statistically significant difference.
- ❖ irisin levels were  $3.08(2.54-3.54)$  mcg/ml in girls and  $3.12(2.52-3.46)$  mcg/ml in boys, and no significant difference was found according to gender.
- ❖ When the irisin levels of the diabetic, obese and normal patient groups ( $3.20(2.78-3.66)$  mcg/ml,  $3.08(2.46-3.42)$  mcg/ml and  $2.60(2.17-3.19)$  mcg/ml respectively) were analyzed, the irisin levels in the diabetic group were found to be significantly higher ( $p < 0.05$ ) (figure 1).
- ❖ Metabolic parameters diagnosed with log irisin values were analyzed for correlations with or without making group separation among all the patients. When the all patients were evaluated, a positive correlation between the log irisin and HBA1c levels ( $p = 0.07$   $r = 0.0178$ ), a negative correlation between the log irisin and c peptide levels ( $p = 0.000$   $r = -0.244$ )
- ❖ A positive correlation was found between the HOMAIR and irisin levels ( $p = 0.014$   $r = 0.253$ ) when obese and normal control groups except diabetic patients were evaluated together.

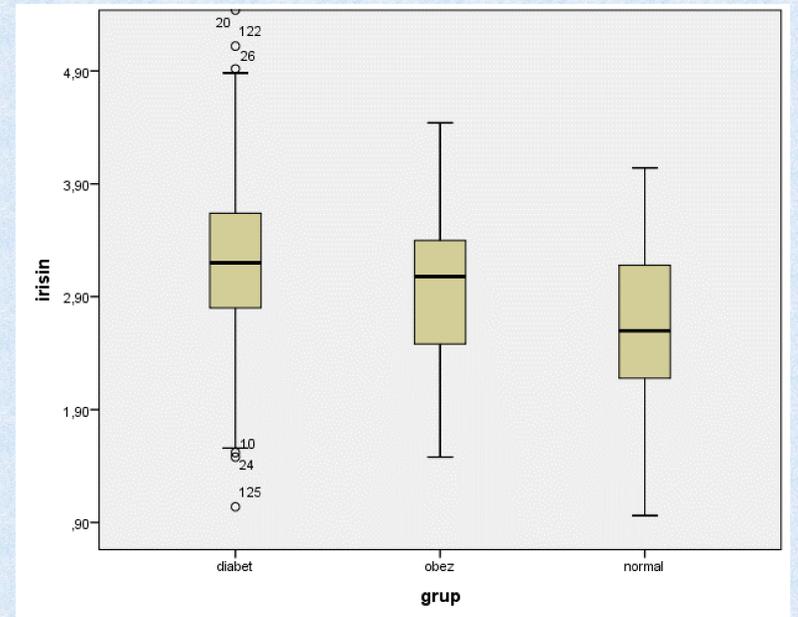


Figure 1 : Irisin levels in Type 1 diabetic (DM), Obese Control (OC) and Normal Control (NC)

## CONCLUSION

In this study, we investigated plasma irisin levels in adolescents with T1D, and found that the irisin levels are statistically significantly higher in T1D patients than the subjects in the normal control group. In addition, the irisin levels in the diabetic patients were higher also than those in the obese control group, however this was not statistically significant. The irisin levels in the obese controls were statistically significantly higher than those in the normal control group.