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LIPID STATUS IN WOMEN WITH METABOLIC DISORDERS IN THE PERIMENOPAUSAL PERIOD

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The metabolic syndrome (MS) is an actual medical and social problem of our time. MS has become the subject of study by doctors of various specialties, including obstetricians and gynecologists due to the rapid increase in the incidence in recent years. It is important for the clinician not only as a common pathology, but also as a life-threatening condition, since it leads to various severe complications in the perimenopausal period, which cause a decrease in a woman's working capacity and social activity. When examining patients with this syndrome, carbohydrate intolerance or type 2 diabetes mellitus, dyslipidemia, cardiovascular disease, and abdominal obesity are most often detected. Studies in recent years have shown that MS, on average, has 26% of the adult population of the planet.

The main signs of metabolic disorders in perimenopause include: an increase in the level of cholesterol, TG and LDL and a decrease in the concentration of HDL; the nature of the distribution of adipose tissue; change in insulin resistance; increased levels of uric acid in the blood; an increase in the concentration of fibrinogen, factor VII and plasminogen activator inhibitor. The clinical manifestations of metabolic disorders include: android obesity, hypertension, insulin resistance.

The aim of our work was to study the features lipid metabolism and lipid status parameters in women with metabolic syndrome in the perimenopausal period.

Materials and methods of research

The study involved 66 women. The inclusion criteria for the group was the presence of MS in the perimenopausal period (n=41). As a result of the clinical and

anamnesic examination, the patients were divided into three clinical groups according to the severity of metabolic disorders. The control group consisted of women (n=25) with a physiological course of perimenopause.

In addition to taking anamnesis and physical examination, all patients underwent an anthropometric study - calculation of BMI according to the Quetelet formula, measurement of waist circumference (WC), hip circumference (HC), calculation of the WC/ HC ratio. The instrumental study included blood pressure measurement, 12-lead ECG recording, ultrasound of the pelvic organs, and mammography. Laboratory studies included the determination of blood glucose levels using glucose oxidase and glucose tolerance tests. The study of the blood lipid spectrum was carried out by the enzymatic method using the biochemical analyzer "Olympus AU 400" (Japan)

Statistical data analysis was performed using the Statistica package (SPSS version 17.0). For comparison, the arithmetic mean, the standard error of the arithmetic mean, and the Spearman rank correlation coefficient (r) were determined. The significance level (p) when testing statistical hypotheses was considered equal to 0.05.

Results and discussion

In 41.6% of patients with MS, the examination revealed the following gynecological pathology: abnormal uterine bleeding in 16.2% of the examined women, nonspecific colpitis in 29.3% of patients, ovarian retention formations in 14.6% of women, uterine leiomyoma in 32.4% women. When conducting an ultrasound examination of the pelvic organs, leiomyoma nodes were found, mainly with intramural and subserous localization from 1 to 4 cm.

16.2% of patients applied for abnormal uterine bleeding. Histological examination after fractional curettage of the uterine cavity revealed glandular-cystic hyperplasia in one patient, a fibrous endometrial polyp was diagnosed in two, an adenomatous endometrial polyp was diagnosed in one patient against the background of glandular endometrial hyperplasia, and two patients had a combination of a glandular-fibrous endometrial polyp with glandular polyp of the cervix.

Conducted mammography showed the presence of fibrocystic and diffuse mastopathy in 14.8% of women.

Arterial pressure fluctuated within the age norm (120-139/70-89 mm Hg) in 15.2% of the subjects. The rest of the patients had hypertension of varying severity and ECG changes.

In 20.6% of patients with severe metabolic disorders, impaired glucose tolerance was noted. The concentration of glucose in capillary blood on an empty stomach was 5.6 ± 0.4 mmol/l, after 2 hours 9.2 ± 1.3 mmol/l.

Assessment of somatotypes of patients with metabolic disorders showed that 45.3% had a normosthenic body type, 12.6% of women had an asthenic type, and 42.1% of the examined women had a hypersthenic type. In 38.7% of women, BMI was 32.1 ± 2.1 kg/m², in 42.6% it was at the level of 37.2 ± 2.2 kg/m², and in 18.7% of women it was 42.1 ± 1.5 kg/m².

When studying the nature of the distribution of adipose tissue (WC / HC), it was revealed that 58.4% of the patients had the android type of obesity, $WC / HC > 0.8$, and in 41.6% of women, $WC / HC < 0.8$, which corresponded to the gynoid type of obesity.

The results of our survey indicate significant changes in the lipid status of women with MS (Fig. 1).

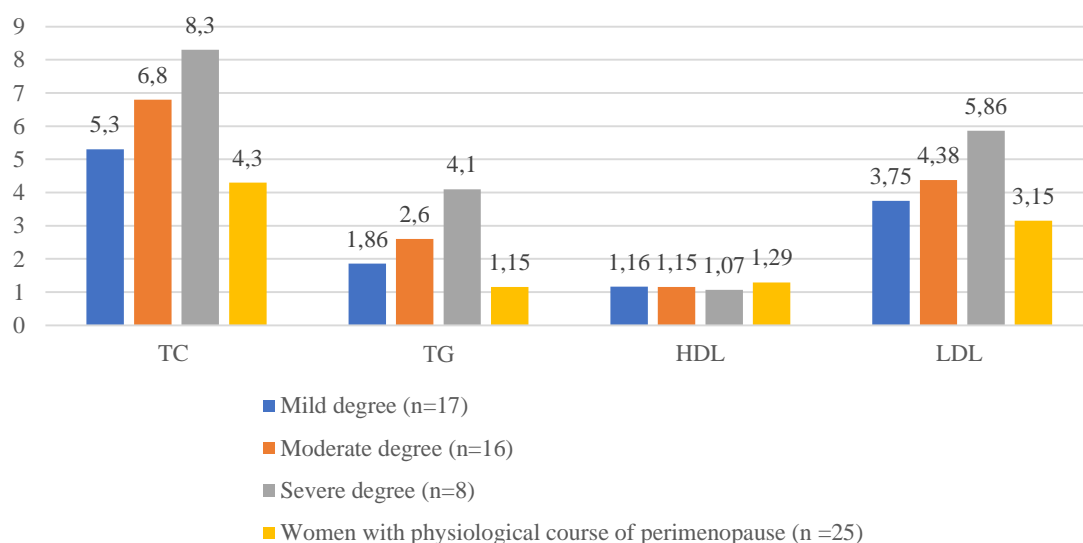


Fig. 1 Lipidogram of blood serum in patients with metabolic syndrome of varying severity

The most pronounced are an increase in total cholesterol, an increase in LDL cholesterol and a decrease in HDL cholesterol and hypertriglyceridemia. A positive correlation was found between the severity of metabolic disorders and lipid metabolism indicators (TC (rs=0.76), TG (rs=0.89), LDL-C (rs=0.78)) and BMI (rs=0, 72).

Cholesterol is a precursor for androgen synthesis. High cholesterol levels in women with MS (increased by 21.3 - 45.15%) can become a trigger for the activation of the processes of oxidation and cyclization of cholesterol in tissues, with its conversion into testosterone.

The content of leptin in the blood serum was 31.2 ± 4.2 ng/ml with a mild degree of metabolic disorders, 40.3 ± 3.6 ng/ml with a moderate degree, 44.2 ± 3.9 ng/ml with a severe degree, and significantly differed from the control values (18.7 ± 2.1 ng/ml) and among themselves. The content of leptin was directly dependent on the type of obesity in patients. Thus, in 17 (41.6%) women with the gynoid type of obesity, the level of leptin was 30% lower than in women with the android type of obesity. A direct correlation was found between the level of leptin and testosterone in the blood serum ($r=0.67$). A positive correlation was also found between leptin and total cholesterol ($r=0.87$), TG ($r=0.93$) and LDL cholesterol ($r=0.91$) and a negative one with TCF ($r= - 0.54$).

Conclusions

Lipid metabolism disorders are one of the main reasons for the development of various pathological conditions in the perimenopausal period, which worsen the quality of life of this cohort of the population. Thus, the identification of the causes of occurrence, diagnosis and correction of metabolic disorders in the early stages has not only clinical but also social significance. The results of our study indicate significant changes in the lipid status of women with MS. The most pronounced are an increase in total cholesterol, an increase in LDL cholesterol and a decrease in HDL cholesterol and hypertriglyceridemia. A positive correlation was found between the severity of metabolic disorders and lipid metabolism parameters.