

# THE FUNCTIONAL STATE OF THE PANCREAS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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**Introduction:** Type 2 diabetes mellitus (T2DM) has been described as a cause of pancreatic exocrine insufficiency (PEI). The role of obesity in this pathology is discussed.

**Aim:** To analyze the functional state of the pancreas in patients with T2DM with different phenotype.

**Methods:** The study was performed on 62 patients with T2DM; control group (n=20). Patients were divided into 2 groups: 1<sup>st</sup> group (n=20) – T2DM with BMI < 25.0 kg/m<sup>2</sup>, 2<sup>nd</sup> group (n=42) – T2DM with BMI > 25.0 kg/m<sup>2</sup>. The survey plan included: BMI, pancreatic elastase -1 (PE-1) in feces,  $\alpha$ -amilase and C-reactive protein (CRP) in blood.

**Results:** BMI in patients of 2<sup>nd</sup> group was significant higher than in 1<sup>st</sup> group and control group (32.8±0.8 vs 22.4±0.25 and 21.75±0.2, p<0.05). PE-1 levels were below the cutoff value in 56 cases (90%). 15 of them (26.8%) had level < 100 mcg/g. We revealed 1.6-fold decrease in PE-1 in patients of 2<sup>nd</sup> group (126.7±7.5) and 1.4-fold decrease in patients of 1<sup>st</sup> group (141.3±5.88) compared to control group (204.9±0.99) (p<0.05). We found 1.9-fold and 2.1-fold increase in  $\alpha$ -amilase serum level in patients 1<sup>st</sup> and 2<sup>nd</sup> groups (32.99±2.5 and 29.9±3.63) which was significant higher than in control (15.45±0.68) (p<0.05). Level of CRP in patients both groups were significantly higher compared to control (5.29±1.08 and 4.6±0.78 vs 0.25±0.18, p<0.05). We found correlation between BMI with PE-1 (in 1<sup>st</sup> group r=-0.58; in 2<sup>nd</sup> group r=-0.44, p<0.05), CRP (in 1<sup>st</sup> group r=0.81; in 2<sup>nd</sup> group r=0.41, p<0.05),  $\alpha$ -amilase (in 2<sup>nd</sup> group r=-0.62, p<0.05). Also the study showed correlations between CRP and PE-1 (in 1<sup>st</sup> group r=-0.64; in 2<sup>nd</sup> group r=-0.60, p<0.05), CRP and  $\alpha$ -amilase (in 2<sup>nd</sup> group r=-0.42, p<0.05),  $\alpha$ -amilase and PE-1 (in 2<sup>nd</sup> group r=0.33, p<0.05).

**Conclusion:** More than 90% of patients with T2DM had PEI. The greatest changes were found in patients with higher BMI. Higher BMI is an optional factor of progressive PEI, thereby complicated the course of T2DM.