

ABOUT CONNECTION AUTOIMMUNE THYROIDITIS WITH MANIFESTATION OF IRON DEFICIENCY ANEMIA IN A CONDITION OF HYPOTHYROIDISM IN GENERAL CLINICAL PRACTICE. CLINICAL CASE

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Summary

Anemia is a global public health problem that needs to be identified. When determining the algorithms for examination and treatment of anemic syndrome, it is necessary to carefully study the risk factors for its development, taking into account comorbidity. Carrying out of diagnostic search in several directions will allow to specify mechanisms of development of an anemic syndrome which at a combination worsen a clinical condition.

Special attention should be paid to patients with manifestations of anemic syndrome on the background of endocrine pathology, namely autoimmune thyroiditis in hypothyroidism, as the incidence rate among women of childbearing age has increased significantly, which determines the direction of research and **aim of this publication**.

The article presents a clinical case of observation and treatment of a patient with chronic autoimmune thyroiditis in a state of hypothyroidism and adenomyosis, accompanied by abnormal uterine bleeding, which was complicated by iron deficiency anemia. Because the patient initially considered uterine bleeding to be the main problem, she was observed by a gynecologist; at the same time changes of indicators of the general analysis of blood in favor of anemia are established. Treatment of endometriosis and the appointment of iron supplements led to improvement with the normalization of laboratory parameters. For 6 months the patient did not consult a doctor, no laboratory control was performed. If she felt worse, the patient consulted a family doctor. Careful examination with the involvement of an endocrinologist allowed to diagnose chronic autoimmune thyroiditis in a state of hypothyroidism and prescribe adequate therapy, which helped to normalize the patient's condition.

Conclusion. Manifestations of anemic syndrome require determining the causes of its occurrence with the development of algorithms for examination and monitoring of treatment. The general practice physician should be the main coordinator in studying the causes of anemia and the management of patients in the outpatient phase with the involvement of physicians of other specialties.

Key words: iron deficiency anemia, autoimmune thyroiditis, hypothyroidism, anemia in general clinical practice.

INTRODUCTION

Manifestations of anemic syndrome in patients require special attention from the family doctor, since anemia is a clinical and morphological syndrome and can be a «mask» of many diseases. [1] In the presence of non-specific complaints and a gradual deterioration in well-being, timely identification of the underlying cause, taking into account the levers of comorbidity, is very important, therefore, certain difficulties may arise during the diagnostic search. [2]

A small number of patients with anemic syndrome have symptoms of major diseases, the majority have only manifestations of hemic hypoxia with adaptation to a low hemoglobin content and hyposiderosis, a quarter of patients have changes in laboratory parameters. [3] Clinical manifestations of anemia are caused by a reduction in the lifespan of erythrocytes, changes in iron metabolism with impaired erythropoiesis, and a decrease in the synthesis of erythropoietin (EPO). [1-3] A decrease in hemoglobin level

below 100 G/l leads to a change in the quantity and quality of erythrocytes, as well as the activity of many enzymes. [4] Latent iron deficiency in the absence of changes in hemoglobin and erythrocyte levels is much more common than iron deficiency anemia (IDA). [5,6]

Identification of additional provoking factors for the development of anemia is necessary, so it is desirable to begin treatment after the final diagnosis. [5]

The most common anemia is chronic iron deficiency anemia (in the world – 80% of all anemias, in Ukraine – 95.5% – according to the statistics of the Report of the Ministry of Health of Ukraine in 2020 [7,8]

Anemia is considered a predictor of chronic inflammatory processes and exacerbation of chronic diseases due to hemic hypoxia. [1,9.], And the decrease in gastric juice secretion and acid formation in chronic gastritis is explained by dysregenerative processes in the mucous membrane and is considered as a consequence, not a cause of iron deficiency. [10]

Hypochromic anemia may be the first symptom of hypothyroidism (30-60% of cases). Decreased absorption of iron in the small intestine and insufficient stimulating effect of thyroid hormones disrupts erythropoiesis. There is a relationship – low levels of serum ferritin cause T4 to switch to reverse T3, which slows down metabolic processes and leads to vitamin D deficiency [5,11] Also, very often there is a combination of hypothyroidism with genital endometriosis, which exacerbates the manifestations of IDA. [11-13]

Asthenia, as the main clinical syndrome of a number of diseases, requires mandatory laboratory screening to determine indicators of general blood tests, especially – erythrocyte indices, indicators of iron metabolism, namely – serum iron, ferritin, renal and hepatic complex, total protein levels, indicators level of thyroid hormones, if necessary – ultrasound of the abdominal cavity and thyroid gland, consultation with a gynecologist, endocrinologist. [5-7]

Treatment of patients with iron deficiency is desirable to carry out iron supplements in tablet form, the most effective drugs – drugs of ferrous iron – ferrous sulfate at a dose of 160-200 mg per day for 3 months continuously with monitoring ZAK monthly. During the first 3 weeks of treatment, a significant number of patients feel better, with the normalization of hemoglobin, erythrocytes, erythrocyte indices, the manifestations of asthenia and sideropenia are leveled. [7]

The effectiveness of treatment with the determination of the dose and time of maintenance therapy should be monitored indicators of iron metabolism – the most informative indicator – the level of ferritin, according to Order № 709 of the Ministry of Health of Ukraine [7]. Monitoring patients with iron deficiency and identifying groups of high-risk patients from the likelihood of developing iron deficiency is a task for the family physician.

Aim of the study: elucidation of a clinical case in medical practice, a patient with a combination of hypothyroidism, abnormal uterine bleeding and anemic syndrome from the point of view of providing care at the primary level.

Clinical case:

patient O. 48-years old woman, observed for 3 years in medical institutions.

History of the disease: from 43 years (2017) the nature of menstruation has changed: their duration has increased – from 3 to 6-7 days with a cycle of 29-30 days. Since then, there have been complaints of weakness, and mood swings.

Obstetric and gynecological history. Married, had two pregnancies (1994, 1995): the first pregnancy – physiological, ended in premature birth, the second pregnancy – abortion.

Allergic history is not burdened. Vaccinated by age, annually conducts the recommended vaccination against influenza.

Infectious diseases: suffers from acute respiratory diseases 1-2 times a year. She denies harmful working conditions.

Patient went to a gynecologist. Routine researches are carried out. According to microscopic and cytological examination of the smear from the vagina: no pathology was found, ultrasound of the pelvic organs (transvaginal) revealed an increase in anterior-posterior size of the uterus, the presence in the myometrium of cystic cavities 4-5mm. Signs of diffuse adenomyosis.

Complete blood count (CBC): erythrocytes – 4.16 x10¹², hematocrit – 35%, hemoglobin – 106 g/l, platelets – 273x10⁹, leukocytes – 5.9 x10⁹, lymphocytes – 39.5%, granulocytes – 52.5%, monocytes – 8%, ESR – 15 mm / year. Diagnosis: abnormal uterine bleeding, endometriosis of the uterine body (adenomyosis) diffuse form, moderate posthemorrhagic iron deficiency (?) anemia. Prescribed treatment with combined oral contraceptives (COCs) and ferrous drugs of 2 tons per day for 3 months continuously with the control of CBC. After 1 month, health improved, in the general analysis of blood – erythrocytes – 4.38x10¹², hematocrit – 36%, hemoglobin – 124 g / l, platelets – 150x10⁹, leukocytes – 6.2x10⁹, lymphocytes – 46%, granulocytes – 50%, monocytes – 4%, ESR – 15 mm / year. The patient only continued to take COCs for up to 3 months.

The patient did not see a doctor for 6 months.

After resuming complaints of heavy menstruation, weakness, mood swings, significant dryness of the skin, she went to the family doctor (general practice physician). Prescribed CBC with determination of erythrocyte indices, general urine analysis, determination of ferritin and consultation with a gynecologist, as well as – determination of thyroid-stimulating hormone (TSH), thyroxine (T4) free in order to clarify thyroid dysfunction.

CBC: erythrocytes – 4.02x10¹², hematocrit – 34%, hemoglobin – 112 g / l, MCV: 84 fL, MCHC: 32.9 g / dL, platelets – 150x10⁹, leukocytes – 6.0 x10⁹, lymphocytes – 45%, granulocytes – 51.5%, monocytes – 3.5%, ESR – 16 mm / year. General urine analysis: without features. Ferritin: 28 g / l, gray. Iron 6.9 mmol / liter. Thyroid panel: TSH 6.93 μIU / ml, T4 0.875 ng / dl.

Gynecologist's examination: Abnormal uterine bleeding. Endometriosis of the uterine body (adenomyosis) diffuse form. Hysteroscopy with endometrial biopsy was recommended.

Consultation with an endocrinologist with additional examination (Antibodies to thyroperoxidase (AT-TPO), ultrasound examination of the thyroid gland, etc.: chronic autoimmune thyroiditis, clinical hypothyroidism; mild anemia of complex genesis (due to menorrhagia, hypothyroidism)

Treatment is prescribed: levothyroxine according to the scheme 25-50 mcg, iron sulfate 2 tablets per day. CBC control was carried out 1 year per month. The need to intensify the diet with animal proteins (meat) is additionally emphasized. Within 3-4 weeks, the patient's condition improved – weakness decreased.

Control of laboratory parameters after 3 months of treatment:

CBC erythrocytes – 4.2x10¹², hematocrit – 37%, hemoglobin – 134 g / l, MCV: 88 fL, MCHC: 35.0 g / dL, platelets – 150x10⁹, leukocytes – 6.0 x10⁹, lymphocytes – 41%, granulocytes – 54%, monocytes – 5%, ESR – 10 mm / year.: indicative norms. Ferritin: 47 g / l

TSH: 0.842 μIU / ml, T4 free: 1.19 ng / dL, T3 free 2.58 pg / ml, AT-TPO: 360 IU / ml.

Diagnosis: Chronic autoimmune thyroiditis, clinical and laboratory euthyroidism. Chronic IDA in the stage of compensation.

Currently, the patient is registered with a family doctor, endocrinologist and gynecologist, constantly taking levothyroxine and maintenance treatment with ferrous sulfate 2 tablets a day for 2 weeks a month with ferritin levels monitored every 3 months for a year to adjust the dose of iron-containing drugs.

DISCUSSION

Due to the high prevalence of autoimmune thyroiditis [14] in women of childbearing age with menstrual irregularities, many

of them require assessment of thyroid function, especially because of the syndromic syndromes (which occur as a result of iron loss during uterine bleeding) and hypothyroidism are very similar. Taking into account menstrual disorders, dry skin, deepening depression, anamnestic data on preliminary treatment of anemia, hypothyroidism was suspected by a general practitioner, therefore, an additional determination of the level of thyroid-stimulating hormone (TSH), thyroxine (T4) free was prescribed, followed by determination of tactics, although the patient there were no specific complaints about hypothyroidism. [15,16].

The given clinical case is an example of necessity of careful studying of the reasons of development of an anemic syndrome, in particular establishment of iron deficiency with obligatory definition of level of ferritin and serum iron according to management protocols, improvement of algorithm of inspection, efficiency of treatment and prevention.

The common symptoms and their connection (manifestations of asthenic syndrome and trophic disorders of the skin) in the combination, as in this case – hypothyroidism and anemia – require consideration of many factors.

Manifestations of iron deficiency, including latent, are characteristic of women of reproductive age with abnormal uterine bleeding with hormonal imbalance with an aggravated obstetric history. Monitoring and treatment should be long – despite the improvement of patients, the effectiveness of treatment should be evaluated in the clinical and laboratory condition with mandatory repeated monitoring of ferritin levels with iron in therapeutic and prophylactic doses with advice to intensify the diet (addition of foods, mixing heme iron – meat, animal proteins) with the emphasis of patients that the use of drugs is mandatory. [7]

Conclusions:

- 1) Manifestations of anemic syndrome require identification of the main causes of its occurrence with the development of algorithms for examination and control of treatment.
- 2) Particular attention needs to be paid to thyroid disease, which is accompanied by hypothyroidism due to its prevalence.
- 3) To carefully study the causes of anemia, general practice physician should involve hematologists, endocrinologists, gynecologists.
- 4) Monitoring of patients with iron deficiency, as well as determining the categories of groups of patients at high risk for the likelihood of developing iron deficiency is a task for general practice physicians.

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Резюме

ЩОДО ВЗАЄМОЗВ'ЯЗКУ АУТОІМУННОГО ТИРЕОЇДИТУ З ПРОЯВАМИ ЗАЛІЗОДЕФІЦИТНОЇ АНЕМІЇ У СТАНІ ГІПОТИРЕОЗУ У ЗАГАЛЬНО КЛІНІЧНІЙ ПРАКТИЦІ. КЛІНІЧНИЙ ВИПАДОК

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Анемія є глобальною проблемою громадського здоров'я, яка потребує виявлення причин її виникнення. При визначенні алгоритмів обстеження і лікування анемічного синдрому необхідно ретельно вивчати фактори ризику щодо її розвитку з урахуванням коморбідності. Проведення діагностичного пошуку у декількох напрямках дозволить уточнити механізми розвитку анемічного синдрому, які при поєднанні погіршують клінічний стан.

Окремої уваги потребують хворі з проявами анемічного синдрому на тлі ендокринної патології, а саме аутоімунного тиреоїдиту у стані гіпотиреозу, оскільки рівень захворюваності серед жінок фертильного віку значно підвищився, що і обумовлює напрямок дослідження та мету даної публікації.

У статті наведено клінічний випадок спостереження і лікування пацієнтки з хронічним аутоімунним тиреоїдитом у стані гіпотиреозу та аденоміозом, що супроводжувались аномальними матковими кровотечами, ускладненням чого стала залізодефіцитна анемія. Оскільки спочатку головною проблемою пацієнтка вважала маткові кровотечі, вона спостерігалась гінекологом; тоді ж встановлені зміни показників загального аналізу крові на користь анемії. Лікування ендометріозу і призначення препаратів заліза призвело до поліпшення стану з нормалізацією лабораторних показників. Впродовж 6 місяців пацієнтка до лікарів не зверталась, лабораторний контроль не проводився. При погіршенні самопочуття пацієнтка звернулась до сімейного лікаря. Ретельне обстеження з залученням ендокринолога дозволило встановити діагноз хронічного аутоімунного тиреоїдиту у стані гіпотиреозу і призначити адекватну терапію, що сприяло нормалізації стану пацієнтки.

Висновки. Прояви анемічного синдрому потребують визначення причин його виникнення з відпрацюванням алгоритмів обстеження та контролю за лікуванням. Сімейний лікар повинен бути основним координатором при вивченні причин виникнення анемії і ведення пацієнтів на амбулаторному етапі з залученням лікарів інших спеціальностей.

Ключові слова: залізодефіцитна анемія, аутоімунний тиреоїдит, гіпотиреоз, анемія в загальноклінічній практиці.