

important implications in establishing the risk of developing type 2 diabetes and other obesity associated metabolic disorders.

**Methods.** Our study included 68 obese patients (48 females and 20 males) with a mean age of  $38.76 \pm 8.89$  years and a mean body mass index of  $46.06 \pm 6.48$  kg/m<sup>2</sup>, referred for Laparoscopic Sleeve Gastrectomy procedure. Anthropometric measurements, biochemical and hormonal profile were evaluated. Mature subcutaneous adipocyte morphometry was performed using a special software (Adiposoft) on microscopic images of formalin fixed adipose tissue.

**Results.** Using the metabolic syndrome IDF criteria we defined 2 subgroups of obese patients: Metabolic healthy obese (MHO)-6 patients and metabolic unhealthy obese (MUHO)-12 patients and we compared the obtained experimental data.

**Morphometry results.** Mean adipocyte area in our study group was  $3029,138 \mu\text{m}^2 \pm 1361.774$ . We did not obtain a statistical significant difference between the MHO and the MUHO subgroups or between female and male patients in adipocyte area distribution. However we did observe a lower adipocyte mean area in younger patients (between 18-30 years old) compared to the subgroup >30 years old.

**Conclusions.** The adipocyte morphology and expansion capacity are highly individualised methods to determine the metabolic risk for obese patients as precocious disturbances in the lipid storage function are evaluated [1–3].

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## A NEW VIEW ON THE PATHOGENESIS OF JUVENILE OBESITY WITH PINK STRIES (SIMPSON-PAGE SYNDROME)

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**Introduction:** Simpson-Page syndrome (SPS) - juvenile obesity with pink striae - the most frequent endocrine-metabolic pathology of adolescents [5,6]. Aims. Identify the organic nature of the SPS.

**Methods:** The dynamics of 550 persons suffering from the puberty period of the SPS was examined. Men - 136, women - 414. In plasma, the levels of leptin, ACTH, prolactin, cortisol, aldosterone, TTG, fT3, fT4, AB to TPO, AB to TG, AB to RTTG, TGF-beta1,2, adiponectin, IL-8, IL-10, INF. 63 patients aged 11 to 43 years underwent magnetic resonance imaging (MRI) of the pituitary gland with contrasting [1,3,7].

**Results:** With an external examination, the stigmata of the marfan-like phenotype were found in the examinees [5,7]. The level of leptin is markedly increased. Almost all of them found antibodies (AB) to TPO and AB to TG. 96.1% of patients had AB to RTTG. The level of TTG, fT4, fT3 testified about the presence of Hashimoto's thyroiditis (HT) and hypothyroidism. The levels of TGF-β1, TGF-β2, IL-8, and INF-γ were significantly increased in all [3]. MRI revealed

a pituitary microadenoma in 29 patients; heterogeneous structure of the pituitary gland in 19; “Empty” Turkish saddle and cyst of Ratke pocket - in 4; normal structure of the pituitary gland - in 11 [1].

**Conclusion:** SPS can not be entirely attributed to benign functional diseases of the hypothalamic-pituitary region. In the persons of the marfan-like phenotype with SPS, an abnormally excessive systemic effect of TGF-β is found. This causes hyperleptinemia and dysfunction of the hypothalamic-pituitary-thyroid system with a violation of the production of thyroliberin, TTG, T4 and T3. As a result of the formation of antithyroid autoantibodies, HT is formed with the outcome of hypothyroidism [3,7]. A vicious circle is formed: HT through hypothyroidism stimulates the production of thyroliberin, and increasing hyperprolactinemia stimulates the autoimmune process, deepening both HT and hypothyroidism. Hyperprolactinaemia is an important factor in female and male infertility [1]. SPS is a juvenile form of the metabolic syndrome. Given the relationship of SPS with HT, hypothyroidism and metabolic syndrome [4,7], in its treatment it is necessary to use, in addition to diet, levothyroxine, dopamine agonists and biguanides.

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## FUNCTIONAL RENAL RESERVE IN DIABETIC NEPHROPATHY PATIENTS



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**Introduction.** Diabetic nephropathy is a frequent complication of diabetes mellitus and resulted in chronic kidney disease which, in its turn, is fed on the decrease of the amount of functioning nephrons (FN), while the amount of glomerular filtration may not coincide with the number of the last because of hyperperfusion in them. To determine the number of FN we offered physiologically substantiated method for functional renal reserve (FRR) determination. Renal functional condition greatly depends on endothelium state that is why we determined the level of desquamated endothelial cells (DEC) circulating in blood. DEC is supposed to be the most objective index of endothelium damage as it reflects increase of apoptosis processes and necrosis in it.

**Methods.** Glomerular filtration rate (GFR) was estimated by formula GFR-EPI. To determine FRR we used test of A. I. Gozhenko. GFR was measured by creatinine clearance after water-salt load with drinking water and 0.5% NaCl in the volume of 0.5 ml/kg of the body weight. FRR was calculated by formula  $[(\text{GFR}_{60} - \text{GFR}) / \text{GFR}] * 100\%$  [1]. The number of DEC was determined by Ya. Khladovick [2].

**Results.** FRR was determined in 56 DM type 2 patients with diagnosed diabetic renal disease. After water-salt load GFR<sub>60</sub> increased in 53 patients (94.6%). It increased 2.5 times on the average at