



эквиповарусной деформации стоп. В отделении детской ортопедии РСНПМЦТО МЗ РУз оперативным методом лечились 17 больных.

Показаниями к проведению оперативного лечения у больных с данной патологией являлась невозможность достижения коррекции после консервативного лечения, рецидив или же нелеченные случаи в возрасте старше 6 месяцев.

При оперативном лечении мы применяли метод с помощью аппарата Илизарова и Ахиллопластики. Данным методом преимущественно лечились больные со средней и тяжелой степенью тяжести миелодиспластической косолапости.

После операции проводилась дальнейшая коррекция остаточного объема приведения и супинации стопы. После достижения полной коррекции элементов косолапости больные находились на амбулаторном наблюдении в течении 1,5-2 месяцев. После этого аппарат Илизарова демонтировался, удалялись чрескостные спицы и, в положении гиперкоррекции накладывалась гипсовая повязка. Продолжительность ношения гипсовой повязки тоже составляла 1,5-2 месяцев. После снятия гипсовых повязок накладывалась шина или брейсы и продолжалась курс физиотерапии массажа.

Таким образом, лечение миелодиспластической косолапости у детей должно проводиться с учётом возраста. У детей до 1,5 года применялось консервативное лечение. При безуспешности консервативного лечения и рецидивах, применение аппарата Илизарова, в большинстве случаев даёт хорошие результаты.

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УДК: 616.2:616:053.2-084

#### TOPICAL ISSUES OF OBESITY MANAGEMENT IN CHILDREN AND ADOLESCENTS

**Tolstikova Olena**

Associate professor of Pediatrics 3 and Neonatology Department  
 State Institutions «Dnipropetrovsk Medical Academy of  
 Health Ministry of Ukraine»  
 Dnipro, Ukraine

*Annotation. The article is devoted to the problem of obesity in children and adolescents. Overweight and obesity are common in children and adolescents in developed and developing*



*countries, with incidence rates ranging from 20% to 39%. The prevalence of childhood overweight and obesity has tripled in the past 30 years all over the world. The topical issues of management of obese children and adolescents are presented. Childhood obesity progresses in adulthood, leading to the occurrence of disorders of fat and carbohydrate metabolism, systemic inflammation, atherogenic dyslipidemia, arterial hypertension, fatty hepatosis, which are components of the metabolic syndrome - a predictor of cardiovascular accidents and early mortality. All recommendations point to the importance of lifestyle changes, characterized by an age-appropriate nutritional program and regular physical activity. Even in the absence of weight loss, lifestyle changes can have a positive effect on fat and carbohydrate metabolism.*

**Keywords:** *childhood obesity; behavioral intervention, metabolic surgery*

The prevalence of childhood overweight and obesity has tripled in the past 30 years all over the world. Obesity is still an extremely urgent problem, due, on the one hand, to the high prevalence of the disease recognized worldwide as a non-infectious epidemic, on the other hand, due to serious health risks, including cardiovascular pathology. Beginning in childhood, obesity, as a rule, progresses in adulthood, leading to the occurrence of disorders of fat and carbohydrate metabolism, systemic inflammation, atherogenic dyslipidemia, arterial hypertension, fatty hepatosis, which are components of metabolic syndrome - a predictor of cardiovascular accidents and early mortality [2, 3]. Overweight and obesity are common in children and adolescents in both developed and developing countries, with an incidence ranging from 20% to 39% [2]. It is well known that in the genesis of obesity, the leading role is played by the environment in which the child lives (dietary habits in the family, tobacco smoking, alcoholism of parents, low physical activity, up to physical inactivity, systematic overeating and excessive consumption of high-calorie foods, including fast food). The mismatch of biological and behavioral responses to the above environment is also very important [8].

Diet, physical activity, screen time, and sleep patterns are influenced by a myriad of factors and interactions involving genetics, interpersonal relationships, environment, and community [9].

Overweight and obesity interventions are typically designed to account for these multilevel factors to assist children in achieving expert recommendations for physical activity and fruit and vegetable consumption, while limiting sugar sweetened beverages intake and screen time, and regulating sleep patterns [10, 12].

The risk of obesity can be passed on from one generation to the next. This may be due to behavioral and / or biological factors.

A linear dependence of the degree of obesity on the number of hours of work at the computer and the time of watching television programs by patients of all ages was established. To effectively combat the obesity epidemic, in addition to affecting causality and promoting healthy lifestyles, it is necessary to create an environment conducive to reducing the risks of obesity: physical inactivity at home, at work and in leisure time [1, 8].

Properly organized leisure plays a special role in solving the problem of reducing excess body weight. Average energy expenditure on basketball courts, tennis courts, and soccer fields is significantly higher than on outdoor picnic areas, dog walking, and baseball and playgrounds [6]. Specialists focus on the problems of environmental pollution, environmental problems, unhealthy diet and toxins. Densely built offices and shopping centers, along with the introduction of "sparing, immobilizing" technologies (elevators, electronic communications, automated household appliances) lead to a total decrease in physical activity at work, at home, inactive leisure and sedentary entertainment. All these factors undoubtedly contribute to the development of the current obesity epidemic [5, 11].

A successful solution to this problem is impossible without the participation of public health and the state in the form of the necessary information, providing an accessible



environment, qualified medical care and encouraging the population to lead a healthy lifestyle. The risk of developing obesity is particularly high in certain subpopulations within countries, such as migrant children and indigenous children.

Countries that are undergoing rapid socioeconomic and / or dietary changes face the double burden of the coexistence of malnutrition and overeating [1, 9].

Behavioral attitudes are passed from generation to generation, as children inherit socioeconomic status, cultural norms and standards of behavior, as well as family habits in relation to diet and physical activity. The concept of a healthy and desirable weight is highly dependent on cultural values and norms, especially when it comes to infants, young children or women. In some communities, overweight and obesity are becoming a social norm [3, 4].

Actually globalization and urbanization lead to increasing in both overweight and obesity, and across all socio-economic groups. A lot of children grow up in conditions conducive to weight gain and obesity. Changes in the availability of food and its types, as well as a decrease in physical activity aimed at moving or playing, led to the formation of an energy imbalance. Children eat highly processed foods that are high in calories but low in nutrients and are cheap and readily available. Opportunities for physical activity both in and out of school have exhausted, and children are spending more time at the computer, or in other sedentary activities [1, 3].

Gene function (epigenetic effect), and this effect does not necessarily have a noticeable effect on indicators such as birth weight. Children who are malnourished and are born with low birth weight or stunting have a much higher risk of becoming overweight and obese if they overeat and become sedentary at a later stage. Efforts to combat malnutrition and stunting in childhood can have unintended consequences and can lead to the development of obesity in these children [1].

The second mechanism is realized if the mother before pregnancy was obese or already had diabetes mellitus, or diabetes developed during pregnancy. In this case, the child is prone to increased fat accumulation, which is associated with metabolic disorders and obesity. Epigenetic processes can be involved in this mechanism as well. Recent animal studies have shown that obesity in the father may also be one of the reasons for the increased risk of obesity in offspring. Improper early infant feeding also affects the development of the baby's body. Appropriate interventions before pregnancy, during pregnancy and in the first months of a baby's life can prevent some of these effects on gene function, but once the critical period of development is passed, it can be difficult to reverse the effects of these effects. Since in many cases pregnancy is not planned and most women do not see a doctor until the end of the first trimester, it is important to disseminate knowledge about the importance of a healthy lifestyle before conceiving a child and in early pregnancy among adolescents, young women and men [1, 8].

In many populations, individuals across the entire BMI range have more adipose tissue than before, meaning an obesity-promoting environment negatively affects those who are not usually classified as obese. Overweight and obesity are not non-abnormal categories, and many children are on the road to obesity, even if their age-standardized BMI is within the normal range. The health consequences of being overweight and obese also do not appear when specific values are reached and can affect the child's quality of life even before the age-standardized BMI threshold is reached. The distribution of body fat also matters in terms of health outcomes. Despite the fact that BMI is the simplest tool for identifying overweight and obese children, its use does not always allow detecting children with abdominal obesity at risk of complications. New estimation methods are available but may not currently be available for population-based surveys.

A number of recent studies support the opinion that early diagnosis and successful treatment of obesity are the first steps to reduce the morbidity and mortality associated with this disease [2, 5]. The risk of developing of obesity is influenced by genetics and epigenetics



(gestational programming and epigenetic heredity). It is associated with the child's birth weight and early development of obesity [4, 10].

Regardless of these factors, excess nutrition, physical inactivity, social and physical environment, society and endocrine disorders affect the formation of obesity. The identification of high-risk children will facilitate the introduction of adequate screening programs for obesity and associated pathological components at an early stage of life. Screening should include measurement of height and body weight, calculation of body mass index (BMI), measurement of waist and hip circumference, determination of lipid profile, serum glucose and oral glucose tolerance test, examination of thyroid status (TSH, T4 free, antibodies to thyroid peroxidase, ultrasound examination of the thyroid gland) [2, 3]. The results obtained should be interpreted in accordance with the indicated indicators specific to age, gender and race.

Although different reference investigations have proposed several approaches to the treatment of obesity over the past decade, there is no standardized special drug therapy [2].

However, all recommendations point to the importance of lifestyle changes, characterized by an age-appropriate nutritional program and regular physical activity [2, 3]. Some studies report that even in the absence of weight loss, lifestyle changes can have a positive effect on fat and carbohydrate metabolism [7, 11].

Other researchers indicate that an improvement in atherogenic profile and insulin resistance is achieved only if BMI-SDS decreases by at least 0.5 within one year [5]. Experience shows that lifestyle modification is not always easy to achieve weight loss and, as a rule, it is not enough to achieve the target value of lipid and carbohydrate homeostasis. Lifestyle modification, a rational balanced diet, physical activity adequate for age and weight, and psychological support of a family and a team of professionals, including a pediatrician (and/or family doctor), endocrinologist, nutritionist, psychologist, physical education instructor - these measures should contribute to the achievement of global goals for the prevention and treatment of overweight and obesity in children and adolescents [2].

The need to use pharmacological interventions capable of controlling blood pressure, dyslipidemia, impaired glucose metabolism and other obesity-related abnormalities is determined in the absence of weight loss only by lifestyle modification [1, 3, 11].

Various studies have reported that metformin can improve insulin sensitivity and BMI in obese adolescents without diabetes, with the clinical phenotype of normoglycemia and hyperinsulinemia [2, 3]. The use of this drug is considered as an adjunct to a healthy lifestyle program. The use of statins and antihypertensive drugs for dyslipidemia and hypertension should be considered in some cases in children and adolescents at very high risk and inability to respond to lifestyle changes [4].

Bariatric surgery, often referred to as metabolic surgery in recent guidelines, is one of the most promising and effective procedures for treating obesity in adults. At the same time, in recent years, information has appeared about attempts to use metabolic surgery also in adolescents [6, 12]. Metabolic surgery leads to long-term weight loss and improvement in many obesity-related conditions, such as type 2 diabetes, hypertension, obstructive sleep apnea and non-alcoholic fatty liver disease [5, 6]. Although surgery promotes weight loss, physical health and psychosocial improvement, there is still insufficient knowledge about the long-term results of this treatment in adolescents.

With these considerations in mind, metabolic surgery should only be considered in exceptional cases for overweight adolescents, in situations where there is a threat of life-threatening conditions and the lack of results of 6 months of interdisciplinary lifestyle intervention. Although there are now several approaches to treating obesity, it is clear that further controlled trials, specific to pediatric groups, are needed to better evaluate their effectiveness in combating obesity in combination with insulin resistance and other conditions associated with metabolic syndrome [3, 12].



**Conclusions.** In recent years, the number of obese children and adolescents worldwide has increased dramatically. However, the search for more effective measures to prevent and treat obesity continues. Diet and physical activity are fundamental cornerstones of modern obesity management. Family-based behavioral intervention has been demonstrated to be an effective and safe treatment for childhood obesity and should be considered a first-line treatment option. In this case, the individual characteristics of each child and adolescent with this pathology should be taken into account, with the dominance of a patient-oriented approach to managing this group of people.

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