



SEXUAL DIMORPHISMS IN METABOLIC SYNDROME

Juraeva Gulruh Bafoevna

Bukhara State Medical Institute named after Abu Ali Ibn Sina

gjuraeva57@gmail.com

<https://orcid.org/0009-0003-4198-7016>

Annotation. Despite decades of research, metabolic risk factors have not been sufficiently studied. Few studies believe that gender can modify the effect of variants of metabolic changes in the disease. The study of sexual interactions can help to find out the underlying metabolic syndrome of changes and connections. We also examined the relationship of individual components of the metabolic syndrome with sex differences due to a lack of research in this area. In addition, we have also summarized the current understanding of the etiological mechanisms of how the metabolic syndrome or individual components lead to these differences. With the increasing amount of data on such associations, it may be important to identify patients who are at risk of developing metabolic syndrome, since rapid treatment and intervention can potentially reduce the risk of developing certain changes in the body.

Key words: metabolic syndrome, sexual dimorphisms.

Аннотация. Несмотря на десятилетия исследований метаболические факторы риска изучены недостаточно. Немногие исследования считают, что пол может модифицировать влияние вариантов метаболических изменений заболевания. Исследование половых взаимодействий может помочь выяснить лежащую в основе метаболического синдрома изменений и связей. Мы также рассмотрели связь отдельных компонентов метаболического синдрома с половыми различиями из-за недостатка исследований в этой области. Кроме, мы также обобщили текущее понимание этиологических механизмов того, как метаболический синдром

или отдельные компоненты приводят к этим различиям. С увеличением количества данных о таких ассоциациях может быть важно выявить пациентов, которые подвержены риску развития метаболического синдрома, поскольку быстрое лечение и вмешательство могут потенциально снизить риск развития определенных изменений организма.

Ключевые слова: метаболический синдром, половые диморфизмы.

Introduction. The risk of insulin resistance and metabolic syndrome in women increases after menopause, which correlates with an increase in circulating triglycerides and low-density lipoproteins and a decrease in high-density lipoproteins. Gonadotropin has a beneficial effect on glycemic control in women with type 2 diabetes. The incidence of kidney disease in women is lower than in men of the same age group, and it is believed that the loss of ovarian hormones accelerates kidney damage. Studies have studied the effects of menopause on the onset and progression of diabetic nephropathy and metabolic syndrome.

The purpose of the study. To summarize data on the interaction of the sexes in the etiology of metabolic syndrome, in order to study the effect of menopause on the progression of diabetic nephropathy, streptozotocin was used to induce diabetes in animals, during perimenopause or 2 weeks after menopause.

Material and methods of research. During the literary review, the resources of the PubMed and eLibrary search engines were used for the last 10 years. This literature review used articles containing clinical and experimental data For this analysis, we used articles containing evidence-based experimental and clinical data on the most up-to-date issues related to the epidemiology, etiology and pathogenesis of metabolic syndrome in sexual dimorphisms.

Results. Induction of diabetes during menopause resulted in higher blood glucose levels compared to cyclic diabetic mice and mice with perimenopausal diabetes. Diabetic kidney disease was evaluated, and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Gene array studies were used to identify genes associated

with accelerated progression of diabetic nephropathy after menstruation, and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Gene array studies were used to identify genes associated with accelerated progression of diabetic nephropathy after menstruation, and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Gene array studies were used to identify genes associated with accelerated progression of diabetic nephropathy after menstruation, and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Studies of the array of genes were used to identify genes associated with accelerated progression of diabetic nephropathy after menstruation [1]. An important observation of this study was that people with sarcopenia had a higher incidence of metabolic syndrome than people with normal muscle mass. After adjusting for possible distorting factors such as age, gender, height, as well as metabolic and health-related behavioral factors, the risk of metabolic syndrome in class I sarcopenia was increased by 2.43 times, and the risk in class II sarcopenia was 2.69 times higher compared to the reference. Lu et al. It was shown that the group with sarcopenia had a 1.98 times higher risk of metabolic syndrome compared to the normal group, which is consistent with our data. Interestingly, the current study showed that sarcopenia status had a stronger association with metabolic syndrome in women than in men. The relationship was maintained after correction for possible mixed variables, which confirmed the significance of our study. The sex differences can be explained by several possible explanations. Firstly, the distribution and type of skeletal muscle fibers differ in men and women, which may affect the risk of developing metabolic syndrome. Mesinovich et al. demonstrated that muscle function and quality are associated with metabolic syndrome. Thus, different types and quality of muscles can influence sex differences in the relationship between metabolic syndrome and sarcopenia [2]. To assess the prevalence of metabolic syndrome and identify its

cardiovascular factors in men and women in the period from 2009 to 2010, a representative sample of 15,477 urban adults aged 18 to 74 years in northeast China was selected. The diagnosis of metabolic syndrome was based on criteria established by the National Cholesterol Education Program. The overall prevalence of metabolic syndrome was 27.4% (men 27.9% and women 26.8%). Multivariate logistic regression analysis showed that a higher level of education and a higher family income were associated with a higher prevalence of metabolic syndrome in men, but with a lower prevalence of metabolic syndrome among women. Higher physical activity was associated with a decrease in the prevalence of metabolic syndrome in men (adjusted odds ratio ((ES) = 0.88; 95% confidence interval (CI) 0.79–0.99), but associated with an increased prevalence of metabolic syndrome in women (ES). = 1.14, 95% CI: 1.00–1.29). Compared with rice as the main food, cooked wheat products were associated with lower adjusted odds of metabolic syndrome in both men (SOSH = 0.72, 95% CI: 0.58–0.90) and women (SOSH = 0.72, 95% CI: 0.56). -0.92). In conclusion, metabolic syndrome is widespread in urban areas of China, and there is gender heterogeneity in the relationship between risk factors and the prevalence of metabolic syndrome. 95% CI: 1.00–1.29). Compared with rice as the main food, cooked wheat products were associated with lower adjusted odds of metabolic syndrome in both men (SOSH = 0.72, 95% CI: 0.58–0.90) and women (SOSH = 0.72, 95% CI: 0,56). -0,92) [3]. In the studies conducted to study the presence of sex differences between the inflammatory state and the metabolic syndrome, it was observed that CRP is more closely associated with the metabolic syndrome in women than in men, consistent with the results of the Ahonen study, which included patients with high blood pressure. In addition, their results showed no gender differences in the level of CRP in individuals without metabolic syndrome, but the level of CRP was significantly lower in men with metabolic syndrome than in women with metabolic syndrome [4]. B a study of the retinal vessel gauge before and after puberty in adolescents with DM1. Sexual dimorphism was obvious: women had a more complex arteriolar vascular

network and a simpler venular network than men, both patterns were previously associated with a greater risk of microvascular complications, but the current study was unable to reproduce these associations, probably due to a smaller sample size. Women were also at risk of developing retinopathy. The geometry of retinal vessels provides a unique opportunity to study and monitor pre-complications from the microcirculatory bed and opens up the possibility of earlier screening in adolescents with diabetes mellitus in order to prevent clinical manifestations of microvascular complications [5]. In addition to diabetic kidney disease and metabolic syndrome, premenopausal women are also protected from hypertension and stroke. However, after menopause, the frequency and severity of cardiovascular diseases increase significantly. Early observational studies of the effect of hormone therapy (GT) on reducing the risk of diseases in postmenopausal women confirmed the protective effect of estrogens on coronary heart disease (CHD). As a result, in the second half of the 20th century, the use of GT in women increased [6]. The risk of insulin resistance and metabolic syndrome in women increases after menopause, which correlates with an increase in circulating triglycerides and low-density lipoproteins and a decrease in high-density lipoproteins. GT has a beneficial effect on glycemic control in women with type 2 diabetes. The incidence of kidney disease in women is lower than in men of the same age group, it is believed that the loss of ovarian hormones accelerates kidney damage. The menopause VCD model was used to study the effect of menopause on the onset and progression of diabetic nephropathy and metabolic syndrome. First, to study the effect of menopause on the progression of diabetic nephropathy, we used streptozotocin to induce diabetes in animals treated with VCD during perimenopause or 2 weeks after menopause. Induction of diabetes during menopause resulted in higher blood glucose levels compared to cyclic diabetic mice and mice with perimenopausal diabetes. Diabetic kidney disease was evaluated, and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Gene array

studies were used to identify genes associated with accelerated progression of diabetic nephropathy after menstruation and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Gene array studies were used to identify genes associated with accelerated progression of diabetic nephropathy after menstruation, and renal proliferation and hypertrophy were significantly increased in menopausal diabetic women compared to women with cyclic diabetes. Studies of the array of genes were used to identify genes associated with accelerated progression of diabetic nephropathy after menstruation [7].

Conclusion. It can be seen from the literature review that the metabolic syndrome is closely related to sexual differences, sexual changes in the body, and also the study of sexual differences will allow us to find the relationship between the metabolic syndrome and gender differences, which will allow us to diagnose metabolic changes in the body in a timely manner and start treatment processes in a timely manner.

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