

# **Relationships between adipocytokinemias and exocrine pancreatic insufficiency in patients with combined course of type 2 diabetes mellitus and chronic pancreatitis**

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**Background:** TNF- $\alpha$  and apelin are adipocytokines, which can be considered as unifying links in metabolic disorders in the pancreas in patients with chronic pancreatitis (CP) and type 2 diabetes mellitus (T2DM).

**Aims:** The aim of this study was to explore the relationships between adipocytokinemias and exocrine pancreatic insufficiency in patients with CP and T2DM.

**Patients & methods:** The study was performed on 60 patients (20 males; mean aged  $55.67 \pm 1.73$ ) with CP and T2DM; control group ( $n=20$ ). The survey plan included: elastase-1, TNF- $\alpha$ , glucose, HbA1c, HOMA-IR, IRI, apelin.

**Results:** We found significant higher levels of glucose, HbA1c, HOMA-IR, IRI in patients than in control. Levels of elastase-1 were significantly lower in patients compare to control ( $129.6 \pm 5.3$  vs  $208.5 \pm 0.96$ ,  $p < 0.05$ ). We revealed 2.0-fold increase TNF- $\alpha$  level in patients which was significant higher than in control ( $88.2 \pm 7.3$  vs  $44.6 \pm 8.4$ ,  $p < 0.05$ ). We revealed significant higher apelin level in patients than in compare group ( $348.9 \pm 13.2$  vs  $267.2 \pm 7.5$ ,  $p < 0.05$ ). There were correlation between TNF- $\alpha$  and elastase-1 ( $r = -0.63$ ;  $p < 0.05$ ), glucose ( $r = 0.52$ ;  $p < 0.05$ ), IRI ( $r = 0.71$ ;  $p < 0.05$ ) and HOMA-IR ( $r = 0.64$ ;  $p < 0.05$ ); between apelin and elastase-1 ( $r = -0.64$ ;  $p < 0.05$ ), HOMA-IR ( $r = 0.64$ ,  $p < 0.05$ ), IRI ( $r = 0.71$ ;  $p < 0.05$ ) and glucose ( $r = 0.64$ ;  $p < 0.05$ ); between apelin and TNF- $\alpha$  ( $r = 0.59$ ;  $p < 0.05$ ).

**Conclusion:** The results suggest the possible use of hyperadipocytokinemias as a marker of progression of exocrine pancreatic insufficiency on CP and T2DM.