

## **Abstract**

Adipose tissue as an active endocrine organ is explored in a number of processes associated with metabolic disorders. This work is aimed on studying the effect of endoscopically implantable weight-reducing device - duodeno-jejunal bypass liner - on subclinical inflammation of adipose tissue in obese patients, which contributes to the development of type 2 diabetes mellitus. Specifically, for patients implanted with duodeno-jejunal bypass liner we determined anthropometric, biochemical and hormonal characteristics, and mRNA expression of subcutaneous adipose tissue proinflammatory (TNF- $\alpha$ , leptin, CCL-2, CX3CL1, CD40, CD80, CD86, CD206, CD163 and IL-6) and anti-inflammatory genes (Adiponektin, IL-10) before, one month and ten months after the intervention. The implantation of duodeno-jejunal bypass liner significantly decreased body weight, waist circumference, and improved metabolic and glycemetic control. In addition, C-reactive protein a highly sensitive indicator of inflammatory processes in the body was reduced ten months after implantation. In the case of mRNA expression of CD86 (a marker of activated B lymphocytes and macrophages) there was temporarily increase in adipose tissue one month after the surgery and the subsequent significant decrease after ten months. mRNA expression of other tested genes in adipose tissue was not changed. 10 months after the duodeno-jejunal bypass, M1 (CD40+CD14+HLA-DR+ cells) and M2 (CD206+CD14+HLA-DR+ cells) macrophages also decreased significantly.

In conclusion, the duodeno-jejunal bypass in patients with type 2 diabetes mellitus is a very efficient method for improving in a wide range of anthropometric, biochemical and hormonal parameters. Additionally, it also attenuated subclinical inflammation.