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THE STUDY OF THE ADIPOSE TISSUE METABOLISM OF PATIENTS WITH OBESITY AND THEIR HORMONES INVOLVED IN ITS REGULATION.

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Introduction: Obesity is one of the most common chronic diseases in the world. The study of the factors, underlying its development and progression, including changes in the adipose tissue metabolism and the level of hormones involved in it, is necessary to personify control strategies. **Objective:** To study the relationship between obesity a gene expression of metabolic regulators, the response to hypoxia, inflammation and the state of differentiation of adipose tissue cells and hormones involved in the metabolism of adipose tissue. **Materials and methods:** The study included 14 patients with obesity (average age -41 years, average body weight (cmt) 124 kg, BMI=35 kg/m²) and 10, matched by age and sex ratio, healthy people (control) (average age -36 years, SMT 60 kg, BMI = 22 kg/m²). All patients underwent the biopsy of subcutaneous adipose tissue (FAT) which was followed by evaluation in biopsy specimens (PCR), the expression level of micro RNA and mRNA genes of metabolic regulators and the state of differentiation of adipose tissue cells (adipoq, ucp1, prdm16), the response to hypoxia (hif1a), the inflammation (mirR155, Ccl2), and the assessment of the level of hormones involved in the regulation of fat metabolism (GLP-1, HIP, ghrelin, leptin, adiponectin) in the blood. **Results:** The following differences in expression levels in the studied groups were revealed: The patients with obesity had the level of Ccl2 6 times higher (p 0.001), and the level of miR155 2 times higher (p 0.05) than the control group. **Findings:**

- Expression of inflammatory markers in FAT was significantly higher in patients with obesity.
- As the BMI increased, there was an increase in the expression of the regulators of the inflammatory response Ccl2 and mi155 in the PHU and a decrease GLP-1 levels in blood.



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