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THE PROBLEM OF OBESITY AMONG THE YOUNG POPULATION
(Review of Literature)

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✓ ***Resume***

The literature review presents the results of modern studies of obesity taking into account gender-age, ethnic and socio-geographical factors. The increase in the prevalence of obesity among various categories of the population, including children and adolescents, is shown. The risks of human health impairment with possible disability and mortality due to excess body weight and obesity are analyzed. The fundamental importance of a multidisciplinary approach in the development of preventive and therapeutic and rehabilitation programs is noted. The features of obesity and its consequences at a young age are determined.

Key words: obesity, overweight, etiology, prevalence, complications, young age.

ПРОБЛЕМА ОЖИРЕНИЯ СРЕДИ МОЛОДОГО НАСЕЛЕНИЯ
(Обзор литературы)

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✓ ***Резюме***

В обзоре литературы представлены результаты современных исследований ожирения с учетом половозрастных, этнических и социально-географических факторов. Показано увеличение распространенности ожирения среди различных категорий населения, в том числе детей и подростков. Проанализированы риски ухудшения здоровья человека с возможной инвалидностью и смертностью вследствие избыточной массы тела и ожирения. Отмечается принципиальная важность мультидисциплинарного подхода при разработке профилактических и лечебно-реабилитационных программ. Определены особенности ожирения и его последствия в молодом возрасте.

Ключевые слова: ожирение, избыточная масса тела, этиология, распространенность, осложнения, молодой возраст.

Relevance

Currently, obesity is considered the most significant problem in medicine, as it is a chronic disease common among both adults and children [36,64]. The World Health Organization (WHO) defined obesity and overweight as “pathological or excessive accumulation of fat that can negatively affect health” [54]. At the end of 2006, the WHO European Charter on Counteracting Obesity was adopted.

The main objective of the charter is to place the problem of obesity high on the political agenda of all European countries. This is due to the fact that over the past two decades, the prevalence of obesity in Europe has increased almost threefold: in the countries of the WHO European Region, half of the adult population and every fifth child are overweight, and a third of them are already obese, with the number of such people growing rapidly [9].

Objective

The study of the problem of obesity among the young population based on the study of the results of the clinical studies

Result and analysis

Overweight and obesity play a significant role in the development of many non-communicable diseases, leading to a reduction in life expectancy and adversely affecting quality of life. Every year, diseases related to overweight cause more than 1 million deaths in Europe [13]. Many experts classify excess body weight and obesity as complex, multifactorial, multigenic disorders, the epidemiology and frequency of which are closely related to geographical, socioeconomic and psychosocial-cultural living conditions [15,16]. Thus, until recently, it was believed that the problem of obesity was relevant for countries with a high standard of living (up to 10 million children), but the number of children with excess weight and obesity is also growing in low-income countries, especially among those living in urban areas (more than 30 million) [13,15].

Scientists believe that the main reason for the development and progression of excess weight and obesity is the disruption of the energy balance between calories consumed and expended [12,13,16], which is associated with high-calorie nutrition, eating disorders, increased portion sizes, increased fat and sugar content in food, low content of vitamins, minerals and other microelements [3,20]. Another important pathogenetic factor in the development of obesity and excess body weight is considered to be a sedentary lifestyle, low physical activity and progressive hypokinesia in all spheres of life of a modern person [2,18,].

The significant increase in the prevalence of obesity over the past 30 years is the result of cultural and environmental influences. Many researchers associate the clear trend towards a decrease in the level of physical activity of the population with sedentary forms of work, rest and entertainment, with changes in modes of transportation and increasing urbanization [7,14]. According to WHO estimates, the number of patients with obesity worldwide has almost doubled since 1980. According to WHO data from 2004, more than 1.9 billion (39%) of the adult population aged 18 and older are overweight. Of these, over 600 million (13%) are obese, with men accounting for 11% and women for 13% [13]. The WHO report on obesity issues notes that “overweight and obesity are so widespread that they affect public health more than traditional health problems, such as starvation and infectious diseases.” The prevalence of this pathology among people of different ages, genders, social status and ethnicity is growing every year throughout the world, especially in developed countries of Europe, North America, as well as in Australia and Japan. [5,17]. In the Russian Federation, at least 30% of the working-age population is currently overweight, of which 25% are obese [15]. In Uzbekistan, according to the forecast of the World Obesity Federation, the proportion of overweight adults will increase to 59% by 2030, and to 80% by 2060. The proportion of obese adults increases from 18.9% in 2020 to 25% by 2030 and to 50% by 2060 [4,14]. According to WHO data from 2008, 59.8% of the adult population (over 20 years old) in Russia were overweight and 26.5% were obese. The prevalence of overweight was lower among men (56.2%) compared to women (62.8%). The proportion of obese men and women was 18.6 and 32.9%, respectively. According to WHO forecasts, 31% of men and 26% of women will be obese in 2020. The developed model shows that 33% of men and 26% of women in the Russian Federation will be obese by 2030 [6,12].

According to long-term observations, in 60% of adults suffering from obesity, excess weight gain begins in childhood and is characterized by a more pronounced weight gain and a significant frequency of concomitant diseases than in obesity that debuts in adulthood [15].

The prevalence of obesity among children and adolescents has increased sharply in the second half of the 20th century, posing a new public health problem for many countries. In 2013, according to WHO, 42 million children under 5 years of age were overweight or obese [53]. Today, in developed countries, up to 25% of adolescents are overweight, and 15% suffer from varying degrees of obesity [12].

Obesity is spreading particularly rapidly among women in Eastern Europe [14]. Over a lifetime, the risk of developing cardiovascular diseases (CVD) is higher in men than in women [11], but in recent decades these differences have been decreasing due to a decrease in risk in men and an increase in risk in women [17].

In absolute figures, more women die from CVD than men [6,19]. There are gender-specific features of the formation, course and, possibly, prevention of cardiovascular diseases, but these features have not been studied well enough in women [10,16]. Among patients with obesity, a special category is made up of young women with excess body weight formed after childbirth. Numerous scientific studies in recent years show that the period of pregnancy can be the moment when metabolic syndrome is triggered in women, one of the main components of which is abdominal obesity [18].

Women with elevated blood pressure during pregnancy are characterized by increased arterial stiffness [17]. Changes in left ventricular geometry (LVG) progressively increase with age, in the presence of hypertension and obesity [12]. The presence of LVG associated with obesity is a powerful risk factor for the development of diastolic/systolic LV dysfunction [11]. Obesity can be accompanied by the development of insulin resistance, hypertension, systemic inflammation, a tendency to thrombosis, impaired LVG, endothelial dysfunction and cardiovascular complications such as coronary heart disease, atrial fibrillation, heart failure, stroke [10,17].

There are a number of risk factors for obesity and associated pathological conditions that are specific only to young women. Excessive weight gain during pregnancy is associated with an increased risk of obesity with dyslipidemia, the development of insulin resistance, and carbohydrate metabolism disorders. Obese women have a history of more pregnancies than women with normal body weight. Low birth weight is associated with abdominal obesity, and high birth mass index is associated with obesity in girls [8,13,20]. Recently, a fairly large number of publications have appeared devoted to specific risk factors that are associated not only with an increased risk of obesity, but are also associated with other risk factors for cardiovascular diseases, for example, low birth weight is a risk factor for hypertension in children [19]. A prospective study found that with excessive weight gain during pregnancy, the risk of obesity in the late postpartum period increases [13]. The identification of these "specific" factors once again confirmed the opinion that there are certain "critical" periods in a woman's life, during which the risk of developing obesity and other risk factors or damage to target organs that need to be actively identified is especially high. Such periods include pregnancy, childbirth, and the postpartum period, and they are important for both the mother and the child. The period of puberty and the perimenopausal period are periods of pronounced hormonal changes, and preventive and therapeutic measures during these periods are most effective.

Arterial hypertension is currently one of the most important medical problems in obese women due to its role in the development of cardiovascular diseases, cerebrovascular diseases and chronic kidney disease. The relationship between obesity and hypertension has been established for both adults and children. About 75% of new cases of hypertension are associated with obesity [10]. In obese patients, hypertension occurs at a younger age more often than in postmenopausal women [11,15]. Of note is the increase in blood pressure at night, which is typical for obesity in women. This problem has several aspects: the first aspect concerns sleep disorders in obese patients, especially at a young age. It is believed that sleep disorders can contribute to the development of obesity due to disruption of circadian rhythms of hormone production. A number of laboratory studies have shown that short sleep duration can lead to various metabolic disorders.

Epidemiological studies have shown a relationship between short sleep duration and obesity. This relationship was observed at all ages, but was most pronounced in children. Sleep in children and adolescents is especially important for brain development, and lack of sleep can have a negative impact on the hypothalamus, appetite regulation, and energy expenditure [15,17].

The second aspect is that “night” hypertension may be associated with obstructive sleep apnea syndrome [12], which in turn is associated with an increased incidence of fatal and non-fatal cardiovascular events and overall mortality in adults. The third aspect is that an increase in mean systolic blood pressure (SBP) at night and/or an insufficient degree of night-time reduction in BP are predictors of cardiovascular events. All of the above confirms that an increase in BP at night in obese girls and women is an extremely important problem. Literature data indicate a high proportion of female patients with isolated systolic arterial hypertension (ISAH) not only in the elderly but also in young people. Isolated systolic arterial hypertension is the most common type of hypertension in adolescents and young men [11,19]. For a long time, ISAH was considered a benign condition. However, recent data indicate that the presence of ISAH in young people with increased vascular wall stiffness and increased cardiac output leads to the development of hypertension. Apparently, these cases should be considered as early stages of hypertension development, but there is insufficient data

on the prognosis of ISAH in young people [1,12,18,20]. The majority of patients in the structure of ISAH in young people are male [18,19].

In the study [18], it was found that in the structure of hypertension in girls with both low body weight (LBW) and obesity, ISAH is more often observed, and the proportion of patients with systolic-diastolic arterial hypertension (SDAH) is very small. At the same time, the presence of hypertension in girls, despite the fact that it was mainly represented by ISAH, was associated with target organ damage (TOD) with higher values of the intima-media thickness of the common carotid artery and the myocardial mass index of the left ventricle. These TODs were most often found in girls with obesity and hypertension [19]. In addition, hypertension in obesity in girls was characterized by the presence of a family history of early cardiovascular diseases (CVD), dyslipoproteinemia (DLP), metabolic syndrome, higher values of glycated hemoglobin (HbA1C) and fasting C-peptide. Obese girls are included in the high-risk group for hypertension, and patients with ISH represent a group with an unfavorable prognosis for both early progression of CVD and metabolic disorders.

Another "problematic" phenotype of hypertension is isolated diastolic hypertension in young and middle-aged people. IDAH was most common in middle-aged women with obesity, accounting for 18% of the hypertension structure. It was previously established that IDAH is associated with a lower risk of myocardial infarction than systolic-diastolic arterial hypertension (SDAH).

However, in the Framingham study, 83% of patients with IDAH developed SDAH over 10 years of follow-up, and DBP was a better predictor of cardiovascular events in people under 50 years of age than SBP [8,18]. A meta-analysis showed a relationship between IDAH and increased mortality from vascular and all causes [13]. In patients with a combination of hypertension and obesity, signs of DLP (↑TC, ↑LDL-C) and carbohydrate disorders (higher levels of fasting glucose, glucose and C-peptide after exercise and HbA1C) were also common [10]. A number of hormonal disorders have been described that are associated with the visceral-abdominal type of obesity and contribute to the development of insulin resistance and the emergence of various metabolic disorders [4-6].

Conclusion

Thus, the problem of metabolic and cardiovascular risks in young women with obesity is extremely relevant. It is necessary to study metabolic disorders in young women with obesity, develop criteria for increased cardiovascular risk and determine effective methods of prevention and treatment.

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