случайное попадание минимального количества причинно-значимого пищевого аллергена.

Выводы:

1 Уровень общего IgE у детей с пищевой анафилаксией превышает верхнюю границу референсного интервала более, чем в 10 раз.

2. Показатель активированных Т-лимфоцитов выше верхней границы референсного интервала почти в десять раз.

3. У детей с пищевой анафилаксией количество В-лимфоцитов снижено на 20% от нижней границы референсного интервала, что является косвенным свидетельством участия В-лимфоцитов в активном иммунном процессе, связанным с их дифференцировкой в плазматические клетки.

4. В исследуемой группе установлено снижение показателей активированного НСТ-теста примерно на 25% от нижней границы референсного интервала, при этом бактерицидная активность лимфоцитов была увеличена на 15%, а поглотительная активность моноцитов на 10%, что также отражает вовлеченность в патологический процесс не только лимфоцитов, но и нейтрофилов и моноцитов.

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ФАКТОРЫ, СПОСОБСТВУЮЩИЕ РАЗВИТИЮ ОЖИРЕНИЯ У ДЕТЕЙ СТАРШЕГО ШКОЛЬНОГО ВОЗРАСТА В РЕСПУБЛИКЕ БЕЛАРУСЬ

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FACTORS CONTRIBUTING TO THE DEVELOPMENT OF OBESITY IN CHILDREN OF SENIOR SCHOOL AGE IN THE REPUBLIC OF BELARUS

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Аннотация. В статье рассмотрены факторы, влияющие на развитие ожирения у детей старшего школьного возраста в Республике Беларусь, соотнесены уровень физической активности и малоподвижные периоды (время досуга у экрана телевизора, компьютера или другого устройства).

Annotation. The article deals with the factors influencing the development of obesity in children of senior school age in the Republic of Belarus, correlates the level of physical activity and sedentary periods (leisure time in front of a TV screen, computer or other devices).

Ключевые слова: детское ожирение, малоподвижный период, реклама, физическая активность, телевидение, Интернет.

Key words: childhood obesity, sedentary period, advertising, physical activity, television, Internet.

Introduction

According to the World Health Organization the rate of childhood and adolescent obesity is increasing worldwide. Thus, in 2016, 41 million children from 0 to 5 years of age were overweight or obese [1]. At the same time, the number of children from 5 to 19 years of age with overweight or obesity amounted to 124 million [2], which is more than 10 times as much as in 1975. The World Health Organization predicts a further tendency towards an increase in the number of overweight or obese children. This problem is especially acute in relation to school-age children, including those in the Republic of Belarus.

In Belarus all scientific studies devoted to the problems of childhood obesity can be divided into 2 groups: studies in which childhood obesity is "in focus": the authors consider the issues of prevention and treatment of childhood obesity directly (Zagrebaeva O.Y., Sukalo S.A., Solntseva A.V.), and studies in which the issues of prevention and treatment of various diseases burdened by childhood obesity are considered (Matyushko T.S.). However, many aspects of the problem of childhood obesity remain poorly investigated, including the influence of a sedentary lifestyle as a factor contributing to the development of childhood obesity (leisure time in front of a TV screen, computer or other devices and so on).

Purpose of the study – is to investigate the effect of sedentary periods on the development of overweight or obesity in children, especially leisure time in front of a TV screen, computer or other devices in children from 12 to 18 years of age.

Research materials and methods

A questionnaire survey was conducted among 240 respondents from 12 to 18 years of age (157 girls and 83 boys) from February to March 2021. The sample is random. The survey involved 12 people living in Minsk, 182 – in Gomel, 46 – in other regional centers.

Research results and their discussion

Among the studied group of children overweight or obesity was detected in 30 children (12.5%). At the same time, overweight and obesity in boys were more than 2 times as much as in girls (19.28% in boys and 8.92% in girls respectively). To determine overweight or obesity, BMI standard deviations (SDS – standard deviation score) were used as criteria. Taking into account the recommendations of the World Health Organization, obesity in children was defined as +2 SDS BMI, and overweight – from +1 to +2 SDS BMI. The standard values for height and weight were used presented on the website of the World Health Organization in the form of tables and curves for ages from 5 to 19 years [3].

The respondents were asked to indicate the types of physical activity they are engaged in (with the possibility of choosing several proposed answer options, and also respondents could give their own answer). Among the surveyed children with a normal body weight, 136 children (64.76%) indicated that they attend Physical Education classes at school, sports sections – 78 children (37.14%), dancing – 43 children (20.48%), 29 children (13.81%) play outdoor games. Among children with overweight or obesity 18 children (60%) attend Physical Education classes at school, sports sections – 18 children (60%), 2 children play outdoor games (6.67%). It should be emphasized that among children with overweight or obesity, no one is engaged in dancing, only 4 children attend Physical Education classes at school (13.33%). At the same time in comparison with children with normal body weight those with overweight or obesity are 1.6 times more likely to attend sports sections.

It should be noted that a small number of children were able to give their own assessment of their level of physical activity during the day. Among children with normal body weight 129 people (61.43%) coped with this task, of which 106 people (50.48%) said that they move a lot during the day and 23 people (10.95%) – little. The number of overweight or obese children who coped with this task was 1.5 times less (12 people). In addition, children with normal body weight were 1.7 times more likely to say that they move a lot during the day, and among those with overweight or obesity, they chose only the option "move little during the day" and did not choose any other types of physical activity - 2 children.

It was revealed that the level of physical activity of 16.67% of children with overweight or obesity does not correspond to the recommended one by the World Health Organization (less than 1 hour per day) [4]. Among children with normal body weight, such a percentage is 5.71%, which is 2.9 times less. It should be emphasized that 4 overweight children (13.33%) indicated that they were physically active for more than 4 hours during a day. A similar level of physical activity among children with normal body weight is 1.6 times higher.

In order to study the duration of leisure time in front of a TV screen, computer or other similar devices, respondents were asked to indicate how much time during the day they spend watching TV (table 1).

Table 1

Time children spend watching TV

	Less than 1 hour per day (people)	From 1 to 2 hours per day (people)	From 2 to 3 hours per day (people)	From 3 to 4 hours per day (people)	Over 4 hours per day (people)	I don't watch TV (people)
Overweight or obese	6 (20%)	2 (6,67%)	0 (0%)	2 (6,67%)	0 (0%)	20 (66,66%)
Normal body weight	75 (35,71%)	23 (10,95%)	7 (3,33%)	4 (1,91%)	0 (0%)	101 (48,1%)

The total length of time that children spend on the Internet including on social media was also examined. (table 2).

Table 2

Time children spend on the Internet including on social media

	Less than 1 hour per day (people)	From 1 to 2 hours per day (people)	From 2 to 3 hours per day (people)	From 3 to 4 hours per day (people)	Over 4 hours per day (people)	I do not use the Internet (people)
Overweight or obese	3 (10%)	6 (20%)	5 (16,67%)	4 (13,33%)	12 (40%)	0 (0%)
Normal body weight	14 (6,67%)	32 (15,24%)	46 (21,9%)	40 (19,05%)	78 (37,14%)	0 (0%)

It should be mentioned that 50.42% of children do not spend their leisure time watching TV, and 33.75% of children watch TV less than 1 hour a day. At the same time the total number of children who spend their leisure time on the Internet more than 4 hours a day is 90 respondents (37.5%), and 44 (18.33%) from 3 to 4 hours a day. The World Health Organization's guidelines on physical activity and sedentary behavior do not specifically limit the amount of time children aged 5-19 spend watching TVs, computers or other devices. They only contain general recommendations for the duration of such periods.

Television and the Internet affect not only the physical activity of children, but also the purchasing behavior. Within the questionnaire survey it was revealed that 67 children (27.92%) buy food advertised on television or on the Internet, and/or ask adults to buy it. 155 children (64.58%) saw the advertisement of unhealthy foods on television, and 215 children (89.58%) – on the Internet.

Conclusions:

1. The questionnaire survey revealed a sufficiently high level of prevalence of overweight or obesity in the Republic of Belarus among children from 12 to 18 years

of age. At the same time, overweight and obesity in boys were more than 2 times as much as in girls.

2. Among children with overweight or obesity, such kind of physical activity as dancing is not common, but in comparison with those with normal body weight, they more often attend sports sections. The physical activity level of 16.67% of overweight or obese children does not meet the recommended by the World Health Organization (less than 1 hour per day). Among children with normal body weight, such an indicator is 5.71%, which is 2.9 times less. Thus, children with overweight or obesity focus on various sports sections and do not follow the World Health Organization's recommended minimum of physical activity per day.

3. Currently television does not affect children's sedentary behavior as much as the Internet does. But they have a direct impact on the purchasing behavior of children and on the consumption habits through advertisements. Children aged between 12 and 18 see junk food advertisements quite often. Thus, it is necessary to develop restrictive measures at the state level in relation to the advertising of food products that contribute to the development of obesity in children.

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БОЛЕЗНЬ КРОНА У ДЕТЕЙ. СОВРЕМЕННЫЕ КЛИНИЧЕСКИЕ РЕКОМЕНДАЦИИ И РЕАЛЬНАЯ ПЕДИАТРИЧЕСКАЯ ПРАКТИКА

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