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Epidemiological, Socio-Economic Aspects and Obesity Prevention

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Abstract: The article provides the results of an analysis of obesity, the role of social and economic factors in the occurrence of obesity, the nature of nutrition and eating disorders, and physical activity. Issues of obesity prevention are discussed at different levels: state, in the family, educational and medical institutions.

Keywords: obesity, overweight, prevention.

Introduction

One of the main goals of clinical examination is the early identification of risk factors (RFs) for chronic non-communicable diseases (CNCDs). In the course of clinical examination and preventive medical examinations of the adult population, great importance is attached to the problem of early detection and correction of nutritional disorders and nutrition-dependent conditions [8].

Currently, obesity is considered the most significant medical problem, since it is a chronic disease common among both the adult and pediatric populations [26]. The World Health Organization (WHO) has defined obesity and overweight as "the pathological or excessive accumulation of fat that can negatively affect health" [24]. At the end of 2006, the WHO European Charter to Combat Obesity was adopted. The main objective of the charter is to make 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 almost tripled: in the countries of the WHO European Region, half of the adult population and one in five children are overweight, and a third of them are already obese, while the number of such people is growing rapidly [9].

The prevalence of obesity has been shown to increase from 3.2% in 1975 to 10.8% in 2014 in men and from 6.4 to 14.9% in women (age-standardized rates). By 2025, the global prevalence of obesity is expected to reach 18% in men and exceed 21% in women, and the prevalence of obesity with a BMI ≥35 kg/m2 is expected to exceed 6% in men and 9% in women. According to WHO (2009), 46.5% of men and 51.7% of women had BMI and obesity in the Russian Federation [4].

Scientists see the main reason for the development and progression of overweight and obesity in the disruption of the energy balance between consumed and expended calories [12,23], which is associated with high-calorie diet, eating disorders, increased portion sizes, increased content of fats and sugars in food, low vitamins, minerals and other microelements [3,20,27]. Another important pathogenetic factor in the development of obesity and overweight is considered to be a sedentary lifestyle, low physical activity and progressive hypokinesia in all spheres of life of a modern person [2,29].

The significant increase in the prevalence of obesity over the past 30 years is the result of cultural and environmental influences. Many researchers associate a 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 obese patients worldwide has almost doubled since 1980. According to WHO data from 2004, more than 1.9 billion (39%) adults aged 18 years and older are overweight. Of these, over 600 million (13%) are obese, with men accounting for 11% and women for 13% [13]. A WHO report on obesity noted that "overweight and obesity are so common that they have a greater impact on public health than traditional health problems such as starvation and infectious diseases." The prevalence of this pathology among people of different ages, gender, social status and

ethnicity is growing every year all over the world, especially this trend can be seen in developed countries of Europe, North America, as well as Australia and Japan. [22].

Target

Study of the etiological and socio-economic characteristics and prevention of obesity based on the study of the results of clinical studies.

Results and analysis

Dietary patterns, physical activity and obesity. Obesity is a multifactorial disease. A significant reason for the increase in obesity among children and adolescents, as well as among adults, is the nature of nutrition. B.A. Ongoeva et al. (2018), when examining 158 children with AO and 59 with normal body weight (average age 12.0±0.44 years), assessed the rank significance of risk factors for the formation of metabolic syndrome.

It turned out that the highest statistically significant risk factor was frequent consumption of fast food, followed in descending order by frequent consumption of carbonated drinks and unhealthy diet [23]. Data from a questionnaire survey conducted by A.V. Tarantsova (2016), according to the assessment of the rational nutrition of the population of the Rostov region, also indicate insufficient consumption of fresh vegetables, fruits and fish by young people (75–80%), as well as an addiction to sweets and animal fats (50%) [24,28].

The problem of poor nutrition is truly global - already at the stage of fetal development, the dietary features of a pregnant woman, and subsequently of a lactating woman, have a significant impact on the risk of developing obesity in a child. Maternal obesity increases the risk of unfavorable programming of fetal metabolism with the development of excess adipose tissue and insulin resistance, which significantly complicates the prognosis for the development of obesity and metabolic syndrome in later life [25]. M.E. Perez-Morales et al. (2012) report that significant weight gain in a woman during pregnancy subsequently increases the risk of developing metabolic disorders and obesity in the child [26].

The influence of a woman's pregestational body weight on the child's body weight was also shown by S.A. Smetanina et al. (2018). In a prospective study of 1000 women and their newborns, they found that 41% of women had BMI and obesity at pregnancy. In the neonatal period, every 4th newborn was diagnosed with pathological body weight - macro- (13.5.3%) and microsomia (11.3%). It was found that in women with stage I obesity, the birth of children with macrosomia was more common (33.3%) than in women with normal body weight (12%; $p < 0.001$). Both macro- and microsomia at birth may be risk factors for metabolic syndrome in the future [23].

Long-term breastfeeding and the correct nature of the food of a lactating woman prevent an increase in the child's BMI [28]. Factors such as maternal age over 30 years, pregnancy complicated by the threat of miscarriage, preeclampsia and infections, surgical delivery and perinatal encephalopathy can also adversely affect the child's body weight [29]. The ESSE-RF study noted that the increase in obesity is due not only to a significant change in the nutritional structure, but also to a decrease in physical activity, especially in large cities, where the use of personal transport by the population has increased significantly over the past 25 years. It was especially emphasized that the highest frequency of low physical activity was found in young and middle-aged people (25–44 years). This is probably due not only to the peculiarities of the modern work process, but also to the nature of leisure [20].

According to VTsIOM, the share of Russians involved in sports increased from 38% in 2006 to 60% in 2018. The most actively involved in sports (daily/almost daily) are 18–24-year-old respondents, as well as people ≥60 years old. Russians cite lack of time as the main obstacle to playing sports; poor health, lack of money and willpower were also the reasons for refusing to play sports [21].

The family plays a certain role in the formation of a healthy lifestyle. S.N. Vinichenko et al. (2017) assessed the physical development of children depending on their parents' attitude towards sports. It turned out that in the group of children who did not engage in sports, the number of physically inactive

parents was almost 3 times higher compared to other groups. It is expected that children in families who do not engage in sports were significantly more likely to be overweight (BMI) [10,11]. It is also necessary to take into account that in people with high physical fitness, an increase in BMI may be associated with a significant development of muscle mass. In this case, methods that take into account body composition, such as bioimpedance analysis, will be more informative for assessing nutritional status [23].

Poor socioeconomic conditions are also a risk factor for obesity in both adults and children [14,15]. Socioeconomic status may, to a certain extent, limit the nature of the "food basket," physical activity, and other measures to combat excess body weight, which determine the relationship between socioeconomic status and abdominal obesity (AO). In this aspect, general obesity is more often detected in people with low income or those who are unemployed. Thus, in countries with high economic income, the prevalence of AO varies from 33.9 to 56% [13,16,19], and in countries with middle and low socio-economic status of the population its prevalence reaches 74% [14, 40– 43]. At the same time, there is some blurring of boundaries regarding income and social status. Thus, C. Lifschitz (2015) noted that the number of white children and adolescents with obesity is approaching that among Mexican and African-American children and adolescents living in the United States [14].

There was no direct connection between AO, social and family status, as well as lack of work in the ESSE-RF study. However, it was noted that the risk of AO in marriage is statistically higher among young people and men in the older age group. WC was greater in working men compared to those who never worked, and in women there was no correlation between WC and employment. It was also found that people with AO were significantly more likely to have a lower level of education and income [45].

M.I. Ganusenkova et al. (2017) also report the absence of statistically significant differences in both men and women with AO in such aspects as employment, marital status, education, compared with persons without this pathology [46]. There is ongoing discussion about the prevalence of obesity, criteria for assessing AO, and their association with metabolic and cardiovascular risks in various ethnic groups. Representatives of the Asian population often exhibit a higher percentage of visceral fat with relatively low BMI and WC indicators than individuals of the European population. However, even with lower BMI and WC values, they are more susceptible to obesity-associated diseases than Europeans [17]. In this regard, diagnostic WC values have been optimized for Southeast Asia and China - 90 cm for men and 80 cm for women [18], and in Japan they use values of 85 cm for men and 90 cm for women [19].

Prevention of obesity Today, the main method of combating obesity should be prevention, which should be carried out at the state level, in the family, in educational and medical institutions [25].

Whether a person is normal weight, overweight, or at risk of obesity, it is wise to take steps to prevent excess weight gain and related health problems. Assessment of obesity is currently still based on weight and BMI measurements, although advances in imaging techniques such as CT and MRI have made it possible to directly visualize the location and volume of adipose tissue in the body. In addition, ultrasonography, dual-energy X-ray absorptiometry, air displacement plethysmography, and bioelectrical impedance analysis are performed for clinical research purposes to quantify body composition.

Prevention of obesity includes: daily physical activity and constant awareness of the need for a healthy diet (and adherence to such a diet). Regular health-improving physical activity includes 150 to 300 minutes of moderate-intensity activity per week. PA should be a routine activity. Running, cycling, walking on mountainous and hilly rough terrain, participating in competitions, etc. are recommended. Fast dancing is an alternative to FA sports. Physical exercise in the warm season promotes even greater calorie burning. Be careful in hot weather in the sun (danger - sunstroke, heatstroke).

It is advisable:

- Walk instead of using vehicles;
- Walk up the stairs instead of using the elevator;
- Carry bags in your hands instead of using suitcases and rolling bags;
- Use active furniture (reading and working while standing at a desk or a treadmill);
- Avoid prolonged inactivity (breathing exercises, walking, any movement).
- Healthy eating means:
- mandatory inclusion of low-calorie and nutrient-rich foods (fruits, vegetables and whole grains) in the diet;
- Consumption of minimal amounts of saturated fat, sweets and alcohol.
- Foods to avoid: sausage, deli meats, hot dogs, fried foods, donuts, cookies, ice cream, sugary drinks, alcohol, candy, chips, fast food, French fries; products containing trans fats, "partially hydrogenated" vegetable oils (margarine, crackers, candy, baked goods, cookies, snacks, fried foods, salad dressings);
- Three meals a day with a limited number of snacks.

Of course, all people tend to eat tasty and high-calorie foods, and sometimes you can afford it. But in most cases, it is necessary to consume foods that help maintain the weight that is currently considered optimal for health and well-being. The ban on certain types of foods should be individualized and, perhaps, not too strict; the diet should be compiled from the dietary preferences of the individual.

It is necessary to widely inform people about:

- "food traps" (situations in which most people tend to eat an excess amount of food, usually with high calorie content) and recommend avoiding them;
- Psychological eating disorders (bulimia, nighttime and binge eating) and recommend contacting psychologists/psychiatrists for specialized help.

Perhaps the patient should be encouraged to keep a food diary and record what, when and how much he eats, how he feels and how hungry he is. There is a possibility of identifying patterns in this way, and it will be possible to plan solutions to problems and control eating behavior.

Any person needs to regularly monitor their weight. Watching your weight can help you catch small weight gains before they become big problems. People who weigh themselves at least once a week are more successful in shedding extra pounds.

Long-term success can be ensured if a person follows the rules every day, including weekends, holidays and vacations.

Conclusion. Thus, in the process of treating and monitoring patients with BMI and obesity, due to the frequent presence of diseases associated with obesity, it is necessary to promptly involve different specialists. It is also important to actively identify eating disorders in obese patients, provide professional psychological support in order to correct disrupted eating patterns, reduce the dominant role of food motivation, and eliminate distorted connections between emotional discomfort and food intake. All these measures will increase the effectiveness of the treatment of obesity and the prevention of its relapse.

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