

ENGLISH VERSION: OBESITY AS A TOPICAL MEDICAL PROBLEM OF THE 21ST CENTURY: A MODERN VIEW ON THE DISEASE OF THE HUMANITY

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The article analyzes current scientific literature about the most widespread and the most urgent medical problem of the present day, i.e., obesity. With the growth of the body mass index (BMI) and the occurrence of pathological (morbid) obesity in the human body, pathological modifications are detected in all systems and organs of the body. Obesity is an important independent health problem that is included into the WHO international diseases classification as a chronic disease and requires the study of pathological processes in all organs and systems of the human body.

Key words: obesity, diseases, complications, research.

Introduction

Obesity is one of the most common medical problems of the 21st century. Today, obesity is one of the most urgent problems of human health and has become a pandemic all over the world. About 1.9 billion people in the Earth suffer from overweight, of which 600 million are obese [5]. The leaders in prevalence of obesity are Mexico, the USA, Australia, Italy, Germany and Canada. The researchers report that 2.8 million people die as a result of overweight or obesity (the WHO defines the excess body weight with a BMI > 25 kg/m², and obesity at BMI > 30 kg/m²). Over the past four decades, in the world there have appeared ten times more children and adolescents (aged from 5 to 19 years old) suffering from obesity (the WHO research data) [13,14,24]. In Ukraine, according to the WHO assessments, over 50.5% of men are overweight, of which 16% are obese; and 56% of women, of which 26% are diagnosed with obesity. Every year, the number of newly diagnosed cases of obesity among Ukrainians is steadily increasing. It should be noted that with age, the tendency to increase body weight is observed in both men and women, but women are more prone to obesity [4, 6, 7, 8, 9, 10, 15].

Epidemiological studies testify not only to the rapid increase in the number of obese patients in all countries of the world, but that obesity affects people of all ages and sex, does not depend on the social status of a person, and that no country has succeeded in lowering the level of diet-induced obesity [7].

Obesity can be defined as a condition in which an abnormal growth of adipose tissue in the human body occurs, which leads to the most important risk factors for many medical problems, namely, the life quality decrease, significant increase in morbidity and premature death. The World Health Organization (WHO) has recognized obesity as a new non-infectious epidemic of the present time. Summarizing this status of the human body, we can give the following definition of obesity: it is a heterogeneous group of the human body diseases and pathological conditions, congenital and acquired, the common leading symptom of which is generalized excessive deposition of fat in the subcutaneous tissue, other tissues and organs, which leads to all types of metabolism disorders [11, 22, 23].

Analytical literature review

In 1950, the WHO included obesity into the international classification of diseases. According to the latest WHO classification (2004), BMI = 18.5 - 24.9 kg/m² is

considered normal, and more than 40 permits us to talk about pathological (morbid) obesity [7, 16]. Global changes in the way of humanity life around the world, limitation of physical activity in modern society, inappropriate nutrition with the increased number of refined products, chaotic diet, permanent psychological stress, uncontrolled use of nutritional supplements, primarily monosodium glutamate, leads to the pandemic of obesity in person of any age, characterized by excessive accumulation of triacylglycerols in the fatty tissue [1, 17, 19]. According to numerous studies, it was found that over 90% of known human diseases arose on the background of obesity, which 3 times more frequently leads to cardiovascular diseases (hypertension, coronary heart disease, stroke). The obesity impact on the development of cardiovascular diseases is complex, therefore, when excessive body weight increases not only the coronary heart disease incidence grows, but there also occur changes in the myocardium, aggravating its contraction function, which leads to cardiac and venous insufficiency. In 80% of overweight patients, concomitant insulin-independent diabetes mellitus is diagnosed. Data of the endocrinological pathology studies suggest that alimentary obesity is most often combined with Type 2 diabetes. Such conclusions are made by many researchers who have proven that in the pathogenesis of obesity, an important place is occupied by hormonal changes, first of all, in the insular apparatus of the pancreas. In most forms of obesity, such changes are taking place for a long time (hyperinsulinism, tissue resistance to insulin). Alimentary obesity is most frequently combined with diseases of the hepatobiliary tract without significant gender differences. Such disorders are quite common, and in the examined patients there were signs of atherogenic dyslipidemia and the presence of morphofunctional liver changes characteristic of steatohepatosis. It is possible to summarize the data of researchers and to note that alimentary obesity most frequently has the combined course with the endocrine system diseases, in particular, with type 2 diabetes mellitus (about 63% of patients) and cardiological pathology (34.3% of patients), while in the gender aspect women more frequently suffer from the combined pathology [8, 12, 21]. Obesity contributes to the development of metabolic syndrome, fatty hepatosis, sleep apnea syndrome, purine metabolism disorders (gout and other diseases), the musculoskeletal system diseases (osteochondrosis, arthritis, arthrosis, osteoporosis, etc.), increase of the colon cancer incidence, which leads to early disability and to the significant reduction of life expectancy [8]. Obesity in women leads to disorders of the

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menstrual cycle, infertility, high risk of developing genital cancers. Morbid obesity triggers processes in the body that cause endocrine profile disorders and accumulate estrogens in the fatty tissue affecting the production of sex hormones, which the ovaries function depends on. Frequent pathologies with morbid obesity are polycystic ovary syndrome, menstrual irregularities and nonovulation, which make impregnation impossible. A special category of persons with high risk of obesity developing is women during menopause. The key role in the pathogenesis of obesity in this period of the woman's life belongs to the estrogen deficiency. Estrogens increase fat oxidation in skeletal muscles and inhibit lithogenesis in the liver and muscles [27, 29, 30]. It has been proven that the deficiency of estrogen causes a reduction in the lipolysis intensity, which leads to the accumulation of adipose tissue, mainly in the anterior abdominal wall and is accompanied by an increase in visceral fatty deposits [25]. In its turn, abdominal obesity is a major contributor to the pathogenesis of insulin resistance and metabolic syndrome. Abdominal type of obesity in combination with arterial hypertension, insulin resistance, disturbance of glucose tolerance, dyslipidemia and depression lead to a condition defined as a metabolic syndrome. It is reported that obesity and metabolic syndrome are found in women at this period 3 times more frequently than before menopause [3, 6, 9, 10, 20, 21, 28]. The deficiency of estrogen in the woman's body changes the distribution of adipose tissue from the peripheral type to the central one, reduces the tissues sensitivity to insulin [6, 31]. Obesity in children leads to the increased disability of young people and to the reduction of the overall life expectancy due to the development of severe concomitant diseases, the probability of premature death and disability in adulthood. [14]. In obese individuals, in response to the metabolic needs increase of the excess body weight, compensatory hyperfiltration develops, which leads to chronic kidney disease [18].

As it was noted above, obesity is the cause of many diseases. The American Association of Endocrinologists has established a new algorithm for diagnosing obesity: the first is the BMI assessment, and the second is the presence and severity of complications associated with obesity. Diseases associated with obesity include metabolic syndrome, pre-diabetes, diabetes mellitus (type 2 diabetes mellitus), dyslipidemia, hypertension, non-alcoholic fatty liver dystrophy, polycystic ovary syndrome, sleep apnea, osteoarthritis, stress urinary incontinence, gastrointestinal reflux, incapacity to move actively, mental disorders, stigmatization, idiopathic intracranial pressure increase and associated idiopathic headache, bronchial asthma, varicose vein disease of the lower extremities.

The participants of this consensus agreed that obesity is a chronic disease and its determination should be based on the integrated examination of the reasons causing the obesity incidence growth, on the pathophysiological correlations of this process, the assessment of the complications risks or their stages. The participants even thought of replacing the very term of obesity (for example, chronic obesity (adiposity-based chronic disease - ABCD) [17, 26].

These diseases together cause the death of 1 million people every year [2].

Thus, obesity is an important independent health problem that is included into the WHO international classification of diseases as a chronic disease in millions of people. Obesity and its complications require close atten-

tion and a detailed dynamics study of the pathological processes development in all systems and organs of the human body caused by this pathology, as well as the search for effective methods of their treatment, which still remains an important area of research.

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