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Folic Acid Deficiency in Women of Fertile Age in Studies Conducted at the Primary Health Care Level

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Abstract To study some risk factors for folic acid deficiency in adolescent girls and women of childbearing age, 150 adolescent girls of 12-18 years old and 96 women of childbearing age who were on a regular basis with various gastrointestinal pathologies. In patients with chronic gastrointestinal diseases and chronic hepatitis, FC indicators are significantly reduced, compared with healthy ones 9.15 ± 0.16 ng/ml and 13.23 ± 0.32 ng/ml, respectively ($p < 0.01$). Folic acid indices in those examined with helminthiasis (enterobiosis, giardiasis, hymenolepidosis, ascariasis) and without helminthiasis do not significantly differ 11.95 ± 0.26 ng/ml and 12.13 ± 0.23 ng/ml, respectively ($p > 0.05$). A significant difference in the indicators of folic acid was found in patients daily consuming greens, legumes, fortified flour, compared with those who rarely consume them 12.73 ± 0.18 ng/ml and 8.11 ± 0.20 ng/ml, respectively ($p < 0.01$).

Keywords Folic acid, Risk factors, Women of fertile age, Adolescent girls

1. Introduction

In recent years, health science and practice have shown the negative impact of folic acid deficiency on human health. Folic acid deficiency leads to complications during pregnancy and childbirth, to congenital pathologies in newborns, to the risk of heart attacks and strokes, decreased immunity, trophic disorders of the skin and mucous membranes, genetic defects, etc. [2]. The above reduces the socio-economic development of countries, which led to the development and implementation in many countries of various programs for the massive fight against folic acid deficiency, the principle of which is based on fortifying food with folic acid, the use of folic acid in preventive doses among risk groups (women of childbearing age, pregnant women, lactating women, adolescents, young children), rational nutrition [5].

It is well known that the daily requirement for folic acid in children under 1 year old is 120 mcg, from 1 year to 12 years old - 200 mcg, in adolescents and adults - 400 mcg, pregnant women - 800 mcg, nursing women - 600 mcg. [6]. Reduced intake of folic acid, increased costs and losses lead to DFC. Because folate is ingested through the diet, a leading risk factor for folate deficiency is an inadequate dietary folate, which is found mainly in greens, leafy green vegetables,

legumes, bran, cereals, liver and meat products. Boiling destroys folic acid, so vegetables and greens should be eaten raw; in meat products, FC is more resistant to heat treatment.

Other causes of folic acid deficiency are alcoholism, scurvy, chronic diseases of the gastrointestinal tract, malabsorption syndrome, sprue, helminthiasis and parasitosis, especially tapeworm infections [1]. Long-term use of certain anticonvulsants and hypnotics, sulfonamides, and others also lead to DPC [7]. Breast milk contains the monoglutamate form of folic acid, which is best absorbed and has the highest biological activity, and is not found in food. Therefore, breastfeeding is one of the most effective measures to prevent folic acid deficiency in young children [6]. In our republic, over the past 20 years, much attention has been paid to the issues of diagnosis, treatment, prevention of folic acid deficiency. Thus, in 2010, the Law of the Republic of Uzbekistan "On the prevention of micronutrient deficiency among the population" was adopted, which provides flour fortification with micronutrients, incl. folic acid, throughout the country, also at the level of primary health care, the method of weekly supplementation with iron and folic acid preparations in risk groups is widely introduced, as well as promotion of rational nutrition.

Objective - study of some risk factors for the development of folic acid deficiency in adolescent girls and women of fertile age. In order to prevent pathology in pregnant women and newborns, within the framework of the state program, all pregnant women are provided with multivitamins and folic acid free of charge, and for the first time in the republic, diagnostics of folic acid deficiency has been established.

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Despite the above measures, the rates of folic acid deficiency among children and women are still high - 30-86%, compared with 5-15% in developed countries [3]. This requires studying the causes and risk factors for the development of folic acid deficiency in our republic, since each country has its own local characteristics in nutrition, traditions, socio-economic status of the population and in the health care system.

2. Material and Methods

Studies were carried out among 150 adolescent girls of 12-18 years old and 96 women of fertile age who were registered with various diseases of the gastrointestinal tract, chronic hepatitis and helminthiasis. The control group consisted of patients without the above pathology. Risk factors for folic acid deficiency were identified using a special questionnaire.

For the differential diagnosis of iron-deficiency anemia and folate-deficiency anemia, venous blood was taken to determine the parameters of serum iron, ferritin and C-reactive protein. Folic acid values were determined microbiologically using a flatbed photometer. The criteria for indicators of folic acid norms are taken according to the WHO: for children at least 8 ng/ml, for adolescents and women at least 10 ng/ml.

3. Results

Among the surveyed target groups, the highest incidence of folic acid deficiency was noted among patients with helminthiasis - 74.02%, dysbacteriosis - 73.33%, in patients with chronic hepatitis, enterocolitis, colitis, duodenitis - 72%, the lowest frequency in patients with chronic gastritis - 45%. In the control group, these indicators were significantly lower - 30.77%. The results showed that in patients with chronic diseases of the gastrointestinal tract and chronic hepatitis, the values of folic acid were significantly reduced, compared with healthy ones - 9.15 ± 0.16 ng/ml and 13.23 ± 0.32 ng/ml, respectively ($p < 0.01$).

Folic acid indices in those infected with helminthiasis (enterobiasis, giardiasis, hymenolepiasis, ascariasis) and uninfected individuals do not significantly differ - 11.95 ± 0.26 ng/ml and 12.13 ± 0.23 ng/ml, respectively ($p > 0.05$). Our data confirm the information that dysbacteriosis, helminthiasis, chronic gastrointestinal diseases are the leading risk factors for the development of folic acid deficiency.

4. Discussion

Thus, the study of some risk factors for the development of folic acid deficiency in adolescent girls and women of

fertile age indicates their close relationship with nutritional factors, diseases of the gastrointestinal tract and helminthiasis, the risk of developing folic acid deficiency more than doubles in the presence of pathology gastrointestinal tract, helminthiasis, dysbacteriosis. The results obtained indicate the need for a deeper study of the risk factors for the development of folic acid deficiency, which in turn will make it possible to develop targeted programs for their prevention.

5. Conclusions

The risk of developing folic acid deficiency increases almost 2 times in the presence of chronic diseases of the gastrointestinal tract, dysbacteriosis, helminthiasis.

In the diet of adolescent girls and women of fertile age, there are not enough sources of folic acid - fortified flour and bread, herbs, green vegetables, legumes.

To increase the effectiveness of the fight against the deficiency of folic acid in the republic, it is necessary to treat and prevent pathology of the gastrointestinal tract, helminthiasis, dysbacteriosis, change in eating habits.

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The incidence of DFC among VFS was 30%, among them there were no cases of folic-deficient anemia, all anemia was iron-deficient. Our data coincide with the data of studies in the Karakalpakstan River (1994). It should be noted that the frequency of DFC among ZHFV is significantly lower - 30%, compared to the data of Muynak district 87%.

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