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Ferritin Index with Metabolic Changes in Obesity in Adolescents

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Abstract: Today obesity has become not only a systemic public health problem but also a social and even more so an economic problem among children and adolescents.The relationship between metabolic changes and iron metabolism, especially a seemingly unrelated one, continues to be controversial among many scientists. This study analyses the clinical neurological, autonomic and attention disorders observed in adolescents with metabolic changes and their relation to the amount of ferritin, an index of iron metabolism in the blood.

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Introduction. Overweight accounts for about 1.9 billion people worldwide. of whom 650 million have been identified.while obesity is approved (WHO, 2018). According to WHO, even among children, overweight was 5 million by 2016. 340 million in 19-year-olds, girls accounted for 18% and boys for 19% of children. One of the contributors to the metabolic syndrome that has a major impact is the brain. The neurological and autonomic changes that develop in obesity during adolescence, especially the risk of developing iron deficiency is higher in overweight children, which is of great interest to many professionals. impaired attention and thought processes caused by the metabolic syndrome can lead to a reduced quality of life in the individual, even in cases of dementia and impaired social adaptation.

Study objective: to investigate the relationship between metabolic changes in obesity and ferritin levels in adolescents.

Materials and method of study: the results of anamnestic, clinical, neurological and laboratory analyses of 180 children and adolescents were studied in our study. For the 9-17 year olds, the selection criteria were waist circumference of cm in boys and cm in girls, and the criteria for deviation were hereditary, organic endocrinological and neurological acute and chronic diseases. A total of 140 adolescent children who came for examination by an endocrinologist with excessive body weight were selected for the main group, based on the selection and deviation criteria, and 40 adolescent children with normal body weight were selected for the control group. Anthropometric, anamnestic, clinical, neurological, vegetative and focal examinations, paraclinical examinations such as electroencephalography, transcranial dopplerography and blood sugar, lipid metabolism and ferritin levels were carried out in all teenagers with parents' and teachers' permission. We divided our main group into an active and an inactive group on the basis of blood fat and carbohydrate values. In our active group there were 54 (38.6%) children with fat and carbohydrate abnormalities and in the inactive group there were 86 (61.4%) children with obesity and fat and carbohydrate abnormalities. We divided the metabolically inactive group into 2 subgroups: MS 21ta(41,18%) and MS 33ta(58,82%).The primary autonomic state of the autonomic nervous system was assessed with the Wein questionnaire, autonomic reactivity with the Daniel Aschner reflex, and attentional stasis with the Schulte table.

Body weight in adolescents in the main group

Obesity was detected in 46 (53.49%) of grade I, 36 (41.86%) of grade II and 4.65% of grade III (n = 4). Depending on adolescence, early adolescence 9 - 14 years (n = 80) was differentiated by 57.1% and late adolescence 15 - 18 years (n = 60) by 42.9%.

Consistent with this, complaint rates, particularly in the younger children with metabolic syndrome in the core group, were almost 3-4 times higher than in the control group.As a factor leading to obesity we investigated and analysed the effect of obesity on the forehead in our groups.Accordingly, only his mother had a predominance of 64 (46%) in the core group compared with 27 (19%) in the control group. Obesity in both parents was 39(28%) in the main group and 4(3%) in the control group, only the father had 29(21%) in the main group and 14(37.5%) in the control group, and absence in both parents was 21(15%) in the main group and 16(40%) in the control group.

In children who were found to be obese during the neurological examination, we did not observe overt signs of migraine. Only diffuse microsymptomatology was found in the neurological status (Table 1).

46 (53,49%) I Degree, 36 (41,86%) II degree and 4,65% III degree (n = 4)obesity were determined. Depending on the period of adolescence , early adolescence differed from 9 – 14 years (n = 80) to 57,1%, and late adolescence from 15 – 18 years (n = 60)to 42,9%. We conducted a grouplararo analysis of complaints received from all adolescents(Figure№ 1). According to this, the indicators of complaints received from children of a small group of metabolic syndrome, especially in the main group, suffered almost 3 G'4 more marotaba than in the control group.As a factor leading to obesity,we studied and analyzed the meeting of obesity in otaghanelerde we groups.According to this, only the fact that she suffered the factor of obesity in her mother, with the number of 64 (46%) in the main group, dominated 27(19%)in the control group. Obesity in both parents accounted for 39 (28%) in the main group ,4 (3%) in the control group ,only 29(21%) in the father in the main group,and 14 (37,5%) in the control group, and 21(15%) in the main and 16(40%) in the control group. In children with obesity at the time of neurological examination, we did not crosymptomatics (Table № 1).

Symptoms	Groups	
	Main	Control
Violation of convergence	17,14%	2,5%
Nasal lab asymmetry	35,71%	7,5%
Distributed muscle hypotonia	37,86%	7,5%
Tremor on the fingers	71,42%	12,5%
Revitalization of reflexes	17,86%	5%
Hypergidrosis	47,88%	10%

It can be seen that the neurological examination of the children in the main group mainly revealed changes associated with autonomic dysfunction, especially when these signs were predominant in the main group, manifested by symptoms such as muscle hypotonia, finger tremors and hyperhidrosis. The initial vegetative state was assessed using the Vein Autonomic Nervous System Questionnaire and the results from the groups were analysed. This questionnaire consists of a comprehensive questionnaire response and helps in the broad coverage of the autonomic nervous system. Sympathetic changes manifested as inability to tolerate heat (73.57%), varai condition (58.57%), white,pink dermographism (79.29%), thirst (45.71%), increased appetite (56.42%), reduced salivation (75%), polyuria (79.29%), sleep disturbance (64.29%). Personality changes (69.5%) were manifested by hypersensitivity to pain, mood swings, short temperedness, quick absent-mindedness, increased physical activity. Parasympathetic changes manifested as redness of skin (56,42%), wet sweating (79,29%), inability to tolerate cold (55,71%), accelerated salivary discharge (37,86%), epigastric pains (46,9%), decreased physical activity (65%), somnolence combined with a deep sleep (31,43%). We compared the results of the baseline autonomic status between the two groups, the main group and the control group (Table 2).

Comparative analysis of intergroup initial vegetative state .

Table No. 2.

	Main	Control
Normosteniya	21 (15%)	13 (32,5%)
Sympathicotonia	103 (73,57%)	12 (30%)
Vagotonia	16 (11,43%)	15 (37,5%)

As can be seen from the above table, in children in the group with primary obesity the primary autonomic state was found to be sympathicotonic in 74% of cases and in the control group in 39%; vagotonia was found in children in our main group in 11% and in the control group in 31%; and normosthenia in 15% and 30% of cases in both groups. The RR i.e. we used the eye-cardiac Dyney-Ashner reflex in all children to assess the body's response to recoil in the calm state (Table 3).

Comparative analysis of autonomic reactivity in both groups

Table 3

	Main	Control
Normosteniya	21 (15%)	13 (32,5%)
Sympathicotonia	103 (73,57%)	12 (30%)
Vagotonia	16 (11,43%)	15 (37,5%)

According to the analysis of the results of this study, we found that backward responsiveness was predominant in children in the Asian group with 70.71%, while in the control group the figure was 20%. In the control group, normal responsiveness was shown by a slowing of the heart rate by 10 - 12

in response to exposure, showing 45%. In the main group, this was found in 10% of cases. Overreactivity was expressed in 6.43% and 32.5% in the main and control groups.
In all children who were found to be obese, the urine stasis status was checked using the Schulte test and the analysis of the results obtained was assessed on the basis of the time taken to perform and the number of gross and non-cross errors that were made.

Teens in the main group outperformed children in the control group in terms of the number of errors in the time taken to complete a task. Accordingly, the average time for children in the main group was 74-76 . there were 11 gross errors, on average, and 15 gross errors. In the control group, the average time to complete a task was 46.01 seconds. For example, the number of errors that were not gross was 4 and the number of errors that were gross was 3. As we see, the time needed to complete a task was long in the main group and the number of gross errors was 3 to 4 times that of the control group.

From the laboratory tests we determined the amount of ferritin, which is considered to be an indicator of iron metabolism in the blood serum of all children (Table 4).

Intergroup comparison of ferritin amounts

Table No. 4

Ferritin indicator mgmal/l	**Groups**			
	Control (n = 40)	Maen (n = 140)		
		Metabolically inactive(n = 86)	Metabolic asset	
			MS(n=21)	M risk (n = 33)
Ferritin indicator (45-120)	~81,4	~56,8	**~25,2**	~37,5

We found that according to the analysis of the results obtained, the average ferritin content in the metabolic inactive risk subgroup of the main group among adolescents was ~56.8, and in the metabolic syndrome subgroup in the metabolic active risk group, this index was ~25.2 μmol/l, and in the metabolic risk subgroup it was ~37.5 μmol/l. And in children of the control group the serum ferritin content was ~81.4 μmol/l.

Conclusion: This study showed that neurological changes in obesity in adolescents have diffuse microsymptoms, while the autonomic nervous system is predominantly dominated by the sympathetic nervous system. In addition, metabolic changes in adolescents were characterised by impaired attention. Serum ferritin content is defined as an inverse correlation with metabolic changes, assessed as another associated condition that leads to more profound neurological changes, such as attention disorders, which develop as a result of metabolic changes, and should certainly be considered in the treatment measures undertaken.

LITERATURE:

1. Abdullaeva N.N., Isanova Sh.T., Khamedova F.S. The method of diagnosing vegetative changes in obesity in children. My stylistic recommendation.2021.Sammi
2. Vahidova A. M. et al. Fungi of the genus pacilomyces in human echinococcosis //World Science: Problems and Innovations. 2019. C. 186-190.
3. Shomurodov. K.E. Features of cytokine balance in gingival fluid at odontogenicphlegmon of maxillofacial area. // Doctor-aspirant 2010.-42 Vol.-No.5.1.-P.187-192;
4. Tillyashaykhov M. N., Rakhimov N. M. Khasanov Sh. T., Features of Clinical Manifestation of the bladder cancer in young people// Doctor Bulletin. - Samarkand, 2019. - №2. - P. 108-113

5. Ilkhomovna, K. M., Eriyigitovich, I. S., & Kadyrovich, K. N. (2020). Morphological Features Of Microvascular Tissue Of The Brain At Hemorrhagic Stroke. The American Journal of Medical Sciences and Pharmaceutical Research, 2(10), 53-59. https://doi.org/10.37547/TAJMSPR/Volume02Issue10-08

6. Djumagaziev A. A., Bezrukova D. A., Bogdanyans M. V., Orlov F. V., Raysky D. V., Akmaeva L. M., Usaeva O. V., Djamaev L. S. Problema ojireniya he mire detey v sovremennom: realii I vazmojnie Poti resheniya. Voprosi sovremennoy Pediatrics. 2016; 15 (3): 250-256. doi: 10.15690 / vsp.v15i3. 1561)

7. Isanova CityT., Abdullaeva N.N., Igamova S.S. The algorithm for diagnosing neuro – psychological changes caused by metabolic syndrome in adolescents is a methodological recommendation.2021. It's Sammi.

8. Isanova CityT., Abdullaeva N.N., Djurabekova A.T., Azizova R.B., Mukhtarova M.A. Problemi biologii I medisini. 2020 №4 (120) https://doi.org/10.38096/2181-5674.2020.4

9. Browsing A.N. I saavt. Klinicheskie, psychologicheskie I metabolicheskie osobennosti detey s ojireniem Nauchniy medisinsky Journal, tom 35, № 4, 2015

10. K. A. Polkova, L. A. Prakapenka, village. Ped. nauk, associate professor, Otsenka sosialnoy adaptirovannosti i vegetativnoy ustoychivosti studentov technicheskogo Institute technicheskiy Institute (branch) Severo-Vostochnogo federalnogo University (ti (f) SVFU), Neryungri Uchenie Zapiski University imeni P.F. Lesgafta. – 2018. – № 5 (159)

11. Sadykova.J. The relationship between the transferrin \ ferritin index and the metabolic syndrome.H. A. Yasavi International Kazakh-Turkish University, Turkestan.Bulletin No. 1 2016.KazNMU

12. Vagnetova, E.A. Kaveeva, I.A. and Safonova, V.R. (2014)," Analysis of socio-psychological adaptation and autonomous stability of Middle OB students Zauralye", Fundamental Research, Vol. 1, pp. 51-54.

13. Druet C, Ong KK. Early childhood predictors of adult body composition. Best Practice Res Clin Endocrinol Metab. 2008;22(3): 489-502. doi: 1016 / j.beem.2008.02.002

14. Isanova City T., Abdullaeva N.N. , Djurabekova A.T, Gaybiev A.A. Clinical-Neurological And Vegetative Dysfunctions In Adolescents With Metabolic Syndrome. International Journal of Pharmaceutical Research / Jul-Sep 2020 / Vol 12 | Issue 3

15. Lobstein T, Jackson-Leach R, Moodie ML, et al. Child and adolescent obesity: part of a bigger picture. Lancet. 2015;385(9986): 2510-2520. doi: 10.1016/S0140-6736(14)61746-3

16. Magnusson KR, Hauck L, Jeffrey BM, et al. Relationships between diet-related changes in the gut microbiome and cognitive flexibility. Neuroscience.2015;300:128-140.doi: 10.1016 / j.neuroscience.2015.05.016.

17. Roberto CA, Swinburn B, Hawkes C, et al. Patchy progress on obesity prevention: emerging examples, entrenched barriers, and new thinking. Lancet. 2015;385(9985):2400-2409. doi: 10.1016/ S0140-6736(14)61744-X.

18. who.int [internet]. World Health Organization Fact sheet № 311. Obesity and overweight [updated 2016 Jan; cited 2016 Jun 13]. Available from: http://www.who.int/mediacentre/factsheets / fs311 / en.