



POLYCYSTIC OVARY SYNDROME AND METABOLIC SYNDROME

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Article history:	Abstract:
Received: 11 th August 2025 Accepted: 10 th September 2025	Polycystic ovary syndrome and metabolic syndrome are considered important medical problems in modern medicine for women's health and the human body as a whole. Extensive information about the possible interrelationship of both diseases, their clinical manifestations, etiopathogenesis and the specificity of treatment methods is widely covered in research. This article provides a detailed analysis of the main features of polycystic ovary syndrome and metabolic syndrome, their relationship, diagnosis, clinical manifestations and treatment approaches.

Keywords: polycystic ovary syndrome, metabolic syndrome, diagnostic treatment, clinical signs, cysts, pregnancy.

RELEVANCE: Polycystic Ovary Syndrome is a disease that occurs in women at reproductive age, accompanied by hormonal disruptions, characterized by the development of a large number of small ovarian cysts. This syndrome is severe in that it reduces the ability to work in many women, causing problems in achieving pregnancy. On the basis of PKTS, hormonal imbalance, especially the overproduction of androgen hormones, stands. This condition is accompanied by external signs such as hair loss, oily skin, and acne. In addition, many small cysts form in the ovaries, which disrupts the egg production process. As a result, many women experience irregular menstrual cycles or no periods at all.

RESEARCH OBJECTIVE: While metabolic syndrome is a set of several metabolic disorders in the body, it increases the risk of cardiovascular disease and diabetes. The main symptoms of metabolic syndrome include excessive accumulation of fat in the abdomen, increased blood pressure, increased blood sugar, and impaired cholesterol levels. Not only is this syndrome seen as a serious problem in its own right, it also occurs simultaneously with polycystic ovary syndrome in most cases. Women with PKTS have a significantly higher risk of developing metabolic syndrome, which poses an even greater threat to their health. [1]
To understand the relationship between PKTS and metabolic syndrome, it is important to analyze their pathophysiology. Insulin resistance is common in polycystic ovary syndrome, a condition characterized by impaired glucose assimilation in cells as a result of a decrease in the action of the hormone insulin. Insulin resistance, on the other hand, leads to an excess of insulin production in the body, which in turn increases androgen production. In this way, insulin resistance is a

factor that further aggravates hormonal disruptions in polycystic ovary syndrome. Insulin resistance also plays a central role in metabolic syndrome, further strengthening their interconnection. From a clinical perspective, when PCOS and metabolic syndrome coexist, women experience an increased risk of health problems. These conditions increase the risk of developing cardiovascular disease, diabetes mellitus, hypertension and other chronic diseases. The presence of metabolic syndrome in women with polycystic ovary syndrome further complicates their health condition, so it is important to treat these two diseases together. Also, these diseases can negatively affect the psychological state, since prolonged and complex pathologies disrupt the mental state of a person. In the diagnostic process, the main signs for polycystic ovary syndrome are a violation of the menstrual cycle, an excess of androgen hormones, the appearance of multiple cysts of the ovaries on ultrasound. Metabolic syndrome, on the other hand, is determined by measurements of abdominal fat distribution, blood pressure, blood sugar and cholesterol levels, based on the main clinical signs. If the diagnostic process is carried out correctly, it will be possible to detect diseases in time and treat them in a complex way.[2]

MATERIALS AND RESEARCH METHODS: The treatment approach is integrated for both diseases and includes lifestyle changes, drug therapy and, if necessary, the use of surgical techniques. First of all, proper nutrition and increased physical activity ensure a positive result of metabolic syndrome and polycystic ovary syndrome. The diet reduces fatty, sugary, and fast-digesting foods, and emphasizes vegetables, fruits, and whole grains. Physical activity, on the other hand, helps to increase insulin sensitivity, and also helps to



get rid of excess weight. However, as drug therapy, preparations that increase insulin sensitivity, hormonal therapy and lipid level regulators are used. Psychological support and support are also important because women with PKTS and metabolic syndrome can often feel lonely and depressed. The combined approach of coaches, doctors, and psychologists serves to improve the mental state of patients. It is also important to provide patients with complete information about their disease and actively involve them in the treatment process.[3]

New research is serving to further explore the relationship between polycystic ovary syndrome and metabolic syndrome. At the molecular level, there is an opportunity to develop new treatments through insulin signaling, complex interactions between hormones, and identification of genetic factors. This provides more effective and safe therapy options for patients with PKTS and metabolic syndrome. Preventive measures are also of great importance. A healthy lifestyle, regular exercise and proper nutrition will not only prevent the development of these diseases, but also help reduce their negative consequences. Training women to be attentive to their own health will strengthen their place in the family and society, which will serve to increase the overall health level. [4]

RESULTS AND THEIR DISCUSSION: Metabolic syndrome is a complex of several metabolic disorders that significantly increase the risk of various health problems that occur in the body at the same time. This syndrome is mainly characterized by excess weight or obesity, high blood pressure, increased blood sugar levels, as well as an increase in bad cholesterol levels. The presence of metabolic syndrome leads to the development of serious health problems, which negatively affect a person's overall quality of life and life expectancy. Above all, metabolic syndrome increases the risk of cardiovascular disease. The cardiovascular system plays an important role in the supply of blood to the vital organs of the body, therefore, disturbances in its activity lead to serious consequences. A person with metabolic syndrome has a constant high blood pressure, which can lead to overload of the heart muscle and heart failure. In addition, the accumulation of fat and cholesterol in the blood vessels causes the blood vessels to narrow and blood circulation to deteriorate. This process increases the likelihood of developing ischemic heart disease, as well as heart attack and stroke. Cardiovascular disease occupies one of the highest places of causes of death all over the world, so it is very important to treat and prevent metabolic syndrome.

Another major consequence of metabolic syndrome is the development of diabetes mellitus, especially type 2 diabetes. This syndrome reduces the body's sensitivity to the action of the hormone insulin, which means that insulin resistance occurs. As a result, the amount of glucose in the blood increases, leading to a constant high level of blood sugar. Type 2 diabetes, on the other hand, causes many problems on its own, including damage to nerves, eyes, kidneys and other organs. Complications associated with diabetes reduce a person's quality of life and shorten life expectancy. Therefore, it is very important to detect metabolic syndrome in time and control it with diet, physical activity, and, if necessary, medication.[5]

Metabolic syndrome also increases the risk of hypertension, that is, a constant increase in blood pressure. High blood pressure increases the load on the heart and blood vessels, causing them to harden and lose elasticity. This condition further increases the risk of heart disease and stroke. Hypertension is often symptom-free, so regular control is necessary to detect it. By treating metabolic syndrome, it will be possible to maintain blood pressure at a normal level. Also, metabolic syndrome increases the risk of developing liver diseases, especially fatty liver or steatosis. Fatty liver is characterized by the accumulation of excess fat in liver cells, which leads to impaired liver function. In the long term, steatosis can develop into liver fibrosis and later into liver cirrhosis or even liver cancer. Liver disease, on the other hand, has a negative impact on the overall health of the body, as the liver performs many important functions, including detoxification and regulating metabolism. Other problems associated with metabolic syndrome include metabolic disorders associated with insulin resistance, and in some cases the risk of cancer is also indicated. Studies show that metabolic syndrome enhances inflammatory processes in the human body, which can contribute to the development of cancer cells. The risk of developing esophageal, liver, stomach and intestinal cancer in particular can increase.[6]

CONCLUSION:

In conclusion, understanding the complex connections between polycystic ovary syndrome and metabolic syndrome and their combined treatment are of great importance in modern medicine. These diseases reduce the quality of life of many women, cause reproductive and general health problems. Therefore, it is necessary to develop effective approaches to their diagnosis, treatment and Prevention. When lifestyle changes, drug therapy, and psychological support are used together,



it becomes possible to improve patient health and prevent complex complications. In the future, scientific research in this area will provide new opportunities in the treatment of polycystic ovary syndrome and metabolic syndrome, and will serve to improve women's health.

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