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Article / Original paper

FEATURES OF DIAGNOSIS OF PERIPHERAL LYMPHADENOPATHY IN CHILDREN

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Abstract.

Lymphadenopathy (LAP) is a disease that is accompanied by an increase in one or more groups of lymph nodes (LN). This disease is observed in both young children and adults and requires specific methods of diagnosis and treatment. Thus, this article examines the cases of lymphadenopathy in people aged 5-17 years and the factors causing it, studied in 210 patients, and presents the results of the study. 11 factors causing lymphadenopathy in children are listed and specific recommendations for their diagnosis are given. The purpose of the study: to study the influence of factors leading to the occurrence of lymphadenopathy in children, and to study the specific aspects of its diagnosis. Materials and methods of research: the work uses anamnestic, laboratory, instrumental, biochemical and statistical data. 210 children were examined to assess cases of lymphadenopathy in children. Inclusion criteria at the first stage: the medical records of the AGMI clinic and the MK MED clinic for 2020-2023 with lymphadenopathy aged 5 to 17 years were studied. The results of the examination of 210 children aged 5 to 17 years with a diagnosis of lymphadenopathy at the second stage were analyzed. Of these, 98 are girls, 112 are boys. Of these, children with localized knee had 178 (85%) with combined knee and 28 (13%) with generalized knee and 4 (2%) with generalized knee. Results and discussions. According to the degree of enlargement of lymph nodes in patients who participated in our observation, the following indicators were revealed: 18 with grade I LAP (8.5%), 94 with grade II LAP (44.7%), 97 with grade III LAP (46.1%). In only 1 (0.5%) cases, a giant crankshaft was observed. The number of children with nonspecific bacterial infection referred by an otorhinolaryngologist for medical examination: 26 (12.3%), the number of children with odontogenic nonspecific bacterial infection: 21 (10%), a total of 51 (24.2%) cases were detected. A specific bacterial LAP was found in 4 (1.9%) children. The number of children with LAP of viral etiology occupied slightly higher indicators, for example: cytomegalovirus (CMV) was registered in 14 (6.6%), gepres-in 18 (8.5%), lap as a result of concomitant appearance of CMV and herpes virus -in 47 (2.3%) cases, with AIDS (acquired immunodeficiency syndrome PAW damage was detected only in 1 (0.5%) cases.

Key words: children and adolescents, lymphadenopathy, specific, laboratory.

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Dolzarbligi. Limfadenopatiya (LAP) - limfa tugunlarining bir yoki bir nechta guruhining (LT) kattashuvi bilan kechuvchi xastalik xisoblanadi. Mavzuning dolzarbligi shundaki patologiyaning ushbu turini keng tarqalganligi, etiologik omillarning turli tumanligi, klinik belgilar va laboratoriya parametrlarining polimorfizmi, differensial tashxisning murakkabligi, ekologik hamda alimentar muammolar sharoitida neoplastik jarayonlar xavfining oshishi bilan bog'liq.

Limfoid to'qimalarda reaktiv holatlar va o'ziga xos patologik jarayonlarni differensial tashxislash zarurati pediatr va oilaviy shifokordan chuqur bilimga ega bo'lishni va to'g'ri qaror qabul qilishni talab qiladi[1].

Periferik limfadenopatiya bola xayotining xavfsizligiga xavf tug'dirishi mumkin bo'lgan jiddiy xastalikdan xabar berishi mumkin. Agarda LAP ni sababi erta aniqlansa va unga qarshi kurashni amalga oshirilsa jiddiy asoratlarni oldini olib, bolani xayotini saqlab qolish mumkin bo'ladi [2,3].

Periferik limfa butun tana satxining ma'lum joylarida o'rnashgan bo'lib inson tanasidagi umumiy soni 460-600 tani tashkil etadi, 18 yoshli kishilarda uning og'irligi 500-1000 gramni tashkil etib tana massasini 1% ni tashkil qiladi[1]. Limfa tugunlari organizm uchun quyidagi bir nechta muxim vaziyfalarni bajaradi: immunologik, gemopoetik, barer, stimullovchi, moddalar almashinuvi. Uning o'lchamlari 3-8 mm dan to 1 sm gacha bo'ladi, lekin chov sohasidagi limfa tugunlari bir oz kattaroq o'lchamlarga ega bo'lishi mumkin.

Turli sabablarga ko'ra limfa tugunlarining kattalashish daradasiga ko'ra 3 darajaga bo'lish mumkin(Sav 2013).:

I darajada kattalashgan limfa tuguni 0,5-1,5 sm gacha;

II daraja darajada kattalashgan limfa tuguni 1,5-2,5 sm gacha;

III darajada kattalashgan limfa tuguni daraja 2,5-3,5 sm gacha;

Lekin bizning kuzatuvimizdagi bemorlarni limfa tugunlari o‘lchamlari o‘rganilganda 5 sm va undan ortiq xolatlar ham kuzatildi. SHunga ko‘ra IV darajadagi kattalashish yoki gigant limfaadenopatiya tushunchasini ham kiritish mumkin. Bundan tashqari limfa tugunlarining shikastlanish sohalarini va ularni soni bo‘yicha siniflanish amalga oshirilmagan.

Masalan bir bemorni o‘zida yakka yoki bir sohadagi limfa tugunlari kattalashgan bo‘lsa unda regional limfadenopatiya deb yuritiladi. Agarda bir nechta bir biriga yaqin limfa tugunlarini kattalashuvi kuzatilsa unda kombinatsiyalangan limfadenopatiya deyilsa ikki va undan ortiq regiondagi limfa tugunlar kattalashishi kuzatilsa generalizatsiyalangan limfadenopatiya deb yuritishni tavsiya etiladi.

Tadqiqot maqsadi: Bolalarda limfadenopatiya kelib chiqishiga olib keluvchi omillarni ta’sirini o‘rganish va uni diagnostikasini o‘ziga xos tomonlarini o‘rganish.

Tadqiqot materiallari va usullari: Ishda anamnestik, laboratoriya, instrumental, biokimyoviy va statistik ma’lumotlardan foydalanilgan. Bolalarda imfadenopatiya holatlarini baholash uchun 210 nafar bolalar tekshirildi. Birinchi bosqichda qo’shilish mezonlari: 5 yoshdan 17 yoshgacha bo’gan imfadenopatiya bilan ADTI klinikasi va MK med klinikasiga 2020-2023 yillar davomidagi tibbiy kartalar o’rganildi. Ikkinchi bosqichda limfadenopatiya aniqlangan 210 nafar 5 yoshdan 17 yoshgacha bo‘lgan bolalarning tekshiruv natijalari tahlil qilindi. Bularning 98 nafari qiz bolalar 112 nafarini o‘g‘il bolalar tashkil qildi. Shundan maxalliy LAP bilan og‘rigan bolalar 178 ta (85 %) kopbinatsiyalangan LAP bilan 28 ta (13%), generalizatsiyalangan LAP 4 ta (2%) ni tashkil qildi.

Natijalar va uni muxokamasi. Bizning kuzatuvimizagi bemorlarni limfa tugunini kattalashish darajasi bo‘yicha quyidagi ko‘rsatkichlar aniqlandi: I darajali LAP bilan 18 ta (8,5%), II daraja LAP bilan 94 ta (44,7%), III darajada LAP bilan 97 ta (46,1%). Atigi 1 ta (0,5%) xolatda gigant LAP kuzatildi. Otorinoloringolog shifokor tomonidan tibbiy masxalat uchun yuborilgan nospetsifik bakterial infeksiya bilan og‘rigan bolalar soni: 26 ta (12,3%), odontogen nospetsifik bakterial infeksiya bilan bog‘rigan bolalar soni: 21 ta (10%), jami 51 ta (24,2%) xolatda aniqlangan. Spetsifik bakterial LAP 4 ta (1,9%) bolalarda aniqlandi. Virus etiologiyali LAP bilan og‘rigan bolalar soni bir muncha yuqori ko‘rsatgichlarni egalladi, masalan: Sitomegalovirus (SMV) 14 ta (6,6%), gepres 18 ta (8,5%), SMV va gepres virusining birga kelishi natijasidagi LAP 47 ta (2,3%) xolatda qayd etildi, OITS (orttirilgan immun tanqislik sindrom) bilan zararlanish natijasidagi LAP atigi 1 ta (0,5%) xolatda aniqlandi.

Bir nechta virus bilan kasallanish natijasida rivojlangan LAP

14 ta (6,6%), zamburug‘ sababli kelib chiqqan LAP bizning kuzatuvlarimizda aniqlanmadi. Lekin parazitar kasalliklar natijasida asosan chov sohasi LAP ko‘rinishida jami 3 xolatda aniqlandi va bu 1,4% ni tashkil qildi. Bundan tashqari 5-10 yoshgacha bo‘lgan bemor bolalarning 0,3% da alimentar omil ya’ni kreshki, chipsi va turli rangli ichimliklarni suiste’mol qilish natijasida turli darajadagi LAPlar kuzatildi.

LAP ni uchrashi 4-7 yoshgacha bo‘lgan bolalarda eng yuqori foizlarda ya’ni 34,2% ni tashkil qilgan bo‘lsa, 8-10 yoshli bolalarda 32,9% ni tashkil qildi. Eng kam kasallanish xolati 11-13 yoshli bolalarda 18,6% va 14 yoshdan kattalarda 14,3% bilan qayd etildi. Kuzatuvimizdagi bemorlarning yosh va jinsi bo‘yicha taqsimoti 1 jadvalda keltirilgan.

Jadval-1.

Bemorlarni jinsi va yoshi bo‘yicha taqsimlanishi

Yoshi	O‘g‘il bolalar (n= 112)		Qiz bolalar (n=98)		Umumiy	
	Abs.	%	Abs.	%	Abs.	%
4-7	40	35,7	32	32,6	72	34,2
8-10	35	31,2	34	34,6	69	32,9
11- 13	19	17	20	20,4	39	18,6
14- 17	18	16,1	12	12,4	30	14,3
Jami	112	53,4	98	46,6	76	100

Limfadenopatiya kelib chiqishiga sabab bo‘luvchi omillar 9 turga bo‘lingan. Lekin bugungi kundagi bizni kuzatuvlarimizga ko‘ra etiologik omillarini 11 ta turga bo‘lish mumkin ular quyidagilar:

1. Infeksion omillar: bakterial(nospetsifik bakteriyalar stafilokokk, streptokokk, spetsifik bakteriyalar - sil, zahm va boshqa), virusli (gerpes virusi, sitomegalovirus, gepatit

virusi, qizamiq, OITV(odam immun tanqislik virusi), adenovirus), zamburug'li(gistoplazmoz, koksidomikoz, blastomikoz), parazitar.

2. Tizimli kasalliklar ta'siridagi LAP; (revmatoid artrit, tizimli qizil bo'richa va boshqalar).

3. Onkologik kasalliklar omili; (xususiy onkologik xastaliklar, metastatik onkologik kasalliklar).

4. Moddalar almashinuvining buzilishi bilan kechuvchi kasalliklar; (Goshe kasalligi, Nimanna-Pika va boshqa).

5. Endokrinologik kasalliklar; (tiriotoksiokoz va boshqa).

6. Allergik kasalliklar; (allergik rinit, broxnit, dermatit).

7. Genetik kasalliklar; (Klippel-Trenone, Kanela-Smit sindromi).

8. Medikamentoz kasalliklar; (antibiotiklarni tartibsiz qabul qilish).

9. Alimentar omillar; (kreshki, chipsi va turli rangli ichimliklarni suiste'mol qilish).

10. Autoimmun omillar.

11. Aralash omillar.

Limfadenopatiyaga sabab bo'luvchi kasalliklarni ko'pligi uni tashxislash uchun zarur diagnostik algoritmga extiyoj tug'iladi. Tana xarorati va antibakterial terapiyaning samarasizligi virusli infeksiya mavjudligini va limfagranulyomatoz, limfoma va mononukleoz, Kastlemana sindromi uchun xos. Bolalarda teri o'zgarishlari bilan kechuvchi LAP ga olib kelishi mumkin bo'lgan kasalliklar tizimli qizil bo'richa kasalligi, o'tkir leykoz, dorilarni nojo'ya ta'siri, mushuk tirnashi kasalligi, bundan tashqari pedikulyoz sabab bo'ladi. Nafas yo'llari kasalliklari bilan kechuvchi LAP larga sarkoidoz, o'pka sili va bronxit sabab bo'ladi. Bo'g'im sindromi bilan kechuvchi LAP ga reamatoid poliartrit, sarkoidoz, tizimli qizil bo'richa kasalligi sabab bo'ladi. Ayrim xolatlarda antibakterial va virusga qarshi dorilar ham samara bermaydi unday holatlarda allergik kasalligi va autoimmun kasalliklarni qidirish kerak bo'ladi. Genetik kasallik xisoblangan Klippel-Trenoner, Kanela-Smit sindromida ham LAP kuzatilishi mumkin. SHuni unitmaslik kerakki LAP bilan kasallangan bolalarda yuqorida sanab o'tilgan kasalliklarni bir nechtasi bir vaqtda kelishi mumkin.

Yuqorida keltirilgan kasalliklarga bir bemorni tekshirish juda katta qiyinchilik va mablag' talab etadi. Shu sababli bemorlarni tekshirish algoritmini yaratish talab etiladi.

Ayrim kasalliklar faqatgina gistologik tekshiruv natijasida tashxislanadi lekin barcha bemor uchun biopsiya amaliyotini o'tkazish talab etilmaydi.

Bolalar LAP siga sabab bo'luvchi omillarni o'rganish shuni ko'rsatdiki eng ko'p kasallikka sabab bo'luvchi omil viruslar 38% va bakteriyalar 24,2% xolatlarda LAP ga olib keladi. Keyingi o'rinda esa alimentar omillar 13,8% ni tashkil etgan bo'lsa 10,9% xolatlarda LAP ga allergik omillar sabab bo'lgan. YAna shunga e'tibor qaratish kerakki dori vositalarni tartibsiz qo'llash sababli kelib chiqqan LAP nazoratimizdagi bemorlarni 10% ni tashkil etdi. Garchi onkologik va moddalar almashinuvi buzilishi bilan kelib chiqqan LAP kam foizlarda kuzatilgan bo'lsa ham bu kasalliklarni e'tibordan chetda qoldirmaslik zarur. Bemorlarni etiologik omillar bo'yicha taqsimlanishi 2 jadvalda keltirilgan.

Jadval-2.

Bemorlarni etiologik omillar bo'yicha taqsimlash

Etiologik omil	Bemorlarning soni	
	abs	%
Bakterial infeksiyalar	51	24,2
Virusli infeksiyalar	80	38,0
Tizimli kasalliklar	1	0,5
Onkologik kasalliklar	1	0,5
Moddalar almashinuvining buzilishi bilan kechuvchi kasalliklar	1	0,5
Endokrinologik kasalliklar	0	0
Allergik kasalliklar	23	10,9
Genetik kasalliklar	0	0
Medikomentoz omillar	21	10
Autoimmun omillar	3	1,4
Alimentar omillar	29	13,8
Jami:	210	100.0

Xulosa. Dastlab bemorni tekshirishda o‘tkir va surunkali infeksiya o‘choqlari aniqlanadi agarda bemorda aniq tashxis qo‘yilgan bo‘lsa ushbu LAP ga sababchi bo‘lgan xastalik davolansa LAP ni davolashga erishiladi. Lekin bu bemorlar unun kengaytirilgan qon tahlilini o‘tkazish talab etiladi. Qon tahlilida o‘zgarishlar: leykotsitoz, yoki leykopeniya yuqumli kasalliklar va gemotologik xastaliklar xaqida darak beradi. Atipik mononuklear hujayralarni aniqlanishi mononukleozdan darak beradi. Blast hujayralarni bo‘lishi esa leykemiya uchun xos o‘zgarishdir. Agarda qon tahlilida eozinofiliya aniqlansa immunoglobulin E miqdorini aniqlash va allergenni topish kerak bo‘ladi, chunki allergik xolatlarda ham LAP kuzatiladi. Bundan tashqari limfa tugunlarini UTT (ultra tovush tekshiruv) tekshiruvi o‘tkazish va atipik jarayonga shubha tug‘ilganda qo‘shimcha tekshiruv o‘tkazish talab etiladi. Bundan tashqari LAP bor bemor bolalarda TORCH infeksiyasini aniqlash uchun labarator tahlil o‘tkazish talab etiladi. Agarda tana xaroratini ortishi, tana vaznini yo‘qotish va qon tahlilida anemiya va leykemik xolat aniqlansa, albatta qorin bo‘shlig‘i UTT tekshiruvi o‘tkazilib taloqni xolati tahlil qilinishi shart.

Yo‘tal va balg‘am ajralishi bilan kechuvchi LAP larda ko‘krak qafasi rentgenogrammasi va tomografiyasi o‘tkazish kerak bo‘ladi.

Bemorlarda 4-6 haftalik davolash samara bermaganda, tana xarorati ortishi kuzatilib, limfa tugunlari konsistensiyasi qattiqlashsa, UTT da atipik jarayonga shubha tug‘ilsa, ECHT yuqori bo‘lsa ingichka ignali yoki ochiq usulda limfa tugunidan biopsiya olish talab etiladi.

Andijon davlat tibbiyot universiteti axloqiy komissiyasining qarori: ilmiy tadqiqot o‘tkazish uchun bemorlardan yozma ruxsat olindi va tadqiqot natijalari ilmiy nashrlarda e’lon qilinishi mumkin.

Moliyalashtirish: Har bir muallifning shaxsiy mablag’lari hisobidan ishlab chiqariladi

Manfaatlar to’qnashuvi: Mualliflar manfaatlar to’qnashuvi yoki hisobot berish uchun moliyaviy yordam yo’qligini tasdiqladilar.

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Article / Original paper

ASSOCIATIONS OF FTO (RS9939609) AND PPARG 2 (RS18012820) GENE POLYMORPHISM IN CHILDREN WITH ABDOMINAL OBESITY AND METABOLIC SYNDROME

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Abstract.

The original article presents the results of a study of the distribution frequency of the FTO (rs9939609) and PPARG 2 (rs18012820) gene polymorphisms in children with abdominal obesity and manifestations of metabolic syndrome, as well as children with normal body weight. The results of the study are recommended for widespread use in the practice of family doctors, pediatricians and pediatric endocrinologists.

Objective of the study: to study the features of the association of the FTO (rs9939609) and PPARG 2 (RS18012820) gene polymorphism in children with abdominal obesity and manifestations of MS

Materials and methods. 72 children with abdominal obesity and manifestations of metabolic syndrome and 40 children with normal body weight were examined. A comprehensive anthropometric, anamnestic, clinical, biochemical and molecular genetic study was conducted to determine the distribution frequency of the FTO gene polymorphism (rs9939609) and PPARG 2 (rs18012820). Statistical processing of the obtained data was performed on a personal computer using the Statistica 10 program. In genetic studies, allele frequencies and allele combination frequencies were calculated and their compliance with the Hardy-Weinberg equilibrium using the x^2 criterion with the calculated ones, rejecting the null hypothesis at $P < 0.05$.

Results. The results showed that the homozygous genotype of the FTO gene - T/T was found with a lower frequency in children with abdominal obesity and children with metabolic syndrome (x^2=4,530, p=0,034), and the homozygous genotype A/A of the FTO gene was significantly more common in children with metabolic syndrome. In children with abdominal obesity, the Pro allele and Pro12Pro genotype were more common (85.5% and 73.6%) compared to children in the control group (76.2% and 60.0%). It was found that the Pro12Pro genotype of the PPARG-2 gene was statistically more common in children with MS - 84.6% compared to children who did not have this syndrome - 62.5% (x^2=5,304, p=0,022).

Conclusion. The genotype A/A and allele A of the FTO gene (rs9939609) have a predisposing value to the abdominal type of obesity and metabolic syndrome. The predominant genotype in children with the abdominal type of obesity and manifestations of metabolic syndrome was Pro12 Pro, and in children with the abdominal type of obesity without metabolic disorders, the frequency of the minor allele 12Ala was statistically higher compared to children with manifestations of metabolic syndrome, which allows us to classify this allele as protective for the development of metabolic disorders.

Keywords: children, abdominal obesity, metabolic syndrome, FTO gene, PPARG 2 gene.

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Актуальность проблемы.

Необходимость исследования факторов риска развития ожирения у детей с его осложнениями определяется сохраняющейся тенденцией роста абдоминального ожирения в популяции [1,2]. В республике Узбекистан также отмечается рост первичной и общей заболеваемости ожирением среди детей и подростков, а темп его роста является значительным [3].

Важно то, что увеличение индекса массы тела (ИМТ) у детей и подростков признано независимым предиктором развития коморбидных состояний составляющих метаболический синдром [2]. Так, абдоминальное ожирение у подростков признано независимым фактором риска инсульта в молодом возрасте, развития сердечно-сосудистой патологии, заболеваний желудочно-кишечного тракта и патологии почек [4].

Научные исследования последних лет свидетельствуют, что генетические факторы занимают ведущее место в среди факторов риска развития ожирения, составляя по данным различных авторов от 25% до 75% [5].

Олигонуклеотидная мутация в генах, обуславливающих ожирение определяет дисбаланс между катаболическими и анаболическими процессами в организме, при этом их регуляторными факторами являются инсулин, лептин грелин и другие анорекигенные и ороксигенные гормоны [6]. На сегодняшний день накоплено достаточное количество свидетельств о разностороннем вкладе различных генов в формирование и прогрессирование ожирения [7]. Вышеуказанная противоречивость является следствием генетической гетерогенностью популяций, в которых проводились исследования, а также различиями физиологии в причинах заболеваний между различными этническими группами [8].

Одним генов вносящего вклад в развитие ожирения является ген FTO (Fat Mass And Obesity Associated), ассоциированный с жировой массой и ожирением [7].

Ген FTO локализован на хромосоме 16q12.2 и кодирует синтез белка FTO [7]. продукт экспрессии Гена FTO преимущественно сосредотачивается в гипоталамусе, а именно в центрах чувства голода и насыщения. Белок FTO участвует в энергетическом обмене и метаболизме клеток организма [7,9]. Выявлено существование однонуклеотидного полиморфизм (SNP – single nucleotide polymorphism) T/A (rs9939609) гена FTO. Аллель А данного гена связана с риском развития первичного ожирения, при этом обладатели генотипа АА (16% населения) в большей степени подвержены риску накопления жировой массы, чем обладатели генотипа ТТ (37% населения) [7,9]. Присутствие хотя бы одного аллеля Т существенно снижает риск накопления избыточной массы тела и развития ожирения.

К разновидностям генов регулирующих метаболизм относиться также ген активатора перкосисом PPARG (Peroxisome Proliferator Activated Receptor Gamma)

PPARG ген располагается на хромосоме 3p25 его состав заключается в 9 экзонах и 8 интронах. Функцией данного гена является кодировка аминокислотной последовательности гамма-ядерного рецептора, который активизируется пролифератором пероксисом (peroxisome proliferator-activated receptor), что регулирует процесс окисления жирных кислот, отвечает регуляцию обмена глюкозы и чувствительность тканей к инсулину. Активизация данного гена способствует дифференцировке адипоцитов тем самым ускоряя процессы адипогенеза [8]. Существует множество полиморфизмов гена PPARG, которые ассоциированы с избыточной массой тела и ожирением. В настоящий момент одним из самых изученных полиморфных локусов является PPARG 2 Pro12Ala (rs1801282), распространённость генотипов и аллей которого в различных этнических группах и с этим представляет собой противоречивые выводы [8].

В настоящее время особое значение придается исследованию генетических предикторов ожирения и его основных осложнений, однако исследований, посвященных анализу ассоциации влияния генетических факторов на развитие абдоминального ожирения и, особенно, его коморбидной патологии, у детей узбекской популяции не полны и единичны, что требует пристального изучения проблемы.

В связи с выше изложенным перед нами была поставлена цель: изучить особенности ассоциации полиморфизма гена FTO (rs9939609) и PPARG 2 (RS18012820) у детей с абдоминальным типом ожирения и проявлениями МС

Материал и методы: исследования проведены на базе семейных поликлиник города Самарканда, а также Самаркандского областного отделения Республиканского специализированного эндокринологического научно- практического медицинского центра имени академика Ё.Х. Туракулова (Узбекистан). В исследовании приняли участие 76 детей в возрасте от 7 до 18 лет с экзогенно-конституциональным ожирением, при этом средний возраст детей составил 12,02±0,46 года. Группу контроля составили 40 детей с нормальной массой тела, без наличия хронических заболеваний и острых заболеваний на момент осмотра. Дети группы контроля имели аналогичный возраст, что и в основной группе, средний показатель которого составил 12,14±0,27 года.

Антропометрические исследования проводились с использованием стандартных измерительных приборов (ростомер напольный и медицинские весы). Антропометрические измерения включают в себя: рост, массу тела, окружность талии и бедер. Сравнение полученных данных и оценку физического развития проводили по кумулятивным центильным таблицам возрастного и гендерного распределения ВОЗ роста и массы тела для детей 5-19 лет [10]. Индекс массы тела (ИМТ) рассчитывали на основе измерений.

Результаты антропометрических исследований были оценены с применени-

ем стандартных отклонений индекса массы тела (SDS) в соответствии с рекомендациями всемирной организации здравоохранения ВОЗ [10]. Основой постановки диагноза Ожирение послужило определение точки пересечения возраста и ИМТ, выше +2,0 SDS ИМТ, избыточная масса тела были диагностирована при показателях находящихся от +1,0 до +2,0 SDS ИМТ и недостаточная масса тела от -1,0 до -2,0 SDS ИМТ.

Выборка 72 детей с абдоминальным ожирением, составивших основную группу имела ИМТ +2,6 до ≥+3 SDS, т.е. дети имели ИМТ характеризующих ожирение от II-III степени, средние показатели ИМТ составил 33,13±0,46 кг/м2 средний SDS ИМТ находился в диапазоне 2,90±0,12, в контрольной группе ИМТ имел диапазон от +1,0 до -1 SDS, при этом ИМТ в среднем составил 19,38±0,24 кг/м2 при стандартном отклонении SDS ИМТ 0,90±0,06 ($p<0,001$ по сравнению с основной группой).

Всем детям основной выборки был определён ОТ и ОБ, с последующим определением соотношения ОТ/ОБ, что послужило объективным показателем наличия или отсутствия абдоминального ожирения. ОТ был соотнесен с показателями процентильных таблиц ОТ относительно пола и возраста, абдоминальное ожирение было диагностировано, при показателях ОТ соответственно 90 перцентилю и выше для определенного возраста и пола [10]. Для детей 16 лет и выше критерием послужило определение ОТ ≥ 94 см у юношей и ≥ 80 см у девушек.

Результаты показали, что ОТ состоял в пределах 94,06±1,02 см, что было достоверно выше по сравнению с группой контроля 65,21±0,63 см ($p<0,001$). При этом ОБ составил у детей с абдоминальным ожирением (87,15±0,99 см) и от показателей детей группы контроля не отличался (79,19±0,88 см; $p<0,05$).

Соотношение ОТ/ОБ характеризующих наличие абдоминального ожирения, в среднем составило 1,02±0,00 по сравнению с контролем 0,79±0,01; $p<0,001$).

Представленные данные характеризуют достоверные различия по массе тела в исследуемых группах, тогда как возраст, разделение по гендерному признаку, не имело статистических различий (40 (55,5%) мальчиков и 32 (44,4%) девочек в основной группе, и 21 (52,5%) мальчик и 19 (47,5%) девочек в группе контроля).

Уровень глюкозы в плазме оценивали глюкозооксидазнным методом с использованием набора реагентов GLUCL для анализатора Abbott Architect 8000. Уровень инсулина в сыворотке крови оценивали с использованием метода иммуноферментного анализа, набора реагентов и калибраторов производства Roche Diagnostics ELECSYS Insulin. (Германия) для анализатора Cobas e411. Проведен стандартный пероральный глюкозотолерантный тест (ОГТ, нагрузка глюкозой 1,75 г/кг, не более 75 г) с измерением уровня глюкозы натощак (глюкоза 0') и через 120 минут после нагрузки глюкозой (глюкоза 120'). Индекс инсулинорезистентности (HOMA-IR) рассчитывали по формуле: инсулин натощак (пмоль/л) × глюкоза натощак (ммоль/л)/155. Значения менее 3,2 были приняты за нормативный индекс HOMAR.

Липидный профиль исследовался на автоматическом биохимическом анализаторе Cobas Integra 400 plus (Roche, Германия) с помощью оригинальных тест-систем (Roche, Германия) с определением концентраций общего триглицеридов, липопротеинов холестерина высокой плотности методом абсорбционной фотометрии.

Исследование полиморфизма гена FTO (rs9939609) проводилось с помощью полимеразной цепной реакции методом аллельной дискриминации. Реакции обратной транскрипции и ПЦР проводились с использованием коммерческих наборов ООО НПФ «Литех» (Российская Федерация). Из крови пациентов методом фенол-хлороформной экстракции были выделены образцы ДНК.

Генотипирование по полиморфному локусу Исследование полиморфизма Pro12Ala гена PPARG2 (rs1801282) проводилось с помощью полимеразной цепной реакции методом аллельной дискриминации. Реакции обратной транскрипции и ПЦР проводились с использованием коммерческих наборов ООО НПФ «Литех» (Российская Федерация)

Статистическая обработка полученных данных проводилась на персональном компьютере программой Statistica 10. Применялись методы вариационной параметрической и непараметрической статистики с определением средней арифметической (M), среднего квадратичного отклонения (α), стандартной ошибки среднего (m), относительных величин (частота, %). Статистическая значимость полученных измерений определялась по критерию Стьюдента (t) с вычислением вероятности ошибки (P). При генетических исследований вычислялись частоты аллелей и частоты аллельных сочетаний и их соответствие равновесию Харди-Вайнберга по

критерию *X*2 с расчетными, отвергая нулевую гипотезу при P< 0,05.

Результаты исследования и обсуждение:

В ходе наших исследований была определена частота встречаемости полиморфизма гена FTO (rs9939609) и Pro12Ala гена PPARG2 у детей с абдоминальным ожирением. В качестве контроля была представлена кровь условно здоровых детей с нормальной массой тела без наличия хронической патологии и острой патологии на момент исследования.

В ходе исследования распределение частот аллелей и генотипов по полиморфизма гена FTO (rs9939609) у условно здоровых детей, выявлено, что частота распределения данного гена у здоровых детей не отличалось от мировых литературных данных и составило частоту генотипа T/T в 32,5% случаев, генотипа T/A в 50,0% случаев, и в наименьшем процентном отношении генотип A/A в 17,5% случаев (табл 1).

Таблица 1

Распределение генотипов и частот аллелей полиморфизма гена FTO (rs9939609) у детей с ожирением и нормальной массой тела

Генотипы	Абдоминальное ожирение n=72		Группа контроля n=40		X2	P	OR	95%CI
	abc	%	abc	%				
T/T	11	15,2	13	32,5	4,530	0,034	2,670	1,062-6,713
T/A	40	55,5	20	50,0	0,319	0,573	1,250	0,576-2,173
A/A	21	29,2	7	17,5	1,867	0,172	1,941	0,743-5,075
T/A и A/A	61	84,7	27	67,5	4,530	0,034	2,670	1,062-6,713
Аллели	n=144		n=80					
T	62	43,0	46	57,5	4,298	0,039	1,789	1,030-3,109
A	82	57,0	34	42,5				

При сравнении с общей выборкой детей с ожирением наблюдаемое распределение частот генотипов не отличалось от теоретически ожидаемого по уравнению Харди-Вайнберга. Полиморфизм гена FTO (rs9939609) характеризовался наличием всевозможных генотипов у детей в группах наблюдения. При этом, в обеих группах фактически полученные частоты генотипов согласуются с ожидаемыми частотами их распределения (табл. 1).

Следует отметить, что в сравнительной характеристике не один из генотипов статистически не различались. Так, гомозиготный генотип T/T встречался с меньшей частотой в основной группе и составил 15,2%, в группе контроля он составил 32,5% (X2=4,530, p=0,034, OR=2,670, 95%CI=1,062-6,713). При этом гетерозиготный генотип T/A преобладал у детей основной группы 55,5%, по сравнению с контролем 50,0%, но различия статистически не различались (X2=0,319, p=0,573, OR=1,250, 95%CI=0,576-2,173).

При анализе мутантного гомозиготного генотипа A/A, отвечающего за развитие ожирения, статистически значимых различий по сравнению с группой контроля нами получено не было, 29,2% в основной группе и 17,5% у детей контрольной группы (X2=1,867, p=0,172, OR=1,941, 95%CI=0,743-5,075-2,896). Данные показатели являлись подтверждением научных исследований некоторых мировых исследований.

Анализ частота аллелей гена FTO показало предрасполагающий характер аллеля A в развитии абдоминального ожирения, выявлено, что шанс встретить аллель A у детей с абдоминальным ожирением составил 1,789 раз больше по сравнению с детьми с нормальной массой тела.

Основной целью нашей работы являлось оценить вклад полиморфизма гена FTO (rs9939609) в развитие метаболического синдрома у детей. В связи с этим мы оценили уровень показателей составляющих МС [6], а именно определение тощаковой глюкозы и определение инсулинорезистентности, а также уровня триглицеридов и ХС ЛПВП, уровень АД. Выявлено что у детей с абдоминальным ожирением в 43,0% случаев отмечалась патология углеводного обмена, в 50% случаев патология липидного обмена и у 23,6% детей наблюдалась АГ I степени.

Согласно полученным данным полный метаболический синдром состоящий из АО и 4 компонентов был диагностирован у 14 детей из 72 детей основной выборки (19,4%), АО + 3 компонента диагностировано у 14 детей (19,4%), и у 11 (15,2%)

детей был диагностирован неполный метаболический синдром который состоял из АО и 2 компонентов МС. У 22 детей (30,5%) наблюдалось сочетание АО с 1 компонентом МС и у 11 (15,2%) детей отсутствовали признаки патологии липидного или углеводного обмена. Таким образом, была сформирована группа детей с МС, состоящая из детей, имеющих полный и неполный МС – 39 детей (54,1% от 72 детей основной выборки).

Таблица 2

Распределение генотипов и частот аллелей полиморфизма гена ФТО у детей с абдоминальным ожирением в зависимости от наличия МС.

Генотипы	Дети с МС		Группа контроля n=40		X2	P	OR	95%CI
	abc	%	abc	%				
T/T	3	7,7	8	24,2	3,783	0,052	0,260	0,063-1,079
T/A	20	51,2	20	60,6	0,629	0,428	0,684	0,268-1,750
A/A	16	41,0	5	15,1	4,543	0,034	3,319	1,067-10,323
Аллели	n=78		n=66					
T	26	33,3	36	54,5	6,561	0,011	2,400	1,221-4,716
A	52	66,7	30	45,5				

При анализе распределения частоты в подгруппах выявлено, что у детей с метаболическим синдромом частота генотипа АА была более высокой по сравнению с подгруппой с АО+1 компонентом и абдоминальным ожирением без компонентов МС – 41,0% и 15,1% соответственно, что составляло достоверную разницу (X2=4,543, p=0,034, OR=3,319, 95%CI=1,067-10,323). При этом гетерозиготный вариант T/A преобладал у детей с абдоминальным ожирением без проявлений МС 60,6% против 51,2% (X2=0,629, p=0,428, OR=0,684, 95%CI=0,268-1,750) В общем частота проявления генотипов с содержанием мутантного аллеля А (A/Aи T/A) составила 92,2%, по сравнению с детьми с равномерным типом ожирения 75,7% (X2=3,783, p=0,052). Таким образом генотипы A/A и T/A являлись протективными по развитию абдоминального ожирения с последующим развитием метаболических осложнений (табл 2).

Частота гомозиготного генотипа T/T была большей в группе детей без проявлений МС -24,2%, что было статистически больше по сравнению с с детьми с проявлениями МС 7,7% (X2=3,783, p=0,052, OR=0,260, 95%CI=0,063-10,323). Также и аллель Т больше встречалась в группе детей с равномерным типом ожирения т.е. шанс встретить данный ген у детей с равномерным типом ожирения был в 2,2400 раз больше по сравнению с детьми с абдоминальным ожирением у которых преобладал аллель А (55,4%).

Результаты молекулярно-генетического исследования в общей выборке детей с абдоминальным ожирением и детьми контрольной группы показали, что полиморфизм Pro12Ala гена PPARG2 имел различия между группами с абдоминальным ожирением и контролем, при этом у детей с нормальными показателями веса показатель частоты минорного аллеля 12 Ala и генотипа A la12 A la был большей (23,8% и 7,5%) по сравнению с детьми с абдоминальным ожирением. У детей с абдоминальным типом ожирения отмечалось преобладание аллеля Pro и генотипа Pro12Pro (85,5% и 73,6%) по сравнению с детьми контрольной группы (76,2% и 60,0%). Следует отметить, что разница частот между двумя группами статистически не различалась. В целом дети с нормальной массой тела с минорным аллелем 12Ala составили 40%, по сравнению с детьми имевших абдоминальный тип ожирения у которых генотипы с аллелью 12Ala встречался всего у 26,37% (табл 3).

Таким образом, у детей с абдоминальным типом ожирения преобладал генотип Pro 12 Pro и аллель Pro 12, что соотвествует исследованиям проведенных у детей Китая, где наблюдалась ассоциация носительства данного генотипа с избыточной массой тела и ожирением [11].

Таблица 3

Распределение генотипов и частот аллелей полиморфизма Pro12Ala гена PPARG2 у детей с абдоминальным ожирением и нормальной массой тела

Генотипы	Основная группа n=72		Группа контроля n=40		X2	P	OR	95%CI
	abc	%	abc	%				
Pro12Pro	53	73,6	24	60,0	2,217	0,137	1,860	0,818-4,229
Pro12Ala	17	23,6	13	32,5	1,036	0,309	0,642	0,273-1,512
Ala12Ala	2	2,77	3	7,5	1,344	0,247	0,352	0,056-2,203
Аллели	n=144		n=80					
Pro12	123	85,5	61	76,2	2,946	0,087	1,824	0,913-3,646
12Ala	21	14,5	19	23,8				

Таблица 4

Распределение генотипов и частот аллелей полиморфизма Pro12Ala гена PPARG2 у детей с абдоминальным ожирением в зависимости от наличия МС

Генотипы	Дети с МС n=39		Дети без МС n=33		X2	P	OR	95%CI
	abc	%	abc	%				
Pro12Pro	33	84,6	20	62,5	5,304	0,022	3,575	1,172-10,907
Pro12Ala	6	15,3	11	31,2	3,193	0,074	0,364	0,117-1,128
Ala12Ala	0	0	2	6,25	2,431	0,119	-	-
Аллели	n=78		n=64					
Pro12	72	94,7	50	78,1	5,844	0,016	3,360	1,209-9,338
12Ala	6	8,3	14	21,9				

Основываясь на результатах сравнительного анализа среди детей с наличием или отсутствием метаболического синдрома, установлено, что генотип Pro12Pro полиморфизма Pro12Ala гена PPARG-2 статистически преобладал у детей с МС - 84,6% по сравнению с детьми не имевших данный синдром - 62,5% (X2=5,304, p=0,022, OR=3,575, 95%CI=1,172-10,907). Также и аллель Pro12 имел статистически достоверную разницу по сравнению с детьми не имевших признаки МС – 94,7% против 78,1% (X2=5,844, p=0,016, OR=3,360, 95%CI=1,209-9,338). Данные показатели являлись подтверждением результатов полученными Бирюковой Е.В. (2009) [12] которая установила ассоциацию генотипа Pro12Pro и аллеля Pro12 с ожирением детей и подростков по абдоминальному типу, а также высоким риском возникновения у таких детей метаболического синдрома.

Обращает на себя внимание более высокая частота аллеля 12Ala у детей с абдоминальны ожирением и отсутствием МС - 21,9% против 8,3% (X2=5,844, p=0,016, OR=3,360, 95%CI=1,209-9,338), что возможно является протективным аллелем по отношению развития метаболических нарушений. Данный факт подтверждается наличием когорты людей страдающих ожирением но не имеющих метаболические нарушения. У детей Китая данный аллель также являлся протективным в отношении развития ожирения и его метаболических осложнений [11].

Выводы: Полиморфизм гена FTO (rs9939609) является одним из факторов генетической предрасположенности к абдоминальному типу ожирения, при этом наличие аллели А повышает риск накопления избыточной жировой висцеральной ткани при абдоминальном ожирении и обсулавливает формирование метаболического синдрома. Это объясняется тем, что ген, содержащий в своём составе нуклеотид А, подвержен большей экспрессии, чем ген, в составе которого имеется нуклеотид Т.

Генотип Pro 12 Pro полиморфизма Pro 12 Ala гена изоформы PPARG-2 гена активатора пероксисом был непосредственно ассоциирован с формированием у детей и подростков метаболического синдрома на фоне абдоминального ожирения.

Преобладающим генотипом у детей с абдоминальным типом ожирения и проявлениями метаболического синдрома являлся Pro12 Pro (84,2%), а у детей с абдоминальным типом ожирения без метаболических нарушений частота минорного аллеля 12Ala была статистически выше (21,9%) по сравнению с детьми с проявлениями метаболического синдрома, что позволяет отнести данный аллель к про-

тективным по развитию метаболических нарушений.

Решение этической комиссии Самаркандского государственного медицинского университета: к проведению научного исследования получено письменное разрешение пациентов и результаты исследования могут быть опубликованы в научных изданиях.

Финансирование: Производится засчет личных средств каждого автора

Конфликт интересов: Авторы подтвердили отсутствие конфликта интересов, финансовой поддержки, о которых необходимо сообщить.

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CHARACTERISTICS OF CYTOKINE STATUS OF CHILDREN WITH ACUTE BRONCHIOLITIS

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Abstract.

Resume: The original article presents the results of a clinical and laboratory study, as well as a study of the cytokine profile in young children with acute bronchiolitis. Changes in the content of interleukins are recommended to be used as markers for predicting the severity of the disease.

Purpose of the study: Study of the features of cytokine status in young children with acute bronchiolitis.

Materials and methods of research: 36 children with acute bronchiolitis aged 1-12 months, hospitalized in the period 2022-2023, were examined. in the departments of emergency pediatrics and pediatric intensive care. All children had bronchial obstruction of varying severity. To assess the prognosis of the severity of bronchiolitis, a scoring scale was used based on clinical and auscultatory signs of ESBA(J.M. Ramos Fernandez et all, 2013). All patients underwent laboratory and instrumental examination: general blood test blood gas study, oxygen saturation (SpO2), chest x-ray. To determine the level of IL-6, IL-8, TNF ά, the enzyme-linked immunosorbent assay method was used.To detect viral antigen (RSV, adenovirus, rhinovirus, parainfluenza), a real-time polymerase chain reaction was performed using commercial kits “Reverta” and “Amplisense-200” (Russia). To determine the causative agent of infections (Chlamydia pneumonia, Mycoplasma pneumonia), an enzyme-linked immunosorbent assay (ELISA) was performed using a standard commercial set of reagents “CHEMA” (Russia).

The results: For the first time in the region, the Acute Bronchiolitis Severity Scale (ESBA) was used, which includes clinical parameters, with the help of which the child’s condition is assessed during the initial examination by a doctor, before the use of instrumental research methods. The study of interferon status showed that the highest pathological level of interleukins was observed when RSV was combined with Chlamydia pneumonia (n=3) (IL-8 - 39.66±0.66 ng/ml, IL-6 - 47.33±1.20 ng/ml, TNFα 69.0±9.6 ng/ml), while the level of interleukins during RSV monoinfection (n=19) also remained at a high level, not significantly different from the previous group (IL-8 - 39.021±0, 92 ng/ml, IL-6 – 43.68±1.75 ng/ml, TNFα 60.7±3.68 ng/ml).

Conclusion. A relationship was revealed between the expression of interleukins and the severity of acute bronchiolitis, which is characterized by an increase in the concentration of IL-6, IL-8 and TNFα depending on the severity of the disease. Changes in interleukins are recommended to be used as markers for predicting the severity of the disease.

Keywords: acute bronchiolitis, young children, interleukins.

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Dolzarbligi

Erta yoshdagi bolalarda bronx – o‘pka tizimi kasalliklarini sabablari strukturasi o‘rganilganda, o‘tkir bronxiolit muammosi oxirgi o‘n yillikda pediatriyada muhim o‘rin egallashini ko‘rsatdi, chunki, u pastki nafas yo‘llarini eng og‘ir obstruktiv yallig‘lanish kasalliklaridan biri hisoblanadi [1, 2].

Adabiyotlarda keltirilgan ma’lumotlarga ko‘ra bir yoshgacha bo‘lgan 3% bolalar o‘tkir bronxiolit sababli shifoxonaga yotqiziladi [3].

Har yili bolalar orasida respirator – sintitsial virus bilan bog‘liq bo‘lgan pastki nafas yo‘llarini infeksiyalarini 33,8 mln. yangi holatlari qayd etilayapti, bu o‘tkir bronxirlitni eng keng tarqalgan qo‘zg‘atuvchisi bo‘lganligi sababli o‘zini dolzarbligini yo‘qotmaydi [5,6].

Hozirgi vaqtda immunitet jarayonlariga ishtirok etadigan yallig‘lanish va yallig‘lanishga qarshi sitokinlarga alohida e’tibori qaratilmoqda, ularni ta’siri biologik samara bilan bog‘liq bo‘lib, ular respirator virusli infeksiyalarni, shu bilan birga, o‘tkir bronxiolitni kechish og‘irligi va oqibatini belgilaydi [4,7].

Viruslarga qarshi o‘sma nekrozi omilini α (TNFα) xususiyatlarini o‘rganish bilan bir qatorda, IL-6, IL-8ga ham alohida e’tibor berilgan. Yallig‘lanish jarayonlariga IL-8 va IL-6

ajralishi orqali bevosita immun boshqaruvi natijasida, patogenlarni bir necha turiga, shu bilan birga viruslarga qarshi himoya amalga oshadi. Shuning uchun, biz o‘tkir bronxiolit bilan og‘rigan bolalarda sitokin statusini xususiyatlarini o‘rgandik [8,9].

Tadqiqot maqsadi: bolalarda o‘tkir bronxiolitda sitokin statusini xususiyatlarini o‘rganish.

Tadqiqot materiali va usullari. RShTTYoIMSF shoshilinch pediatriya va bolalar reanimatsiyasi bo‘limida 2022-2023 yillar oralig‘ida o‘tkir bronxiolit bilan davolangan 1 -12 oylikkacha bo‘lgan 38 nafar bola tekshirildi. Barcha bolalarda turli og‘irlik darajasidagi bronxoobstruksiya kuzatildi. Bronxiolit kechishini og‘irlik darajasini oqibatini baholash uchun, klinik va auskultativ belgilarga asoslangan ESBA ballik shkalasidan foydalanildi (J.M. Ramos Fernandez et all, 2013) [10].

Barcha bemorlarga laborator – instrumental tekshirishlar o‘tkazildi: umumiy qon tahlili, S-reaktiv oqsilini aniqlab qonning bioximik tahlili, qondagi gazlarni aniqlash, kislorod saturatsiyasini aniqlash (SpO2), ko‘krak qafasi a’zolarini rentgenografiyasi.

Virus (RSV, adenovirus, rinovirus, paragripp) antigenini aniqlash uchun «Reverta» va «Amplisens-200» (Rossiya) to‘plamlaridan foydalanib ma’lum belgilangan vaqt ichida polimeraz zanjir reaksiyasi bajarildi. Infeksiya qo‘zg‘atuvchisini (Chlamidia pneumonia, Mycoplasma pneumonia) aniqlash uchun standart «XEMA» (Rossiya) tijorat reaktivlari yordamida immunoferment tahlil (IFA) o‘tkazildi.

Statistik tahlil Microsoft Excel 2013 va Stat Soft, Statistica 10 dasturlaridan foydalanib bajarildi. Belgilarni uchrash chastotasi va o‘rtacha ko‘rsatkichlar standart xato (M±m) bilan hisoblandi.

Tadqiqot natijalari o‘tkir bronxiolit bilan kasallanish noyabr 63,8% (23) va dekabr 36,1% (13) oylarida ko‘p uchrashini ko‘rsatdi.

Shifoxonada davolangan bolalarni qon zardobini PZR tekshiruvi, o‘tkir bronxiolitni asosiy etiologik omili respirator - sintitsial virus 83,3% (30) ekanligini ko‘rsatdi, bundan tashqari persistirlovchi hujayra ichi infeksiyalari: Chlamidia pneumonia 11,1% (4), Mycoplasma pneumonia 5,5% (2) ham uchrash holatlari kuzatildi.

Mikst infeksiya 36,1% (13) bolada kuzatildi, bunda RS-virusni boshqa infeksiyalar (adenovirus, paragripp, rinovirus) birga uchrashi 16,6% (6) bolada, rinovirusli monoinfeksiya bilan zararlanish esa asosan chala tug‘ilgan chaqaloqlarda dastlabki 6 oylikda 11,1% (4) kuzatildi.

1-6 oylik bolalarda monoinfeksiya sababli rivojlangan o‘tkir bronxiolit Chlamidia pneumonia 8,3% (3) sababli kuzatildi. 27,7% (10) bolada RS virusni, Mycoplasma pneumonia va Chlamidia pneumonia kabi atipik mikroflora bilan birga uchrash holatlari ham uchradi.

Noxush oilaviy anamnez 72,2% (26) bemorda, onasi tomonidan noxush allergoanamnez 22,2% (8) holatda, ota tomonidan — 30,5% (11) bolada kuzatildi, 22,2% (8) bemorda atopik dermatit aniqlandi. 41,6% (15) bola ko‘p bolali oiladan ekanligi aniqlandi, bu mahalliy xususiyatlardan biri hisoblanadi. 8,3% (3) bola ko‘p homilali homiladorlikdan tug‘ilganligi, 30,5% (11) bemorlar kuz – qish mavsumida tug‘ilganligi aniqlandi.

Bemorlarni ko‘pchiligida 66,6% (24) kasallik asta – sekinlik bilan umumiy ahvolini og‘irlashib borishi (holsizlik, ishtahaning pasayishi) va kasallikni 3-4 kunida kataral belgilar (aksa urish, rinit, yo‘tal) bilan boshlangan (o‘rtacha 2,61±0,85 kun). Shifoxonaga murojaat qilishga ko‘pincha 2,55±0,64 kuni hansirash va sianoz sabab bo‘lgan. Apnoe 13,8% (5) bolada kuzatildi va kasallikni avj olishi 8,3% (3) kuzatildi, bu bolalarni reanimatsiya bo‘limiga yotqizishga sabab bo‘ldi. Qolgan bolalarda 38,8% (14) kasallik o‘tkir boshlandi.

Ko‘pchilik bolalarda 72,2% (26) tana harorati ko‘tarilmadi, 22,2% (8) bolada subfebrilitet kuzatildi, febril isitma faqat 5,5% (2) bolada qayd etildi.

Bronxoobstruksiyani eng ko‘p uchraydigan simptomlari nafas chiqarishni uzayishi 91,6% (33), quruq hushtaksimon xirillashlar 86,1% (31), mayda pufakchali nam xirillashlar 66,6% (24), krepitatsiya 80,5% (29) kuzatildi.

Bemorlar umumiy ahvolini og‘irlik darajasi nafas yetishmovchiligi (NE) rivojlanishi bilan belgilandi, bu hansirash, nafas aktida yordamchi mushaklar ishtiroki, sianoz va SpO2 pasayishi bilan namoyon bo‘ldi. Umumiy ahvolining og‘irligi S.N. Avdeevaning (2007) NE klassifikatsiya yordamida SpO2 aniqlab baholandi [3]. Shifoxonaga I NE (SpO2 90–94%) bilan 19,4% (7) bemor, 47,2% (17) bola NE II darajasi (SpO2 75–89%) va 33,3% (12) bemor NE III darajasi bilan (SpO2 75% dan past) murojaat qilib kelgan. Shuning uchun, 80,5% (29) bolaga kislorodoterapiya zarur bo‘ldi, ulardan 8,3% (3) esa SO‘V (IVL)ga ulandi.

O‘tkir bronxiolitni og‘irlik darajasini baholash uchun biz o‘tkir bronxiolitni og‘irlik

darajasini baholaydigan (ESBA) shkalasidan foydalandik, uning qulayligi birinchi ko‘rikdayoq bolani yoshiga mos ravishda nafas soni va yurak qisqarishlari sonini inobatga olib bolani umumiy ahvolini og‘irlik darajasini baholash imkonini beradi. Ushbu shkalaga ko‘ra yengil darajali turi bo‘lgan bolalar (4 ballgacha) 16,6% (6)ni, o‘rta og‘ir daraja (5-8 ball) 50,% (18) va 33,3% (12) bemor – og‘ir darajali o‘tkir bronxiolit bilan (9-13 ball) og‘riganligi aniqlandi. Og‘ir darajali nafas yetishmovchiligida o‘rtacha balli baholash 11,26±0,34 ballni tashkil etdi, o‘rta og‘irda - 6,54 ± 0,21 ball va yengil darajali o‘tkir bronxiolit bilan og‘rigan bolalarda 3,3±0,4 ballni tashkil etdi, bu o‘rta og‘ir va og‘ir daraja bilan solishtirilganda statistik jihatdan past bo‘ldi (p<0,001).

Hansirash ko‘krak qafasi pastki aperturasi va qovurg‘alar oralig‘ini tortilishi 72,2% (26) bemorda, 6 oylikkacha bo‘lgan bolalarda – burun qanotlarining kerilishi 16,6% (6) kuzatildi.

Pnevmoniya ko‘rinishidagi asoratlar 11,1% (4) kuzatialyotgan bolada, o‘tkir enterokolit 8,3% (3) holatda va siydik yo‘llari infeksiyasi 2,7% (1) bemorda aniqlandi.

O‘tkir bronxiolit bilan og‘rigan bemorlarda rentgen tekshiruvida peribronxial o‘zgarishlar va o‘pka suratining kuchayishi 61,1% (22) bolada, o‘pkalarning emfizematoz shishishi 36,1% (13) bolada, gipoventilyatsiya maydonlari 8,3% (3), interstitsial shish belgilari 5,5% (2) bolada qayd etildi. Atelektaz va segmentar infiltratsiya 19,4% (7) bolada aniqlandi.

Kasallik davomiyligi bolalarda o‘rtacha 9,53±0,75 kunni tashkil etdi, bunda kasallik davomiyligi yoshga nisbatan teskari bog‘liqlikda bo‘ldi (r=-0,788; r<0,01). O‘lim holatlari qayd etilmadi.

Tadqiqotimiz maqsadiga ko‘ra biz o‘tkir bronxiolit bilan og‘rigan bolalarni sitokin statusini o‘rgandik. Interleykin-8 (IL-8), o‘sma nekrozi omili α (TNFα) va interleykin-6 (IL-6) kabi yallig‘lanish interleykinlari ma’lum darajada patologik siljishi kuzatildi. O‘rtacha miqdorlari IL-8 - 19,1±0,51 ng/ml, IL-6 – 24,01±0,62 ng/ml, TNFα 35,6±1,0 ng/ml bo‘ldi. Interleykinlarni patologik miqdori o‘tkir bronxiolitni ESBA shkalasi yordamida aniqlangan og‘irlik darajasiga mos keldi. Jadvaldan ko‘rinib turibdiki, IL-8 miqdori kasallikni og‘irlik darajalari o‘rtasida ishonchli farq qildi. IL-8ning eng yuqori miqdori SO‘Vda bo‘lgan kasallik og‘ir kechayotgan bolalarda qayd etildi (107,1 ng/ml), bu immun hujayralarini, eng avvalo yallig‘lanish o‘chog‘idagi makrofaglarni maksimal aktivatsiyasiga mos keldi. Xuddi shunday holat interleykin-6 (IL-6)ga nisbatan ham kuzatildi.

Jadval 1.

O‘tkir bronxiolit bilan og‘rigan bemorlarda sitokin ko‘rsatkichlari (M±m)

Ko‘rsatkichlar	Yengil daraja N=6	O‘rta og‘ir daraja N=18	Og‘ir daraja N=12	R1	R2	R3
IL-6; ng/ml	14,3±0,7	23,7±0,5	34,1±1,1	<0,001	<0,001	<0,001
IL-8; ng/ml	13,2 ±0,33	18,51 ±0,67	28,3 ±0,8	<0,001	<0,001	<0,001
TNF-α;ng/ml	26,1±0,6	38,1±0,7	54,4±1,1	<0,001	<0,001	<0,001

Eslatma: P1 – yengil va o‘rta og‘ir darajalar o‘rtasidagi farqlar ishonchliligi, P2 – yengil va og‘ir darajalar o‘rtasidagi, P3 – o‘rta og‘ir va og‘ir daraja o‘rtasidagi.

O‘sma nekrozi omili α (TNFα) bo‘yicha og‘ir darajali bronxiolit bilan og‘rigan bolalar bilan o‘rta og‘ir daraja o‘rtasida ishonchli farqlar aniqlanmadi (r>0,05).

Interleykinlarni eng yuqori patologik miqdori RSV bilan Chlamidia pneumonia birga kelganda kuzatildi (n=3) (IL-8 - 39,66±0,66 pg/ml, IL-6 – 47,33±1,20 pg/ml, TNFα 69,0±9,6 pg/ml), bunda interleykinlar miqdori RSV bilan monoinfitsirlanishda (n=19) ham yuqori miqdorlarda qoldi, oldingi gururhlardan ishonchli darajada farq qilmadi (IL-8 - 39,021±0,92 pg/ml, IL-6 – 43,68±1,75 pg/ml, TNFα 60,7±3,68 pg/ml). Interleykin profilining ancha yuqori ko‘rsatkichlari mikst infeksiyali (RSV bilan Chlamidia pneumonia) va RSV bilan monoifitsirlanishda kuzatildi.

Natijalar tahlili. O‘tkir bronxiolit erta yoshdagi bolalarda bronx-o‘pka tizimi kasalliklari sabablari strukturasida asosiy o‘rinni egallaydi [1,2,3,10]. Bizning tadqiqotimizda o‘tkir bronxiolitni etiologik omili sifatida RSV ustunlik qildi, RSVni boshqa viruslar va xlamidiyali hamda mikoplazmali infeksiyalar bilan birga uchrash holatlari ham kuzatildi. Bronxiolit chala tug‘ilgan va yondosh kasalligi bo‘lgan bolalarda ancha og‘ir kechdi [3]. Asosan kasallik barcha holatlarda kuz-qish mavsumida qayd etildi, iqlim muhitini keskin o‘zgarishida RSV inffeksiyasini epidemik mavsumi to‘g‘ri keladigan noyabr-dekabr oylarida ustunlik qildi.

Ilk marotaba mintaqamizda klinik parametrlarni (xirillashlar xususiyatini, krepitatsiya mavjudligi va uning tarqalganligini, hansirash xarakteri va og‘irligini, nafas soni va yurak

qisqariglari sonini) o‘z ichiga olgan o‘tkir bronxiolitni og‘irlik darajasi shkalasi (ESBA) qo‘llanildi. Shkala o‘tkir bronxiolit bilan og‘rigan bola holatini erta baholash uchun qulay hisoblanadi va bemor bolaga intensiv yordamni ertaroq ko‘rsatish imkonini beradi.

O‘sma nekrozi omili va Interleykin-8, interleykin-6 asosan yallig‘lanish jarayonlarini boshlang‘ich bosqichlarida faol ishtirok etuvchi regulyator oqsillar hisoblanadi. Ular sitokin reaksiyalari kaskadini ishga tushiradigan sitokinlarga kiradi, ular yot agent kirishiga javoban adekvat tug‘ma nospesifik lokal va tizimli javobni ta’minlaydi. Immunokompetent hujayralar tomonidan yallig‘lanish joyida IFN-α sintezining oshishi virus kirgan zahotiyoq sodir bo‘ladi (30-40 minutdan keyin), periferik qonda ushbu sitokin konsentratsiyasining oshishi infeksion jarayon boshlanganidan 2-8 soat keyin aniqlanadi [8].

Olingan natijalar interleykinlar ma’lum darajada aktivatsiyasini izohlaydi, ularning midori etiologik omilga va o‘tkir bronxiolitni og‘irlik holatiga bog‘liq bo‘ladi.

Xulosa. O‘tkir bronxiolitni asosiy etiologik omili har ikkinchi bolada RSV monoinfitsirlanish (50%) va har uchinchi bolada mikst infeksiya (34,2%) bo‘lib qolmoqda.

Interleykinlar ekspressiyasi va o‘tkir bronxiolitni og‘irlik darajasi o‘rtasida o‘zaro bog‘liqlik aniqlandi, bu kasallikni og‘irlik darajasiga qarab IL-6, IL-8 va TNFα konsentratsiyasini oshishi bilan xarakterlanadi. Interleykinlar tarkibidagi o‘zgarishlarni kasallik kechishini og‘irlik darajasini bashorat qiluvchi markerlar sifatida qo‘llash tavsiya etiladi. Mikst infeksiyali bemorlarda (RSV bilan Chlamidia pneumonia) va RSV bilan monoinfitsirlanishda interleykin profili ko‘rsatkichlarini ancha yuqori bo‘lishi aniqlandi.

Решение этической комиссии Самаркандского государственного медицинского университета: к проведению научного исследования получено письменное разрешение пациентов и результаты исследования могут быть опубликованы в научных изданиях.

Финансирование: Производится засчет личных средств каждого автора

Конфликт интересов: Авторы подтвердили отсутствие конфликта интересов, финансовой поддержки, о которых необходимо сообщить.

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Article / Original paper

INDICATORS OF PHYSICAL DEVELOPMENT AND MATURITY LEVEL OF SPORTS SCHOOLGIRLS AND TEENAGE GIRLS

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Abstract.

The purpose of the study is to assess the physical development and level of maturity of schoolgirls and teenage girls involved in sports. The main goal of the study is to study the impact of sports on the physical development of young people and their general level of maturity. Purpose of the study. The main goal of the study is to assess the level of physical development and maturity of schoolgirls and teenage girls involved in sports. Materials and methods: 2001 students involved in sports and teenage girls aged 11 to 15 years studying in 2 sports schools, 1 high school and 2 colleges in the Andijan region from 2019 to 2022 were examined. Anthropometric indicators reflecting the maturity of physical development were selected as the subject of the study, namely: the Brugsch index, Erisman index, Broca index, hemodynamic index, Livi index, body mass index, another indicator reflecting the level of maturity - the ratio of waist circumference/ hip circumference. Research results. Index indicators of physical development/maturity of schoolgirls and teenage girls were studied and determined in research groups (the results of the analysis are presented in Table 1 and Figure 2 in the Appendix). The Brugsch index, which expresses the maturity of physical development, was determined in the studied girls as follows: in the main group - 46.07±6.10, in the comparison group - 45.08±5.10 and in the control group - 47.99±6.29 [R1- 2<0.05; P1-3 <0.001; R2-3 < 0.001]. Conclusion This information is important when assessing the maturity and age of schoolgirls and adolescent athletes. Their timely correction is of great importance in the prevention and treatment of reproductive and somatic acute and chronic diseases.

Key words: reproductive health, antenatal period, women of childbearing age, sexual development, sports, schoolgirls, physical development.

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Muammoning dolzarbligi. Zamonaviy fanda o‘quvchi-qizlar va o‘smir qizlarning jinsiy rivojlanishi va reproduktiv funqsiyasini shakillantirish masalasiga ekologik, tibbiy-ijtimoiy, somatik va boshqa omillarni shu jumladan, ularning sportchilik faoliyati bilan bog‘liq kuchli jismoniy o‘zgarishlarning ularga ta’sir qilishini o‘rganishga katta e’tibor qaratilmoqda. Og‘ir jismoniy faollik va sport mashg‘ulotlarining o‘quvchi - qizlar, o‘smir qizlar va tug‘ish yoshidagi ayollarning umumiy va balog‘at yoshiga ta’siri haqida ko‘plab ma’lumotlar bir - biriga ziddir. Yuqorida keltirilgan masalaga oydinlik kiritish maqsadida turli sport turlari bilan shug‘ullanuvchi o‘quvchi – qizlar va o‘smir qizlarda reproduktiv kasalliklarning profilaktikasi bo‘yicha innovatsion strategiyalarni ishlab chiqish muammosi to‘liq yechilmagan fan yo‘nalishi bo‘lib qolmoqda.

Tadqiqot natijalari. Tadqiqot guruxlarida o‘quvchi-qizlar va o‘smir qizlar jismoniy rivojlanishi/yetukligining indeks ko‘rsatkichlari o‘rganildi va aniqlandi (1 – jadval va ilovadagi 2 – rasmda taxliliy natijalar keltirilgan). Jismoniy rivojlanish yetukligi ifodalanib ko‘rsatuvchi Brugsh indeksi o‘rganilgan qizlarda quyidagilarda aniqlandi: asosiy guruhda – 46,07 ± 6,10, qiyosiy guruhda – 45,08 ± 5,10 va nazorat guruhida – 47,99 ± 6,29 dan ifodalangan holda [R1-2 <0,05; R1-3 <0,001; R2-3 < 0,001]. Tadqiqot guruhlarida Erisman indeksi 9,17 ± 6,56 (I - guruhda), 9,63 ± 5,94 (II - guruhda) va 7,89 ± 6,26 (III – guruhda) ko‘rsatkichlarda tavsiflanib ifodalanadi [R1 >0,05; R2 <0,001; R3 < 0,001]. Asosiy guruhda, qiyosiy guruhda va nazorat guruhiga kiruvchi o‘quvchi-qizlar va o‘smir qizlarda Rorer indeksi xam aniqlandi va tasdiqlandiki bu indeks ularda muvofiq holda – 12,52 ± 2,23, 9,63 ± 5,94 va 7,89 ± 6,26 ko‘rsatkichlar bilan qayd qilinadi [R1-2 <0,001; R1-3 <0,05; R2-3 < 0,001]. Jismoniy yetuklikni ifodalovchi yana ko‘rsatkich – Brok indeksi tadqiqotning asosiy guruhidagilarda – 48,02 ± 8,20, qiyosiy guruxidagilarda – 49,59 ± 6,74 va nazorat guruhidagilarda – 46,43 ± 9,37 ko‘rsatkichlarini ifodalab jismoniy rivojlanish darajalarini ko‘rsatadi [R1-2 <0,001; R1-3 <0,05; R2-3 < 0,001]. Bizning o‘rgangan populyatsiyamizda Livi indeksi – 46,07 ± 6,09 (I guruhda), 45,08 ± 5,09 (II guruhda) va 47,99 ± 6,29 kabi ko‘rsatkichlar bilan (III guruhda) aniqlanadi [R1-2 <0,05; R1-3 <0,001; R2-3 < 0,001]. Tana vazni indeksi xam farqlanib tadqiqotning asosiy guruhidagilarda – 19,41 ± 2,32, qiyosiy guruhdagilarda – 19,14 ± 1,84 va nazorat guruhidagilarda – 19,78 ±

2,75 dan ko‘rsatkichlar bilan tasdiqlanadi.

Yana bir yetuklik darajasini ifodalovchi ko‘rsatkich – bel aylanasini/son aylanasiga nisbati ushbu sportchi qizlar populyatsiyasida – 0,77 ± 0,04 (I guruhdagilarda), 0,77 ± 0,01 (II guruhdagilarda) va 0,77 ± 0,02 (III guruhdagilarda) ifodalanish ko‘rsatkichlari bilan tasdiqlanadi [R1-2 >0,05; R1-3 > 0,05; R2-3 < 0,05]. “YElka kengligi/chanoq kengligi” – asosiy guruhdagi o‘smir qizlarda – 1,37 ± 0,26, qiyosiy guruhdagilarda – 1,40 ± 0,12 va nazorat guruhidagilarda – 1,61 ± 0,04 ko‘rsatkichlarida tasdiqlanadi [R1-2 >0,05; R1-3 > 0,05; R2-3 > 0,05].

Kuydagi 1 – jadvalda va 2 – rasmda tadqiqot guruhlaridagi o‘smir qizlar yetuklik shakllarining indeks ko‘rsaktkichlariga ko‘ra qiyosiy taxlilini tavsiflari keltirilgan.

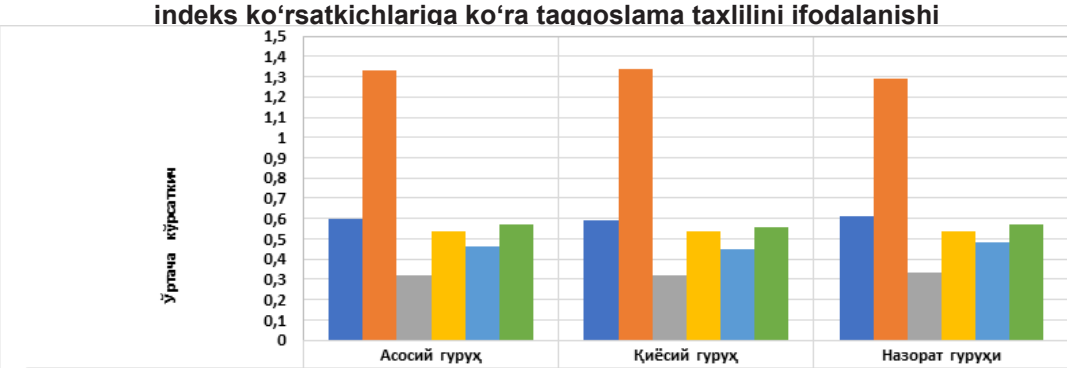
Jadval 1

Tadqiqot guruhlaridagi o‘quvchi-qizlar va o‘smir qizlar jismoniy rivojlanishining indeks ko‘rsatkichlariga ko‘ra taqqoslama taxlili

№	Indeks ko‘rsatkichlari	Asosiy Guruh 1 (n=869)	Qiyosiy guruh 2 guruh2 (n=534)	Nazorat Guruh 3 (n=598)	PI-2	PI-3	P2-3
1	Brugsh indeksi	46,07±6,10	45,08±5,10	47,99±6,29	<0,05	<0,001	<0,001
2	Erisman indeksi	9,17±6,56	9,63±5,94	7,89±6,26	>0,05	<0,001	<0,001
3	Rorer indeksi	12,52±2,23	12,15±1,75	12,96±2,69	<0,001	<0,05	<0,001
4	Brok indeksi	48,02±8,20	49,59±6,74	46,43±9,57	<0,001	<0,05	<0,001
5	Livi indeksi	46,07±6,09	45,08±5,09	47,99±6,29	<0,05	<0,001	<0,001
6	Tana vazni indeksi	19,41±2,32	19,14±1,84	19,78±2,75	<0,05	>0,05	<0,05
7	Bel aylanasi/ son aylanasi	0,77±0,04	0,77±0,01	0,77±0,02	>0,05	>0,05	<0,05
8	Yelka kengligi/ chanoq kengligi chanoq kengligi	1,37±0,26	1,40±0,12	1,61±0,04	>0,05	>0,05	>0,05

Rasm 2

Tadqiqot guruhlaridagi o‘quvchi-qizlar va o‘smir qizlar yetuklik shakllarining indeks ko‘rsatkichlariga ko‘ra taqqoslama taxlilini ifodalanishi



«Oyoq uzunligi/tana uzunligi» indeksi aosiy (0,60 ± 0,05), qiyosiy (0,59 ± 0,04) va nazorat (0,61 ± 0,06) guruhlaridagi o‘smir qizlarda tafovutlanib aniqlanadi [R1-2 <0,05; R1-3 < 0,05; R2-3 < 0,001]. “Oyoq uzunligi/ko‘krak aylanasi” indeksi - tadqiqotning asosiy guruhidagilarda – 1,33 ± 0,21, qiyosiy guruhidagilarda – 1,34 ± 0,15 va nazorat guruhidagilarda – 1,29 ± 0,22 ko‘rsatkichlar bilan qayd qilinadi [R1-2 >0,05; R1-3 < 0,001; R2-3 < 0,001]. «Bosh aylanasi/tana uzunligi» indeksi – 0,32 ± 0,02 (I - guruhda), 0,32 ± 0,02 (II – guruhda) va 0,33 ± 0,03 (III guruhda) ko‘rsatkichlar bilan ifodalanib tasdiqlanadi [R1-2 <0,001; R1-3 < 0,05; R2-3 < 0,001]. Sportchi o‘quvchi-qizlar va o‘smir qizlarda, mavjud sport bilan shug‘ullanmagan tengdoshlarida olingan indekslar bilan solishtirilganda, sezilarsiz tafovutlanib: «Bosh aylanasi/oyoq uzunligi» indeksi – asosiy guruhlarda – 0,54 ± 0,04, qiyosiy guruhlarda – 0,54 ± 0,03 va nazorat guruhlarda – 0,54 ± 0,06 ko‘rsatkichlarida tasdiqlanib qayd qilinadi [R1-2 >0,05; R1-3 < 0,05; R2-3 < 0,05].

«Ko‘krak ayolanasi/tana uzunligi» indeksi bo‘lsa – 0,46 ± 0,06, 0,45 ± 0,05 va 0,48 ± 0,06 ko‘rsatkichlarda muvofiq tarzda I - , II – va III – tadqiqot guruhlarida tasdiqlanadi [R1-2 <0,05; R1-3 < 0,001; R2-3 < 0,001]. YEtuklik darajasini belgilovchi yana bir indeks – “Qo‘l uzunligi/oyoq uzunligi” ko‘rsatkichi I – guruhlarda – 0,57 ± 0,06, qiyosiy guruhlarda – 0,56 ± 0,04 va nazorat guruhidagilarda – 0,57 ± 0,08 bilan ifodalanib tavsiflanadi [R1-2 < 0,05; R1-3 >0,05; R2-3 > 0,05]. Ushbu 6 turli yetuklik shakllarini indeks ko‘rsatkichlari bo‘yicha ham tadqiqotning asosiy guruhiga kiruvchi o‘smir – sportchi qizlar “ustuvorlik” qilishadi.

Tadqiqot ob’yekti bo‘lgan o‘quvchi-qizlar va o‘smir qizlar ikkilamchi jinsiy belgilari – Ma I, II, III va IV, Ax I, II, III va IV va R I, II, III va IV ko‘rsatkichlarini epidemiologik tavsiflari bo‘yicha o‘rganildi (Ma – ko‘krak bezlari, Ax – qo‘ltiq osti tuklanishi, R – chov sohasi tuklanishi; I, II, III va IV – ikkilamchi jinsiy belgilarining 4 – balli baholash tizimi bo‘yicha ifodalanishi darajasini anglatadi) va baholandi.

Bu xaqdagi ma’lumotlar 2 – jadvalda keltirilgan. Ko‘krak bezlarini rivojlanishi I – darajasi sportchi qizlarda – 58,2%, xavaskor sportchi qizlarda – 79,6% va sportchi bo‘lmagan qizlarda – 57,9% aniqlanish chastotasi bilan tasdiqlanadi [R1-2 <0,001; X2 =67,598; R1-3 > 0,05, X2 =0,020; R2-3 < 0,001; X2 =61,313].

Jadval 2

Tadqiqot guruhlaridagi o‘quvchi-qizlar va o‘smir qizlar ikkilamchi jinsiy belgilariga ko‘ra taqqoslama taxlili

Ikkilamchi jinsiy belgilar		Sportchi qizlar1 (n=869)		Xavaskor sportchi qizlar2 (n=534)		Sportchi bo‘lmagan qizlar3 (n=598)		P		X2	RR	95% CI
		abs	%	abs	%	abs	%					
								1-2	<0,001	67,598	0,731	0,681-0,785
	I	506	58,2	425	79,6	346	57,9	1-3	>0,05	0,020	1,006	0,921-1,099
								2-3	<0,001	61,318	0,727	0,670-0,788
								1-2	<0,001	29,572	1,922	1,502-2,460
	II	219	25,2	70	13,1	146	24,4	1-3	>0,05	0,117	1,032	0,860-1,237
								2-3	<0,001	23,354	1,862	1,436-2,415
								1-2	<0,001	13,561	1,892	1,333-2,684
	III	117	13,5	38	7,1	78	13,0	1-3	>0,05	0,054	1,032	0,790-1,348
								2-3	<0,05	10,776	1,833	1,266-2,653
								1-2	<0,001	14,416	16,591	2,261-1,275
	IV	27	3,1	1	0,2	28	4,7	1-3	>0,05	2,436	0,663	0,395-1,114
								2-3	<0,001	22,834	25,003	3,413-1,314
Ax								1-2	<0,001	20,456	0,890	0,848-0,933
	I	678	78,0	468	87,6	492	82,3	1-3	<0,05	3,969	0,948	0,900-0,998
								2-3	<0,05	6,304	0,938	0,893-0,985
								1-2	<0,05	6,875	1,582	1,116-2,242
	II	103	11,9	40	7,5	69	11,5	1-3	>0,05	0,034	1,027	0,771-1,368
								2-3	<0,05	5,312	1,540	1,062-2,233
								1-2	<0,001	12,345	2,113	1,372-3,256
	III	86	9,9	25	4,7	35	5,9	1-3	<0,05	7,653	1,690	1,157-2,469
								2-3	>0,05	0,771	1,250	0,758-2,060
								1-2	>0,05	0,029	1,229	0,111-13,521
	IV	2	0,2	1	0,2	2	0,3	1-3	>0,05	0,142	0,688	0,097-4,871
								2-3	>0,05	0,231	1,786	0,162-19,640

P								1-2	<0,001	11,037	0,919	0,877-0,964
	I	693	79,7	463	86,7	505	84,4	1-3	<0,05	5,229	0,944	0,900-0,990
								2-3	>0,05	1,159	0,974	0,928-1,021
								1-2	>0,05	1,822	1,255	0,900-1,749
	II	96	11,0	47	8,8	61	10,2	1-3	>0,05	0,266	1,083	0,799-1,467
								2-3	>0,05	0,640	1,159	0,806-1,664
								1-2	>0,05	1,822	1,255	0,900-1,749
	III	77	8,9	22	4,1	30	5,0	1-3	<0,05	7,741	1,766	1,173-2,658
								2-3	>0,05	0,518	1,217	0,711-2,084
								1-2	>0,05	0,008	0,921	0,154-5,498
	IV	3	0,3	2	0,4	2	0,3	1-3	>0,05	0,001	1,032	0,173-6,159
								2-3	>0,05	0,013	0,893	0,126-6,317

Ma II ko‘rsatkichlari ushbu guruhlarda muvofiq bo‘lib – 25,2%, 13,1% va 24,4% chastotalarda aniqlanish bilan kuzatiladi [R1-2 <0,001; X2 =29,572]. Ma III – sportchi qizlarda – 13,5%, xavaskor sportchi qizlarda – 13,0% ko‘rsatkichlarda tasdiqlanadi [R1-2 <0,001; R1-3 >0,05; R2-3 < 0,05]. Ma IV ushbu guruhlarda muvofiq xolda – 3,1%, 0,2% va 4,7% dan chastotalar bilan qayd qilinadi [R1-2 <0,001; R1-3 >0,05; R2-3 < 0,001]. O‘quvchi-qizlar va o‘smir qizlarda qo‘ltiq osti tuklanishini ifodalanishi darajalari quyidagicha aniqlanish chastotalari bilan tavsiflanadi: 1) Ax I – sportchi qizlarda – 78,0%, xavaskor sportchi qizlarda – 87,6% va sportchi bo‘lmagan qizlarda – 82,3% chastotalarda kuzatiladi [R1-2 <0,001; X2 =22,834; R1-3 > 0,05, X2 =3,969; R2-3 < 0,05; X2 =6,304]; 2) Ax II ushbu guruhdagilarda muvofiqlik bilan – 11,9%, 7,5% va 11,5% dan tasdiqlanadi [R1-2 <0,05; X2 =6,875; R1-3 > 0,05, X2 =0,034; R2-3 < 0,05; X2 =5,312]; 3) sportchi qizlar, xavaskor sportchi qizlar va sportchi bo‘lmagan qizlarda, bizning taxlillarimizga ko‘ra, Ax III – 9,9%, 4,7% va 5,9% dan tarqalish chastotalarida muvofiq kuzatiladi; 4) Ax IV sportchi qizlar populyatsiyasida – 0,2%, xavaskor sportchi qizlar populyatsiyasida – 0,2% va sportchi bo‘lmagan qizlar populyatsyaisida – 0,3% aniqlanish chastotalari bilan tasdiqlanadi. Chov sohasi tuklanishini ifodali aniqlanishi darajalari sportchi qizlarda, xavaskor sportchi qizlar va sportchi bo‘lmagan qizlarda xoslik va tafovut bilan quyidagi tarqalish chastotalarida tavsiflanib tasdiqlanadi: 1) PI – 79,7%, 86,7% va 84,4% dan [R1-2 <0,001; R1-3 < 0,05, R2-3 > 0,05]; 2) R II – 11,0%, 8,8% va 10,2% dan [R1-2 > 0,05; R1-3 > 0,05, R2-3 > 0,05]; 3) R III – 8,9%, 4,1% va 5,0% dan [R1-2 > 0,05; X2 =1,8228; R1-3 < 0,05, X2 =7,771; R2-3 > 0,05; X2 =0,518]; R IV – 0,3%, 0,4% va 0,3% dan [R1-2 > 0,05; X2 =0,008; R1-3 > 0,05, X2 =0,001; R2-3 > 0,05; X2 =0,013].

Xulosa. 1.Yuqorida keltirilgan 6 turli yetuklik shakllarini indeks ko‘rsatkichlari bo‘yicha ham tadqiqotning asosiy guruhiga kiruvchi o‘quvchi qizlar va o‘smir – sportchi qizlar “ustuvorlik” qilishadi. 2.O‘quvchi-qizlar va o‘smir sportchi qizlarning yetukligi va yoshiga xamda maxorati darajasiga muvofiqligini baholab borishda ushbu qayd qilingan ma’lumotlar muhim o‘rin tutadi. Ularni vaqtida korreksiyalash-reproduktiv va somatik o‘tkir xamda surunkali kasalliklarni profilaktikasida, davolash tadbirlarini o‘tkazishda salmoqli ahamiyat kasb etadi. 3.Ikkilamchi jinsiy belgilarni rivojlanishi sport bilan shug‘ullanuvchi o‘quvchi-qizlar va o‘smir qizlarda, sportchi bo‘lmaganlarga qaraganda kuchliroq rivojlanadi. Aksariyat ularning aniqlanishi, sezilarli va kuchli tafovut bilan, I va II darajali ifodalanishi tasdiqlanadi.

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PSYCHOSOMATIC STATE AND PERSONAL CHARACTERISTICS OF CHILDREN AND ADOLESCENTS OF THE UZBEK POPULATION FOR MANIFESTATIONS AND DEVELOPMENT OF NEUROCIRCULATORY DYSTONIA

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Abstract.

The relevance of studying the personality characteristics of children with vegetovascular dystonia (VVD) is dictated by the fact that many psychosomatic disorders originate in childhood and autonomic disorders are their primary manifestations. According to the literature, among the children with non-communicable diseases who go to the doctor, 50-75% are patients with VVD. Purpose of the study. Study of the influence of the mental state and personality characteristics of patients on the manifestations and development of NCD in children and adolescents of the Uzbek population. Material and methods. We studied 43 patients with NCD (18 boys and 25 girls) aged 7 to 16 years with hypotonic, hypertensive and cardiac types. In the examined group of patients with NCD, children with hypertensive (46.5%) type prevailed. Patients (39.5%) were diagnosed with hypotonic NCD, and in 14 patients with cardiac type. For the study of individual - typological and personal characteristics of children, in addition to clinical and pedagogical observations, traditional experimental - psychological methods were used, allowing the most differentiated approach to the analysis of the personality of a sick child. Results: patients with NCD are characterized by a pronounced increase in emotional stress, difficulty in making interpersonal contacts and contributing to the violation of the psycho-vegetative regulation of the individual. The predominance of the desire for well-mannered forms of behavior, combined with conscious self-control, prevents the reaction of negative emotions, which contributed to the long-term preservation of emotional stress and further difficulties in adaptation. Patients with NCD usually had combinations of disharmonious personality traits, which led to the appearance of intrapsychic conflicts between dominant and mutually exclusive types of needs. The actual mental state of children with NDC determined by the Kettell method as a whole manifests itself as a personality of a highly neurotic response, which confirms the connection between NDC and personality traits. Conclusions: These intrapsychic conflicts underlay violations of social adaptation in the school and family spheres, and also prevented psycho-vegetative adaptation, which manifested itself in psychopathological and vegetative-somatic disorders in this disease.

Key words: neurocirculatory dystonia, adolescents, psychosomatics.

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Introduction.

Cardiovascular diseases consistently occupy the first place in the structure of morbidity and mortality worldwide. Currently, the emphasis in the study of cardiovascular diseases has been shifted to childhood [1, 2, 3, 4]. The ever-increasing prevalence of cardiovascular diseases depends on many factors. In the first place are socio-economic factors: the development of modern civilization, which has dramatically restructured the way of life of people due to the increase in the population of cities, the introduction of electricity and household chemicals, the intensification of labor processes, the complication of curricula, information overload, transport difficulties, changed nutrition and other psychosocial stress.

The hereditary predisposition to diseases of the circulatory organs is also important, but it cannot be considered as the main cause, since a sharp increase in morbidity and mortality from these diseases occurred in such a short period of time during which genetic changes are impossible in humans [5, 6, 7]. These hazards affect the personality and body of the child and adolescent. Due to difficult everyday circumstances, the activity of the nervous system, its autonomic department, which is responsible for the joint, coordinated activity of organs and systems of the whole organism, is often upset in children. Violation of autonomic regulation can manifest itself in the form of vegetative-vascular dystonia (VVD). The essence of VVD is that the primary pathological changes do not occur in the "target organ", but in the apparatus of its nervous regulation. Psychosomatic relations are

violated - the connection of mental phenomena, the adaptive activity of the autonomic nervous and humoral systems with the functional activity of the cardiovascular system. According to the literature, among children with non-communicable diseases who visit a doctor, 50-75% are patients with VVD [4]. The relevance of studying the personality characteristics of children with VVD is dictated by the fact that many psychosomatic disorders (ischemic and hypertension diseases, bronchial asthma, gastric ulcer and 12 p.c., neurodermatitis, etc.) originate in childhood and their primary manifestations are vegetative disorders. Neurocirculatory dystonia (NCD) is a variant of VVD, manifested mainly by disorders of the cardiovascular system. In some cases, an increase predominates, in others - a decrease in blood pressure, and thirdly - the regulation of the activity of the heart is disturbed.

Purpose of the study. Study of the influence of the mental state and personality characteristics of patients on the manifestations and development of NCD in children and adolescents of the Uzbek population.

Material and methods. We studied 43 patients with NCD (18 boys and 25 girls) aged 7 to 16 years with hypotonic, hypertensive and cardiac types.

In the examined group of patients with NCD, children with hypertensive (46.5%) type prevailed. Patients (39.5%) were diagnosed with hypotonic NCD, and in 14 patients with cardiac type. For the study of individual - typological and personal characteristics of children, in addition to clinical and pedagogical observations, traditional experimental - psychological methods were used, allowing the most differentiated approach to the analysis of the personality of a sick child [6, 7, 8, 9, 10]:

1. Examination and observation of the behavior of children in the experimental situation in order to identify the features of the emotional-volitional sphere;

2. Schwanzer's partially standardized diagnostic interview - conversation;

3. Pathocharacterological diagnostic questionnaire (PDO) - for children and adolescents from 10 to 18 years old;

4. Study of self-esteem by the Dembo-Rubinstein method;

5. Children's version of the Cattell personality questionnaire for children from 8 to 12 years old;

6. Children's version of the Eysenck personality questionnaire for children;

7. Projective methods of personality research;

a) Rosenzweig picture frustration (stress) test for children and adolescents; b) Rorschach tests;

8. Standard questionnaire-characteristics for a child (filled in by a teacher and parents;

9. Identification of the characteristics of the microsocial environment - families and schools;

10. Conducting an ECG study (in 12 standard leads), echoencephalography, rheoencephalography, etc.;

11. Measurement of blood pressure, diastolic blood pressure, counting the pulse rate;

12. Study of vegetative homeostasis (vegetative tone, reactivity, security). In addition to these studies, conventional clinical methods were used (general blood count, urine, feces, chest and skull radiography), biochemical methods with the determination of total protein, residual nitrogen, urea, potassium and calcium in blood serum, rheumatic tests. Specialist consultations (psychiatrist, psychoneurologist, endocrinologist, cardiorheumatologist, traumatologist). An objective study of children was carried out in a children's hospital using generally accepted methods - examination, palpation, percussion, auscultation. The results of the study were subjected to variational-statistical processing: mean values (X), standard deviation (T) and its errors (+m), testing hypotheses from the normal distribution were tested by Student's t-test. Correlation and variance analysis was carried out according to the program. The centile distribution of personal factors indicators was calculated using a mathematical algorithm. Results. From the data presented in Table No. 1, it follows that patients with NCD in general are significantly extraverted (17.3 ± 0.6 and 16.7 ± 0.4, $P < 0.001$), which makes it possible to characterize them as more sociable, active and prone to leadership. For hypotonic and cardiac types, the increase in sociability was not significant ($P>0.05$). Patients with NCD of the hypotonic type are characterized by depressed mood or apathy. Most children are disturbed by obsessive fears for somatic health, they consider themselves seriously ill. A high degree of anxiety is characteristic of both children with hypertonic, hypotonic, and cardiac types

of NCD. Patients with the cardiac type of NCD were characterized by a sharp weakening of physical and intellectual performance, as well as phobias related to confined spaces, driving in transport, crowds, and heights.Among the psychopathological manifestations, cardialgia and other unpleasant sensations in the region of the heart occurred constantly (P<0.05) and were the most significant for a patient with a cardiac type of NCD. A high rate of psycho-emotional instability in patients (15 ± 0.8 and 16.6 ± 0.6 P < 0.001 in boys and girls) indicates an increased level of anxiety and neuroticism. Patients with NCD are irritable or tense. Often dissatisfied with their surroundings. The hypertonic type is characterized by a high sense of responsibility and intensity. More than half of the patients show signs of neuropathy.

The actual mental state of children with NDC determined by the Kettell method as a whole manifests itself as a personality of a highly neurotic response, which confirms the connection between NDC and personality traits (Table 1). 2.

Table 1

Average scores of indicators (in points) according to the Eysenck questionnaire in children of the control group and patients with NCD.

Indicators	Standardization data		NCD		Hyper. type.	Hypothesi s. type.	Card. type
	boys	girls	boys	girls			
extraversion introversion	15,1 ± 0,4	14,3 ±0,4	17,3± 0,6*	16,7± 0,4*	17,6 ±0,4*	16,4 ±0,7	15,6 ± 0,9
neuroticism	12,6± 0,5	13,3 ±0,5	15± 0,8*	16,6 ±0,6*	17,0 ± 0,7*	15,7 ±1,5	15,8 ± 1,4
	The data are statistically significant (P < 0.05 - 0.001) compared with healthy children.						

In the group of patients with NCD, the most characteristic were mild and frequent occurrence of unmotivated anxiety, mood swings, subdepressive episodes in premorbidity. Mild vulnerability and sensitivity are indicated by a decrease in factor C (3.2±0.5 and 2.7±0.4; P<0.001). They are also distinguished by pronounced incredulity, resentment, aggressiveness, persistence in achieving the goal and ambitious aspirations (the rise of the “E” factor 6.1±0.3 and 6.6±0.4, P<0.05). A decrease in the “H” factor (3.2 ± 0.3 and 1.6 ± 0.4 in boys and girls, P<0.001) reflects the presence of high self-doubt, a tendency to constant doubts when making decisions, to the formation of obsession, a decrease entrepreneurial spirit and energy. Dissatisfaction with the situation, one’s behavior in it, and high tension of unreacted urges were reflected in the rise of Q and Q3 factors (6.8±0.3 and 7.04±0.15; P<0.001 6.8±0.4 and 6, 9±0.3; P<0.001 in boys and girls, respectively). In general, patients with NCD are characterized by a pronounced increase in emotional stress, difficulty in making interpersonal contacts and contributing to the disruption of the psycho-vegetative regulation of the individual. The predominance of the desire for well-mannered forms of behavior in combination with conscious self-control (increased factors I and Q3 (7.1 ± 0.6 and 7.0 ± 0.5) prevents the response of negative emotions, which contributed to the long-term preservation of emotional stress and further difficulties in adaptation. Patients with NCD usually had combinations of disharmonious personality traits, which led to the appearance of intrapsychic conflicts between dominant and mutually exclusive types of needs.

Table № 2.

Mean values of personality factors Kettel in patients with NCD (M±m).

Survey group.	Floor	Factors of personality traits A	B	C	D	E	F	G	H	I	Q	Q_3	Q_4
NDC Data.	boys (18)	7,4 ±0,4*	4,7 ±0,4	3,2 ±0,5	2,2* ±0,2	6,1 ±0,3*	6,3 ±0,4*	5,1 ±0,2	3,2 ±0,3*	7,1 ±0,6	6,8 ±0,3*	7,5 ±0,2*	6,8 ±0,4*
	girls (25)	6,8 ±0,2*	5,4 ±0,2	3,3 ±0,4*	2,7 ±0,4	6,6 ±0,4*	7,2 ±0,3*	5,0 ±0,15	1,6* ±0,4	7,0 ±0,5	7,04 ±0,15*	7,1 ±0,2*	6,9 ±0,3*
std.	boys	6,0 ±0,4	5,0 ±0,27	4,3 ±0,42	4,2 ±0,13	3,64 ±0,35	4,64 ±0,25	4,7 ±0,15	5,5 ±0,27	5,6 ±0,3	4,6 ±0,26	5,48 ±0,2	4,0 ±0,3
	girls	6,0 ±0,3	5,4 ±0,29	3,9 ±0,9	2,8 ±0,42	3,0 ±0,48	3,0 ±0,3	5,7 ±0,16	5,4 ±0,23	5,4 ±0,2	4,9 ±0,27	6,1 ±0,42	4,1 ±0,3

Those marked with an asterisk * are statistically significant (P>0.05-0.001).

These intrapsychic conflicts underlay violations of social adaptation in the school and family spheres, and also prevented psycho-vegetative adaptation, which manifested itself in psychopathological and vegetative-somatic disorders in this disease.

Comparison of the average profile of individuals with NCD and the control group revealed significant differences. The average profile of the group of people with NCD

differs from the average profile of the control group in features that reflect higher anxiety (factor «Q 6.8±0.3 and 7.04±0.15; P<0.01), which is accompanied by a tendency to the emergence of unpleasant somatic sensations, a more pessimistic coloring of perspective and great rigidity. According to F.B. Berezin et al (18), due to this rigidity, once the affect of anxiety has arisen, it does not fade for a long time. Apparently, this circumstance can contribute to the repetition of anxious reactions. The above profile features were combined with signs indicating a relatively high level of tension, irritability and frustration (high Q4 6.8 ± 0.4 and 6.9 ± 0.3; P < 0.001. Decreased mood and anxious affect in NCD patients were significantly to a greater extent than in healthy people, could disrupt adaptation to the immediate social environment, which is reflected by deep “dips” of the curve (factors “H” 3.2 ± 0.3 and 1.6 ± 0.4; “C” 3.2 ± 0.5 and 3.3±0.4 P>0.05) profile.

An increase in activity and readiness for action is reflected to a greater extent on the profile curve by «peaks» (factors «E» and «F».) Thus, in patients with NCD, conflicts between the need to be in the center of attention of others (rising factors (A , E, E, F), the desire to focus on non-conformal, special internal criteria of behavior, conflicts between selfish and altruistic motives, emotional immaturity (factors «H» and «I»), demonstrativeness, weakness of mental «delays» and ambitious attitudes that are especially significant for the individual («E», «G»).

The peculiarity of the reaction to frustration depends on the nature of the individual development of the subject, which in turn is based on a combination of certain genetic premises and social factors. This reaction seems to be based on two factors. On the one hand, these are the features of mental response associated with the personal characteristics of the subject, on the other hand, there are special relationships between two aspects of response: mental and vegetative. Finally, it is possible that a combination of both of these moments is necessary for the emergence of NDC. We conducted a study of the considered possibilities of reaction to frustration in sick children with NCD. Variants of psycho-emotional response to frustration in patients with NCD and healthy people significantly differed (Table 3).

In children with NCD, the extrapunitive reaction «E» was significantly reduced (9.05±0.8 and 8.8±0.5 in boys and girls). Decreased mood and anxious affect in sick children with NDC to a much greater extent than in healthy children could disrupt adaptation to the immediate social environment, more often causing the need for help «IP» (13.2±0.5 and 13.0±0.6 ; P<0.05 in boys and girls) and could disrupt behavior control to a somewhat greater extent.

Table 3

Variants of emotional response of healthy people and patients with NCD in conflict situations (M±m).

Group surveyed		Direction of response Type of response			Direction of response Type of response		
		E	I	M	OD	ED	IP
Patients with NCD	boys	9,05±0,8*	12,11±0,5*	2,44±0,5*	7,0±0,7	3,3±0,46*	13,2±0,5*
Data	girls	8,8±0,5*	12,2±0,5*	3,0±0,4*	7,0±0,5	3,3±0,3*	13,0±0,6*
standardization	boys	11,07±0,5	5,21±0,28	8,43±0,46	7,51±0,47	10,7±0,51	5,58±0,29
	girls	10,16±0,45	5,5±0,29	8,32±0,49	7,2±0,45	10,3±0,52	6,48±0,28

(*) - The data are statistically significant (P < 0.05 - 0.001) compared with healthy children.

Violation of behavior control was accompanied by the restriction of social contacts and the severity of schizotimism «M» (12.1% and 14.2% vs. control 34.2 and 34.7%; P<0.05 in boys and girls).

The given data give grounds to believe that persons with NCD are characterized both by peculiar personality traits that cause a tendency to certain types of mental reactions, and by peculiar relationships between the mental and vegetative aspects of the response, which determine the originality of the autonomic reaction.

In patients with NCD, color shock is quite pronounced. A decrease in interpretations (5.3±0.5 and 5.7±0.6 in boys and girls) and a significant increase in «D» responses indicate a decrease in the ability to synthesize. A decrease in kinesthetic interpretation, according to Rickers-Ovsiankina, is a sign of the attenuation of emotional reactions.

Along with this, when studying the protocols of patients with NCD, other features were found that distinguish patients from healthy people: frequent refusals, especially for tables IV, VIII, IX, X, an indication of symmetry, an increase in CF-responses, an increase

in A + Ad, interpretation of stimulus material in the form of questions, an increase in the percentage of answers in terms of content PI, a decrease in original answers. The type of experience in NCD is, on the whole, extra-intense. In contrast to the healthy population of schoolchildren, in the group of NCD patients there is a significant increase in the mixed type of extratension. The ambiguous personality variant was not registered. The use of the objective assessment scale of the pathocharacterological diagnostic questionnaire (PDO), (112) showed that the number of adolescents with character accentuations significantly differed ($P < 0.001$) among healthy ones (52.35%).

In contrast to healthy adolescents, the following types of character accentuation were significantly more common in patients with NCD: cycloid ($P<0.05$), labile ($P<0.001$), sensitive ($P<0.001$). Psychoasthenic, hysteroid and epiliptoid types of accentuation were also more often observed in adolescents with NCD, but this difference was not statistically significant ($P>0.05$).

The severity of accentuation was not the same in adolescents with different types of NDC. In NCD of the hypertensive type, unstable, labile and cycloid types of accentuation were diagnosed significantly more often ($P<0.01$), and sensitive, labile and cycloid types were characteristic of the hypotonic type of NCD.

Findings. Thus, in the families of children with NDC, upbringing is typical of the type of «hyper-custody».Increased hypersocial attitudes, insufficient emotional contact between parents and children, pedagogical illiteracy of parents in children developed a high level of neuroticism, a sense of internal tension, irritability, attention distraction, depressed mood or apathy, decreased physical and intellectual performance, phobias, desire for leadership. Another group of pathogenic microsocial factors is acute conflict situations. The most typical conditions for the emergence of acute conflicts were quarrels with parents and teachers, situations of clashes with peers (when striving for leadership, feelings due to relationships between parents.) In these children, personality manifestations were unstable. Clinically, NCD was not limited to disorders of vascular tone. Often there were complaints of headaches, nausea, pain in the chest and abdomen, heaviness and pain in the region of the heart, etc.

Most of the 40 (93%) children examined by us with NCD had unfavorable factors of the microsocial environment, which, to one degree or another, participated in the formation of psychosomatic disorders. The identified acute and chronic types of psychotraumatic situations play a different role in the formation of the clinical picture of NCD.

According to D. N. Isaev, acute and severe injuries most contribute to the emergence of secondary neuropsychic syndromes.Repeatedly repeated mental stresses are related to the vegetative-vascular level of response, and by causing long-term pressor reactions of blood vessels, they are directly involved in the formation of a prehypertensive state. Psychogenic stresses of greater depth, arising against the background of prolonged nervous overstrain, contribute to the development of more detailed pictures of psychovegetative disorders.

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