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Sex differences in leptin and its correlation with C-reactive protein in patients with long-standing type 1 diabetes mellitus

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PURPOSE / OBJECTIVES

Leptin is a lipostatic adipokine and its biological functions are mediated by membrane-coupled receptors (LEPR or ObR), encoded by obese (ob) gene. Their expression in immune cells is reported as predominant in diabetes mellitus type 1 (T1DM). The involvement of hormone in innate and adaptive immunity by modulating neutrophil activation as well as monocytes and macrophages capacity to produce cytokines, explains to some extent the T1DM-related chronic low-grade inflammation. Our aim was to analyse the gender influence on serum leptin concentrations and its correlation with C-reactive protein (CRP) in patients with long-standing T1DM.

MATERIALS & METHODS

The study enrolled 159 patients, 108 of whom are diagnosed with T1DM (subgroups of male/female=56/52; mean age=43,06±10,38 years; duration of diabetes 26,23 ± 8,2 years; with similar body mass index (BMI)) and a control group of 51 age-, gender- and BMI- matched healthy people (subgroups of male/female=27/24; mean age=43,90 ± 9,12 years). Serum leptin levels were determined using an ELISA kit. CRP was measured by immunoturbidimetric method (Advia chemistry 1800).

RESULTS

In both groups, the sex difference in serum leptin was significant (7,85±6,33ng/ml for diabetic women vs 3,15±3,09ng/ml for diabetic men; $p < 0,001$ and 5,86±4,23ng/ml for healthy women vs 2,96±2,13ng/ml for healthy men; $p < 0,01$).

RESULTS

Serum leptin was significantly higher in men and women with T1DM, compared to the control subgroups ($p < 0,05$). A significant positive correlation between leptin and CRP was also found, regardless of gender in patients with T1DM ($r = 0.65$; $p < 0,001$) but not in the nondiabetic group ($r = 0,22$; $p = 0,14$).

Higher serum leptin level in women than in men with long-standing type 1 diabetes mellitus.

A significant positive correlation between leptin and CRP was found, regardless of gender.

SUMMARY/CONCLUSION

Our findings indicate that gender is an important determinant of leptin concentration in patients with T1DM. The correlation we observed between leptin and CRP in the clinical group supports the theory of the pro-inflammatory and pro-atherogenic effect of the hormone, respectively.