

## Visfatin/NAMPT expression in adipose tissue of obese patients with and without type 2 diabetes

**Litvinova Larisa**

Immanuel Kant Baltic Federal University, Russia

### Abstract:

**Introduction:** Visfatin has multidirectional effects-pro-inflammatory, stimulating the production of pro-inflammatory cytokines, and neuro-, angioprotective properties. Adipokine has an insulin-mimetic effect and stimulates insulin production. In this regard, the aim of the study was to study the role of visfatin in the development of type 2 diabetes in patients with obesity.

**Methodology & Theoretical Orientation:** Serum glucose levels were determined using a biochemistry analyzer. Using the method of flow fluorimetry, the content of visfatin, insulin and leptin in the blood plasma was determined using commercial test systems; gene expression level - by PCR.

**Findings:** In the group of obese patients with type 2 diabetes, the content of leptin, insulin and glucose in the blood plasma was higher, which was the case for patients without type 2 diabetes and control ( $p < 0.05$ ). The level of visfatin in blood plasma was higher than 802.10 (101.0 - 1145.12) pg / ml than in patients with obesity without type 2 diabetes 371.81 (40.83 - 513.58) pg / ml and below the control values ( $p < 0.05$ ). In the group of obese patients with type 2 diabetes, the level of visfatin positively correlated with the level of leptin ( $r = 0.513$ ) and negatively with the level of insulin ( $r = -0.435$ ) ( $p < 0.05$ ). However, in patients without type 2 diabetes, the level of visfatin had positive correlations with the content of insulin ( $r = 0.812$ ) and leptin ( $r = 0.767$ ) in blood plasma ( $p < 0.05$ ). The expression level of the NAMPT gene (visfatin) was increased in all obese patients with type 2 diabetes in all fat depots, compared with obese patients without it. In obese patients with type 2 diabetes, the level of NAMPT gene expression in subcutaneous adipose tissue was 15 times higher than the control group ( $p < 0.05$ ), while in patients without type 2 diabetes it did not differ from the control, which may indicate the formation of adipokine plasma levels, mainly due to its production of subcutaneous fat depot in patients with type 2 diabetes. The level of NAMPT gene expression in the greater omentum positively correlated with the level of Visfatin in blood plasma in the group of obese patients with type 2 diabetes ( $r = 0.5$   $p < 0.05$ ). The level of NAMPT gene expression in the mesentery of the small intestine negatively correlated with BMI in the group of obese patients with type 2 diabetes ( $r = 0.4$   $p < 0.05$ ).

**Conclusion & Significance:** Thus, visfatin can have different effects on the development of type 2 diabetes in obese patients, mediated by tissue-specific features of its secretion, as indicated by (1) the revealed formation of plasma levels of adipokine due to subcutaneous fat depot in patients with type 2 diabetes; (2) the detected protective effects of visfatin in patients without type 2 diabetes, due to the established positive relationship between the level of visfatin and plasma insulin production in this category of patients.

### Biography:

Litvinova Larisa has completed her MD and currently she is working as Head of Laboratory, Immunology and Cell Biotechnology, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation. She has published more than 180 papers in reputed journals.