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Short Communication

The Effect of Sideropenia on the Thyroid Status and Reproductive System of Adolescent Girls

Natalya R Peretyagina[1*], Elena F Turovinina[1]

[1]*Department of Medical Prevention and Rehabilitation, Tyumen State Medical University, Tyumen, Russia*

INTRODUCTION

Statement of the Problem

Iron deficiency is a common form of micronutrient deficiency and the cause of iron deficiency anemia, which has a significant effect on the development of children. The relevance of the topic is due to the continuity of disorders of the hormonal system of adolescence and adulthood, the common pathogenesis. The complex, mutually regulatory relationship between the pituitary-thyroid and reproductive systems and the presence of a population-significant iron deficiency justify the feasibility of studying the problem [1,2].

METHODOLOGY & THEORETICAL ORIENTATION

94 girls aged 15, 17 years were examined. Conducted medical his tory, examination, determination of indicators of clinical analysis of peripheral blood, serum iron, serum ferritin and soluble receptors for transferrin (sTfR), thyroid stimulating hormone (TSH), free thyroxine (cT4), titer of antibodies to thyroid peroxidase (A-TPO) follicle-stimulating hormone (FSH), luteinizing hormone (LH), estradiol (E2) and progesterone (PG), ultrasound of the thyroid gland [3,4].

FINDINGS

The value of the thyroid volume in adolescent girls in the group with IDA is higher than that without ID (U=345.5;p=0.005). A correlation was established between HB and thyroid volume (R=-0.33;p=0.001). In conditions of sideropnia, the risk of goiter increases-OR 10.0; 95%CI [1.3; 79.0] A correlation between TSH and SJ was revealed (R=-0.43;p=0.036). The lowest level of progesterone in the II phase of the menstrual cycle was determined in girls with IDA, the highest without iron deficiency (p=0.024). Correlation was established between FSH and RBC (R= 0.621; 0.004), FSH and MCH (R=-0.45; p=0.042), PG and HB (R=0.44;p=0.035). The revealed differences in the level of progesterone in the second phase of the menstrual cycle are manifested by a violation of its regularity, most often in girls with IDA (2=0.08; p=0.019) [5,6].

CONCLUSION & SIGNIFICANCE

The study found a high prevalence of sideropenia among adolescent girls. Iron deficiency has a negative effect on both thyroid status and menstrual function, disrupting cyclicity. Thus, the early detection of iron deficiency and the conduct of timely preventive measures aimed at maintaining and improving the health of adolescent girls are justified [7,8].

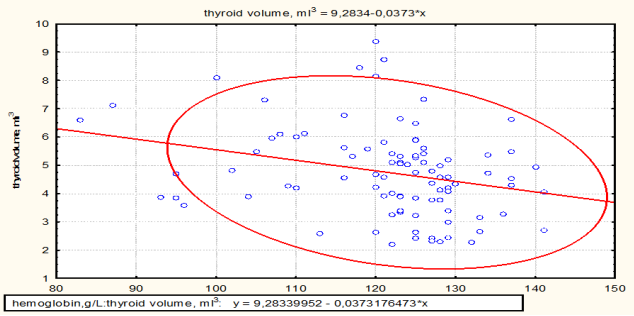

Figure1: Graph of thyroid volume (ml3) and hemoglobin level (HB,g/L).

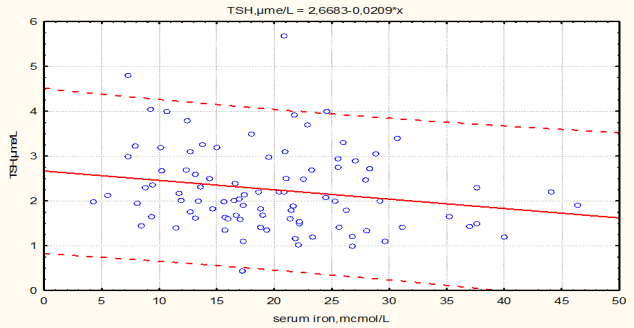

Figure2: Graph of the level of TSH, µME /L and serum iron (µmol/L).

[*]**Correspondence to**: Natalya R Peretyagina, Department of Medical Prevention and Rehabilitation, Tyumen State Medical University, Tyumen, Russia; E-mail: natalja.peretyagina@yandex.ru

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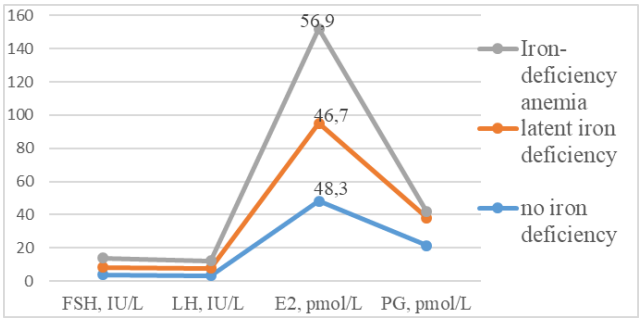

Figure3: Hormone levels of the second phase of the menstrual cycle.

Note: the significance of differences ($p<0.05$*), p1-between groups of girls with iron deficiency anemia and latent iron deficiency, p2-between groups of girls with latent iron deficiency and without iron deficiency, p3-between groups of girls with iron deficiency anemia and without iron deficiency

REFERENCES

1. Association between menarche and iron deficiency in non-anemic young women / D.L. Sekhar, L.E. Murray-Kolb, A.R. Kunselman, C.S. Weisman [et al.] //PLoS One. 2017; Vol. 12(5): e 0177183.
2. Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burdenof Disease Study 2015 // Lancet. 2016;388(10053):1545-1602.
3. Estimation of iron deficiency anemia in Iranian children and adolescents: a systematic review and metanalysis / M. Akbari, M. Moosazadeh, R. Tabrizi [et al.] // Hematology. 2017; 22(4):231-239.
4. Gregoraszczuk E.L. In vitro effect of Triiodothironine on the cyclic AMP, Progesterone and testosterone level in Porcine Theca,Granulose and Luteal cells / E.L. Gregoraszczuk, AJ. Galas //Endocrine Regulations. 1998;32:93-98.
5. Iron Deficiency Anemia Assessment, Prevention and Control. – A guide for programme managers. – Geneva: WHO, 2013.
6. Iron Deficiency Anemia Reduces Thyroid Peroxidase Activity in Rats / S.Y. Hess, M.B. Zimmermann, M. Arnold, W. Langans [et al.] //J. Nutr. 2002; 132(7):152-1955.
7. The prevalence of iron deficiency conditions and factors influencing it / A.G. Rumyantsev, I.N. Zakharova, Chernov V.M. [et al.] // Medical Council. 2015; 6:62-66.
8. The Relationship between Iron Deficiency and Thyroid Function in Chinese Women during Early Pregnancy / L.I. Shuxiang, G.A.O. Xin, W.E.I. Yancai [et al.]// Journal of Nutritional Science and Vitaminology. 2016;62(6):397-401.