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DETECTION OF METABOLIC SYNDROME AND OBESITY AMONG CHILDREN AND ADOLESCENTS IN THE POLYCLINIC

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Abstract: Metabolic syndrome and obesity are an urgent problem both in Uzbekistan and around the world. An increase in incidence with this pathology is observed not only in the adult population, but also in adults under 10 years of age and adolescents[2]. Metabolic syndrome (MS) is a complex of metabolic, hormonal and clinical disorders closely associated with type II diabetes mellitus and are risk factors for the development of cardiovascular diseases, which is based on insulin resistance and compensatory hyperinsulinemia [3].

The purpose of our study is to identify the presence of metabolic syndrome and obesity symptoms in children and adolescents under 10 years of age.

Materials and methods of research. During the examination of 107 children and adolescents with obesity, blood glucose, immunoreactive insulin and C-peptide, lipidogram were identified.The examination was accompanied by ultrasound examination of the abdominal organs, electrocardiography, X-ray of the skull (Turkish saddle) or MRI of the pituitary gland, blood pressure monitoring was carried out.

The results of the study. The study revealed a tendency towards the manifestation of obesity mainly in children over 7 years old. The examination revealed changes in carbohydrate metabolism in the form of impaired carbohydrate tolerance and hyperinsulinemia, dyslipidemia, arterial hypertension. Weight in children decreased significantly against the background of proper nutrition, physical activity, intake of intestinal lipase inhibitors, and blood biochemical parameters improved.

Conclusion. Thus, regardless of the degree of obesity, children have signs of metabolic syndrome such as hyperinsulinemia, dyslipidemia and hypertension. Adherence to an adequate diet, physical activity, and the use of intestinal lipase inhibitors collectively show a positive effect in the treatment of obesity and manifestations of metabolic syndrome in children.

Keywords: Children under 10 years old, adolescents, obesity, metabolic syndrome, complications, treatment, prevention.

Relevance. Today, more than a billion people on the planet are overweight. Overweight is one of the fundamental risk factors for the development of many diseases, such as diabetes mellitus, hypertension, coronary heart disease, liver and gallbladder diseases and other pathologies [4, 7]. The conducted studies and the data obtained suggest that up to 10% of children may be clinically obese, as well as a considerable number of overweight adolescents retain it in adulthood [1, 8].

The role of hereditary factors in the development of obesity is currently beyond doubt. The existence of familial forms of obesity has been sufficiently studied, in which the inheritance coefficient reaches 25%,

which indicates a fairly high influence of genetic factors on the development of this disease [1].

It is believed that several periods are critical for the development of obesity [7]. At 1 year of life, excessive feeding of a child leads to adipocyte hyperplasia. With timely and adequate correction of the diet and diet during this period, there is a high probability of a favorable outcome. At the age of 5-7 years, obesity can be recurrent, which is often persistent and implies permanent obesity in adulthood, because during this period, the excess number of adipocytes does not decrease, but a reserve for fat depots is created [5]. The prevailing majority of overweight adolescents retain their body weight into adulthood. This predisposition is largely due to the restructuring of the neuroendocrine system associated with puberty.

The phenomenon of insulin resistance (IR) is one of the most common metabolic disorders in obesity in children. Free fatty acids prevent the binding of insulin by hepatocytes, which causes the development of IR at the hepatic level, a decrease in the absorption of insulin by the liver and the development of systemic hyperinsulinemia [2, 5]. In laboratory diagnostics at the first stage, additional studies include: assessment of the lipid profile, liver functions, glucose testing and determination of the concentration of immunoreactive insulin and C-peptide; determination of leptin concentration (recommended at the onset of obesity in early childhood and in monogenic forms of obesity) [7].

The purpose of our study is to determine the presence of signs of metabolic syndrome in obese children.

Materials and methods of research. During the examination of 107 children and adolescents with obesity, blood glucose, immunoreactive insulin and C-peptide, lipidogram were identified.The examination was accompanied by ultrasound examination of the abdominal organs, electrocardiography, X-ray of the skull (Turkish saddle) or MRI of the pituitary gland, blood pressure monitoring was carried out. All patients were diagnosed with obesity, taking into account standard deviations of body mass index (SDS BMI) according to WHO criteria.

The results of the study. The study revealed a tendency towards the manifestation of obesity mainly in children over 7 years of age. The examination revealed changes in carbohydrate metabolism in the form of impaired carbohydrate tolerance and hyperinsulinemia, dyslipidemia, arterial hypertension. Weight in children decreased significantly against the background of proper nutrition, physical activity, intake of intestinal lipase inhibitors, and blood biochemical parameters improved.

Of all the obese children we examined, the majority were boys -57%. The age of the children ranged from 3 to 10 years. The age group of 3-7 years included 8 children (12%), from 8 to 12 years - 22 children (34%) and, according to our data, adolescents aged 12 to 17 years turned out to be the overwhelming majority - 54%.

According to the study, 68% of children were breastfed from 3-4 months of age.

The manifestation of obesity was not dependent on the age of the child. The examined children with MS were up to 1 year old in 5% of children; from 1 to 3 years old - in 18% of children; from 4 to 7 years old — 28% of children; over 7 years old, 32% suffered from this pathology. All patients were examined for the purpose of early detection of various signs of metabolic syndrome. During the examination, fasting and post-carbohydrate blood glucose levels, lipidogram, immunoreactive insulin (IRI) and C-peptide, levels of thyroid-stimulating hormone (TSH) and free thyroxine (T4sv.) were determined. Ultrasound examination of abdominal organs, electrocardiography, X-ray of the skull (Turkish saddle) or MRI of the pituitary gland were performed, blood pressure was monitored. Taking into account the classification of obesity depending on SDS BMI, at the time of the examination, children with grade I obesity were identified - 16% (SDS BMI =2.0-2.5). The proportion of grade II and III obesity accounted for 32% and 35% of children, respectively. Morbid type of obesity (SDS BMI≥4) was found in 8% of patients. Taking into account Tanner's criteria, no disorders in sexual development were found in the examined children.

Signs of metabolic syndrome in obese children

Complications	The severity of obesity							
	I degree (n=16)		II degree (n=21)		III degree (n=23)		Morbid (n=5)	
	Abs.	%	Abs.	%	Abs.	%	Abs.	%
Violation of carbohydrate tolerance	0	0	2	9,5	3	13,0	3	60,0
Hyperinsulinemia	1	6,2	8	38,1	10	43,5	4	80,0
Dyslipidemia (or hypercholesterolemia)	1	6,2	3	14,3	4	17,4	4	80,0
Arterial hypertension	2	12,5	15	71,4	16	69,6	5	100

In addition, functional disorders of the thyroid gland were excluded in all children. Upon receiving the results of TSH and T4 CV levels, we excluded functional disorders of the thyroid gland.

As can be seen from the presented data, changes in carbohydrate metabolism were observed in children with II, III degrees of obesity and especially in morbid obesity. However, one patient with grade I obesity also had hyperinsulinemia. Hypercholesterolemia and dyslipidemia were observed in patients with varying degrees of obesity. High blood pressure (episodes or a cardiologist-confirmed diagnosis of hypertension) was recorded in children with both morbid obesity (100%) and grade I (12.5%). Children with II and III degrees of obesity suffer from an approximately equal ratio of increased blood pressure (71.4% and 69.6%, respectively). The children we examined did not suffer from concomitant diseases affecting excessive accumulation of adipose tissue.

Conclusion. Thus, children born full-term, with normal weight indicators, mainly from the age of three, without any concomitant pathology affecting excessive accumulation of adipose tissue, with a burdened family history of obesity, diabetes mellitus, and pathology of the cardiovascular system, suffer from obesity. Regardless of the degree of obesity, children have complications in the form of signs of metabolic syndrome such as hyperinsulinemia, dyslipidemia, arterial hypertension. Proper nutrition, physical activity, and intestinal lipase inhibitors in combination have a positive effect in the treatment of obesity and metabolic syndrome in children [7].

LITERATURE:

1. Thematic journal of Education / Хусинова Ш.А, Рахимова Х.М, Хакимова Л.Р. Юлдашова Н.Э, Абдухамидова Д.Х. 2022 //Assessment of the prevalence and quality of care of patients with heart failure in primary care. / tje - issn 2249-9822 vol-7-issue q3-.
2. Консилиум Материалы Межрегиональной научно-практической конфереции с международным участием. / Холбоев С.Б, Сулайманова Н.Э, Юлдашова Н.Э. 2016/Адаптированный клинический протокол по интегрированному ведению артериальной гипертонии и сахарного диабета среди лиц старше 40 лет. Здоровье семьи – будущее России / №2; 1-2 ноябрь.
3. Сборник статьей. Международной научно-практической конференции молодых ученых и студентов/ Холбаев С.Б, Хусинова Ш.А, Юлдашова Н.Э, Сулайманова Н.Э. 2016г // Оценка информированности врачей о хронической сердечной недостаточности для ведения больных в условиях первичного звена. / (г. Екатеринбург) том№1, С.497- 503.
4. Проблемы биологии и медицины. / Международ. научный журнал/ Юлдашова Н.Э, Сулайманова Н.Э, Лапасова З.Х, Урунова М.А. 2018// Диагностика и лечение осложнений сахарного диабета на основе принципов доказательной медицины / №3 (102) С.191-196.

5. International journal of innovations in engineering research and technology. (IJIERT) ISSN: 2394-3696 Website: ijirt. Org. VOLUME8, ISSUE 9, Sep.-2021. Khakimova, M.Kh. Ablakulova, N.E.Abduhamidova D.H The need for a hrescription by family doctors.
6. Кардиореспираторных исследований. /Аблакулова.М.Х, Сулайманова Н.Э. 2021 // Результаты исследования населения на предмет приверженности к зоровому образу жизни. / спец выпуск, №2.1. С.127-128.
7. Профилактическая медицина. / Е.С. Данилова, Р.А Потемкина, М.В. Попович и др. // Процесс реализации региональных программ профилактики неинфекционных заболеваний: двухлетние итоги 2015. Том 18, №4. С. 17-22. https//www.mediashera.ru
8. Проблемы биологии и медицины /Сулайманова Н.Э, Юлдашова Н.Э. 2018 // Диагностика и лечение эпилепсии у взрослых. / №3(102). С. 197-201. г Самарканд.
9. An International Multidisciplinary Research Journal / Рахимова Х.М., Солиева С.Ш. 2022 // Improving the quality of type 2 diabetes control based on pen protocols among the population. / Academicia: ISSN: 2249-7137, March, Vol. 12, Issue 03, p 62-68.
10. Вопросы питания. / В.А. Доценко, И.А Кононенко, Л.В. Мосийчук и др. // Мониторинг режима питания жителей Санкт-Петербурга 2015. Том 84, № 3. С. 58-63. https:// cyberleninka.ru >article>
11. Здоровье, демография, экология. Финно-Угорских народов Международный научно-практический журнал. / Сулайманова Н.Э. Рахимова Х.М. 2019 // Оптимизация методов лечения дисметаболического хронического пиелонефрита у детей / №1. С. 54-56.
12. Вопросы питания. / В.М. Жмиченко, М.М. Гаппаров // Современные тенденции исследований в нутрициологии и гигиене питания. 2015/ Том 84, № 1. С. 4-13. https:// cyberleninka.ru/article/n/sovremennye-tendentsii-issledovaniy-vnutritsiologii-i-gigiene- pitaniya.
13. Журнал Проблемы биологии и медицины/ Рахимова Х.М, Сулайманова Н.Э. 2022 // Аҳоли ўртасида ПЕН протоколлари асосида 2 турдаги қандли диабетни назорат қилиш сифатини яхшилаш / №4 (137), С. 160-164.
14. Вестник уральской медицинской академической науки. Т.В. Мажаева, Е.В. Пермяков // Питание и здоровье различных категорий населения России и Свердловской области / 2015. № 2. С. 107-110. http://vestnikural.ru
15. Журнал Кардиоресператорных исследований/ Сулайманова Н.Э, Рахимова Х.М. //Оценка качества представляемых медицинских услуг по профилактике осложнений сердечно сосудистых заволеваний. 2022. № 3 С. 94-97.
16. Профилактическая медицина. Обзор зарубежных рекомендаций/ И.В. Самородская, Е.В. Усова // Профилактика хронических неинфекционных заболеваний у пациентов с ожирением: выбор тактики ведения, целевые критерии и мониторинг. / 2015. Том 18, №4. С. 62-67.
17. Ж: Кардиореспираторных.исследований. / Сулайманова Н.Э., Рахимова Х.М.// Оценка качества предоставляемых медицинских услуг по профилактике осложнений сердечно-сосудистых заболеваний. 2022г. №3. С.91-94.
18. Акбаровна К. С. Сравнительный анализ содержания фактора роста эндотелия сосудов в экссудативном псориазе // Центральноазиатский журнал медицинских и естественных наук. – 2022. – Т. 3. – No 5. – С. 673-675.
19. Достижения науки и образования. Научно методический журнал. /Рахимова Х.М, Хакимова Л.Р, Аблакулова М.Х., Абдухамидова Д.Х.// Современные аспекты улучшение качества больных с

патологией эндокринных органов в условия первичного звена медицинской помощи. Россия 2019г. №10 (51). С.74-77.

20. Эргашевна С. Н. Оценить роль генетических факторов в патогенезе атопического дерматита // Web of Synergy: International Interdisciplinary Research Journal. – 2023. – Т. 2. – No 1. – С. 145-148.
21. Ж.Кардиоресператорных исследований/ Рахимова Х.М. //Poliklinika sharoitida axoli o'rtasida PEN protokollari asosida 2 turdagi qandli diabetni nazorat qilishsifatini yaxshilash. №-SI-1.1 2022.С.693-698.
22. Jurnal Tadqiqot.uz /Рахимова Х.М.// Оценка информированности амбулаторных пациентов о здоровом образе жизни в г.Самарканд. Узбекистонда илмий-амалий тадкикотлар 15-куп тармокли илмий масофавий онлайн конференция./1 май 2020й., С. 76-77
23. Annals of the Romanian Society for Cell Biology/ Kholboyev, S., Rahimova, K., Sulaymanova, N. 2021.//The state of the intestinal microflora and assessment of the health state among people with impaired
glucose tolerance ,/ 25 (1), С.163-176
24. Журнал Проблемы биологии и медицины. Юлдашова Н.Э. Изучение поведенческих факторов риска сахарного диабета среди населения. 2020г., №1.1 (117), С. .235. https://www.sammi.uz/ru/pages/journal_problems_biology.
25. Достижения клинической и экспериментальной медицины. / Холбоев С.Б., Юсупов Ш.А., Юлдашова Н.Э., Сулайманова Н.Э. // Влияние лечения ожирения медикаментозной терапией на клинические проявления остеоартроза коленных суставов на первичном звене здравоохранения/ Научно-практический журнал. г.Тернополь (Украина), 2020г., №3, С.181- 186. http://www.university-ua.com/ru/ternopol-university.
26. Халимовна А. Д., Юлдашова Н. Е. Разработка поэтапного лечения больных с поражением слизистой оболочки рта // Web of Synergy: International Interdisciplinary Research Journal. – 2023. – Т. 2. – No 1. – С. 166-169.
27. Kholbayev S. B. et al. ВЛИЯНИЕ МЕДИКАМЕНТОЗНОЙ ТЕРАПИИ ОЖИРЕНИЯ НА КЛИНИЧЕСКИЕ ПРОЯВЛЕНИЯ ОСТЕОАРТРОЗА КОЛЕННЫХ СУСТАВОВ НА ПЕРВИЧНОМ ЗВЕНЕ ЗДРАВООХРАНЕНИЯ //Здобутки клінічної і експериментальної медицини. – №. 1. – С. 181-187.
28. «Фундаментальная наука в современной медицине». / Юлдашова Н.Э // Оценка здорового образа жизни сельского населения и роль врача общей практики в повышения медицинской грамотности населения. / Сборник материалов конференции. Международная научно-практическая онлайн конференция/ 2020г. (90-летие СамГосМИ) Самарканд, С. 502. https://www.sammi.uz/ru/pages/journal_problems_biology.
29. Проблемы биологии и медицины. / Сулайманова.Н.Э, Рахимова.Х.М. // БТСЁ муассасалари учун артериал гипертония ва кандли диабет касаллиги буйича мослаштирилган клиник протоколларни УАШ фаолиятига тадбик этиш. /Ежеквартальный международный научный журнал / (90) 2016г 3-4 ноября. №3.1. С. 56-59.
30. Мамарасуловна Х. Р., Юлдашова Н. Е. Лечение урогенитального хламидиоза // Web of Synergy: International Interdisciplinary Research Journal. – 2023. – Т. 2. – No 1. – С. 157-160.
31. Khalimovna A. D., Yuldashova N. E. Development of a Staged Treatment of Patients with Defeat of the Mouth Mucosa //Web of Synergy: International Interdisciplinary Research Journal. – 2023. – Т. 2. – №. 1. – С. 166-169.

32. "Innovative approaches in the diagnosis and treatment of cardiovascular diseases" /Yuldashova N.E., Sulayemanova N.E., Abdukhamiova D.H. // Identification of cardiovascular diseases and their risk factors in the practice of a family doctor. Zh. Cardiology of Uzbekistan /No. 3, 2021 of the International Scientific and Practical Conference of Cardiologists 2021 (November 12-13,) Page

33. Journal of CARDIORESPIRATORI RESEARCH.Volume 3, Issue1. 2022 №1, стр 19-23. Аблакулова М.Х., Хусинова Ш.А., Юлдашова Н.Э. Распространенность ишемической болезни сердца в городской неорганизованной популяции города Самарканда РахиРахи30

34. Рахимова Хидоят Мамарасуловна, Хакимова Лейла Рафиковна, Аблакулова Муниса Хамрокуловна, Абдухамидова Дилшода Халимовна Современные аспекты по улучшению качества ведения больных с патологией эндокринных органов в условиях первичного звена медицинской помощи // Достижения науки и образования. 2019. №10 (51). URL: https://cyberleninka.ru/article/n/sovremennye-aspekty-po-uluchsheniyu-kachestva-vedeniya-bolnyh-s-patologiey-endokrinnyh-organov-v-usloviyah-pervichnogo-zvena (дата обращения: 18.03.2023). ХидоятХамрокуловна, Абдуха

35. Юлдашова Н. Распространенность факторов риска, влияющих на прогноз заболевания больных с артериальной гипертензией //EDITOR COORDINATOR. – 2020. – С. 390.X

36. Хусинова Ш. А. и др. Результаты воздействия факторов социальной среды на психоэмоциональное развитие подростка //Достижения науки и образования. – 2019. – №. 10 (51). – С. 64-68. имовна С

37. Лапасов С. Х. и др. Результаты оценки качества диагностики и лечения больных сахарным диабетом 2 типа в условиях первичного звена медико-санитарной помощи //Здобутки клінічної і експериментальної медицини. – 2017. – №. 2. – С. 134-137.

38. Хусинова Ш. А. Распространённость артериальной ги-пертензии, особенности её клинического течения и состояние белково-липидного обмена у работников табачного производства //Автореф. дисс.… канд. мед. наук. Ташкент. – 1998. – С.

39. Хусинова Ш. А., Аминов З. З. Мероприятия, проводимые в учреждениях первичной медико-санитарной помощи по профилактике распространения COVID-19 //Медицинское образование сегодня. – 2020. – №. 3. – С. 190-201. 40. Хусинова Ш. А. Распространённость артериальной ги-пертензии, особенности её клинического течения и состояние белково-липидного обмена у работников табачного производства //Автореф. дисс.… канд. мед. наук. Ташкент. – 1998. – С. 24.