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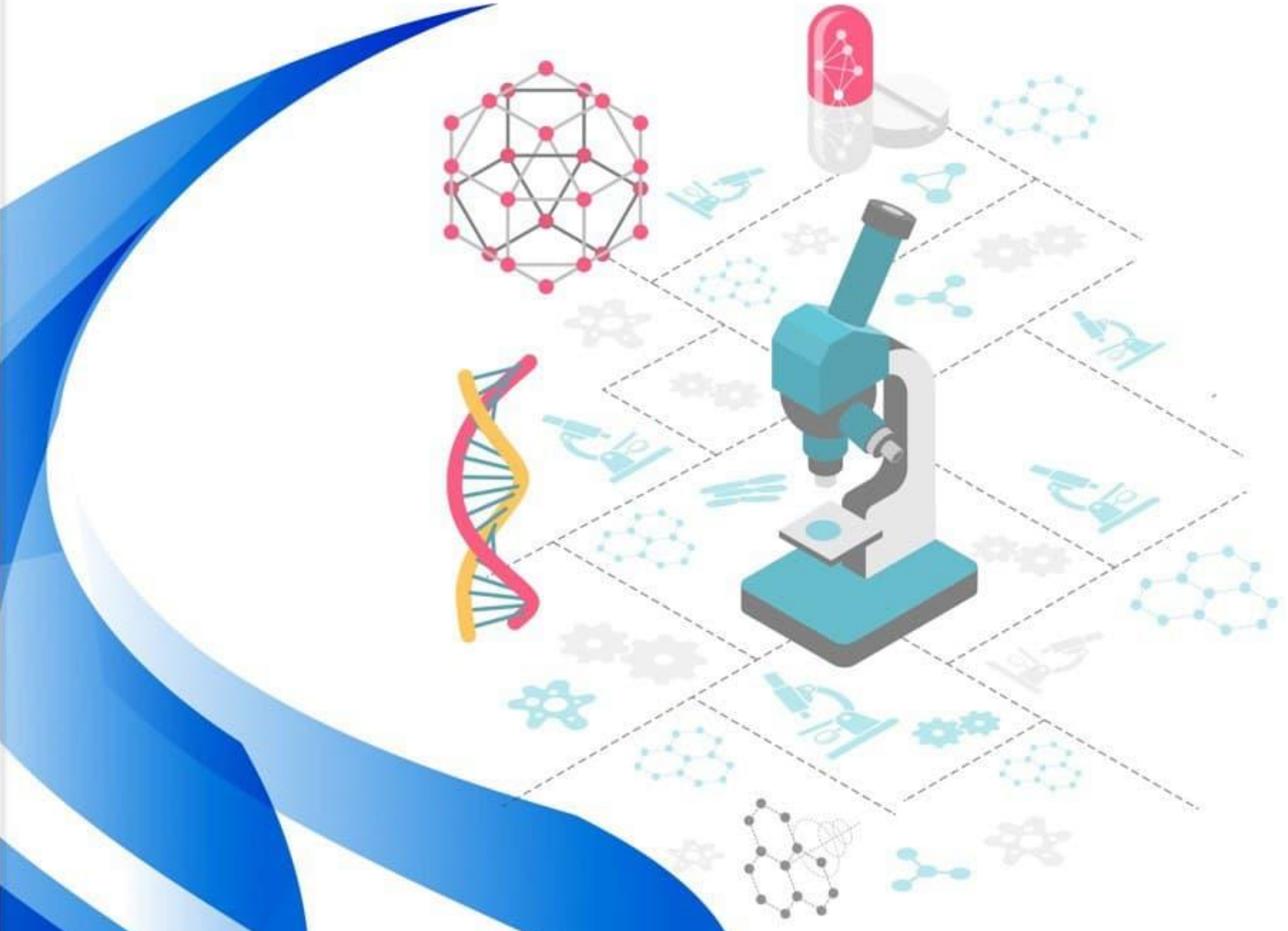

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FEATURES OF ANEMIA IN PATIENTS WITH CHRONIC VIRAL HEPATITIS

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Summary. Currently, the problem of anemia is extremely relevant in the management of patients with CVH, since changes in the red blood are quite common in the clinical picture of liver pathology. Changes in erythrocytes in CVH can occur both due to the pathology of the erythron, and under the influence of various factors directly on peripheral blood erythrocytes. Purpose of the study. Is and to study the frequency, nature, severity of anemia in patients with chronic viral hepatitis. The relationship between the severity of the degree of anemia and the degree of development of liver fibrosis was analyzed, a direct significant relationship was established between the stages of liver fibrosis and the course of the severity of anemia, in patients with severe liver fibrosis (F3 - F4) there is a severe degree of anemia observed in 34.6% and 24.8% of patients.

Relevance. In clinical practice, there are cases when the identified anemia is difficult to attribute to one of the variants of anemia. In such situations, along with the features of iron deficiency anemia, laboratory signs may have signs of other anemias: megaloblastic, hemolytic, etc. Such anemias are possible in various diseases, and therefore they are called secondary, symptomatic, emphasizing the role of the underlying disease in their pathogenesis. Recently, the term "anemia of chronic diseases" is commonly used [2,4].

Anemia of chronic diseaseoccurs in chronic inflammatory processes of various organs (lungs, kidneys, liver), incl. caused by infectious agents, with systemic diseases of the connective tissue, with endocrine pathology and neoplasms of different localizations, etc.

Chronic viral hepatitis (CVH) is one of the most common human infectious diseases [3, 8].

Among the pathophysiological processes that create conditions for the development of extrahepatic manifestations in chronic viral hepatitis (CVH), hypoxia plays an important role. A scientific study claims that in the midst of a viral infection, at the peak of metabolic disorders, a combination of signs of hypoxic, hemic, circulatory and histotoxic (tissue) hypoxia is revealed, which, in turn, leads to anemia [6]. It is known that against the background of CVH progression, significant shifts in red blood parameters occur [1,4,5]. The number of erythrocytes, the level of hemoglobin, the value of the color index, the content of reticulocytes in patients with CVH significantly lower than in individuals without liver disease, with red blood

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counts decreasing as inflammatory activity in the liver increases and CG transforms. One of the mechanisms for the development of anemia in CVH is an increase in the production of pro-inflammatory cytokines that can directly or indirectly change the metabolism of iron, the proliferation of erythroid precursors, the production of erythropoietin, and reduce the lifespan of erythrocytes.

Currently, the problem of anemia is extremely relevant in the management of patients with CVH, since changes in the red blood are quite common in the clinical picture of liver pathology. In most cases, in patients with CVH, it is difficult to identify the leading cause of pathological changes in the red blood. Anemia is often HCG and, especially in liver cirrhosis, is polyvalent, causing a wide range of qualitative and quantitative disorders in the hemogram [2,7,9]. . Changes in erythrocytes in CVH can occur both due to the pathology of the erythron, and under the influence of various factors directly on peripheral blood erythrocytes.

Purpose of the study. To study the frequency, nature, severity of anemia in patients with chronic viral hepatitis.

Material and research methods.163 case histories of patients with chronic hepatitis and cirrhosis of the liver, who were treated in the gastroenterological department of the Bukhara Regional Multidisciplinary Medical Center for 2017, were studied.

The features of peripheral blood count parameters, biochemical parameters, such as markers of liver damage, ALT (alanine aminotransferase) and AST (aspartate aminotransferase), serum iron levels, TIBC, and ferritin were analyzed. To assess the state of the liver, the data of ultrasonic elastometry (Fibro-Scan) were studied.

Determination of hemogram parameters was carried out by the method of automatic hematological analysis.

When performing research, we observed all the ethical principles of medical research involving humans, adopted by the Declaration of Helsinki of the World Medical Association in 1964 (the last addition at the 59th General Assembly of the World Medical Association in 2008 in Seoul). The obtained data were processed by the method of nonparametric statistics using a computer program. Correlations with $p<0.05$ were considered statistically significant.

Results and discussion. At72 (44.2%) patients had chronic viral hepatitis B, 56 (34.4%) had chronic viral hepatitis C, and 35 (21.4%) had a mixed infection with chronic hepatitis B+D. The median age was 45 years for men and 50.5 years for women.

The frequency of occurrence of CVH species associated with the aspect of sex is shown in the diagram (Figure 1).

142 patients (87.1%) had anemia (HGB < 120 g/l). When studying the severity of CVH associated anemia, the classification of the European Society of Medical Oncology was used, according to which there are mild (Hb 90-119 g/l), moderate (Hb

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60-89 g/l) and severe (Hb<60 g/l) degrees anemia. Among them, mild anemia was detected in 26.8% of patients, moderate in 57%, and severe anemia was found in 16.2% of patients.

The relationship between the severity of the degree of anemia and the level of development of liver fibrosis was analyzed.

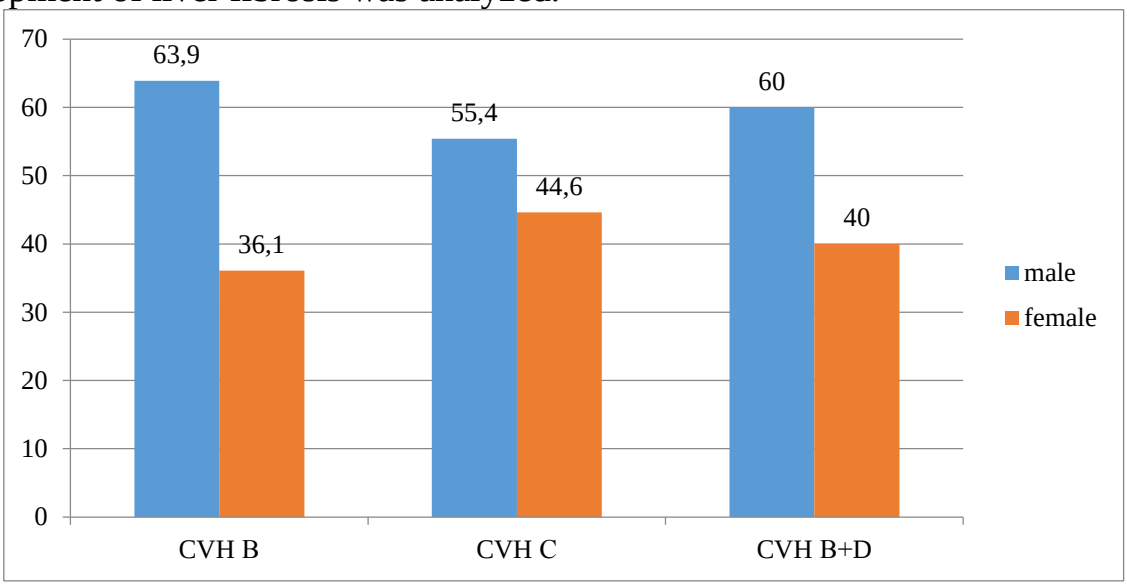

Figure 1 Frequency of occurrence of CVH species associated with Gender aspect(%)

The most common and generally accepted are semi-quantitative methods for assessing the severity of liver fibrosis according to the METAVIR scale. The level of activity is assessed by an integral indicator of the severity and intensity of both "piecemeal" (periportal) and lobular necrosis. There are four stages of fibrosis (F) according to the METAVIR scale: F0 - no fibrosis; F1 portal fibrosis without septa; F2 - portal fibrosis with rare septa; F3 many septa without cirrhosis; F4 - cirrhosis. Currently, in Europe, most clinicians and morphologists use the METAVIR system. In this study, an analysis was made of the occurrence of different stages of fibrosis in the examined patients. The occurrence of the severity of anemia in patients with chronic viral hepatitis in different stages of fibrosis was analyzed. (picture 2 and 3).

Progressive liver damage in CVH patients and the development of fibrosis are inextricably linked with immune mechanisms [8,10]. The latter can determine not only the severity of inflammatory reactions and fibrosis, but also initiate the development of extrahepatic complications, in particular anemia.

As a result, it was found that there is a direct correlation between the stages of liver fibrosis and the severity of anemia, in patients with severe liver fibrosis (F3 - F4), severe anemia occurs in 34.6% and 24.8% of patients.

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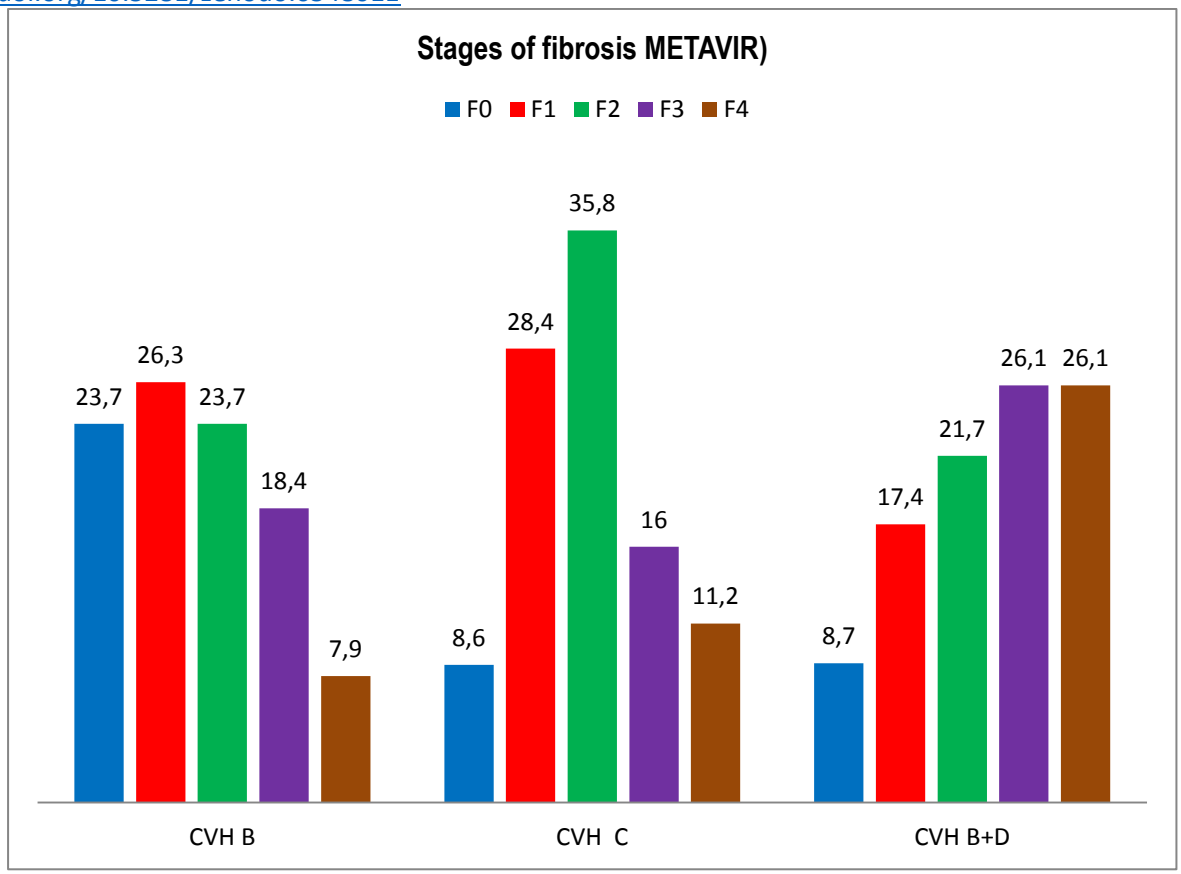

Figure 2. Frequency occurrence of fibrosis stages in different types CVH in the examined patients. (%)

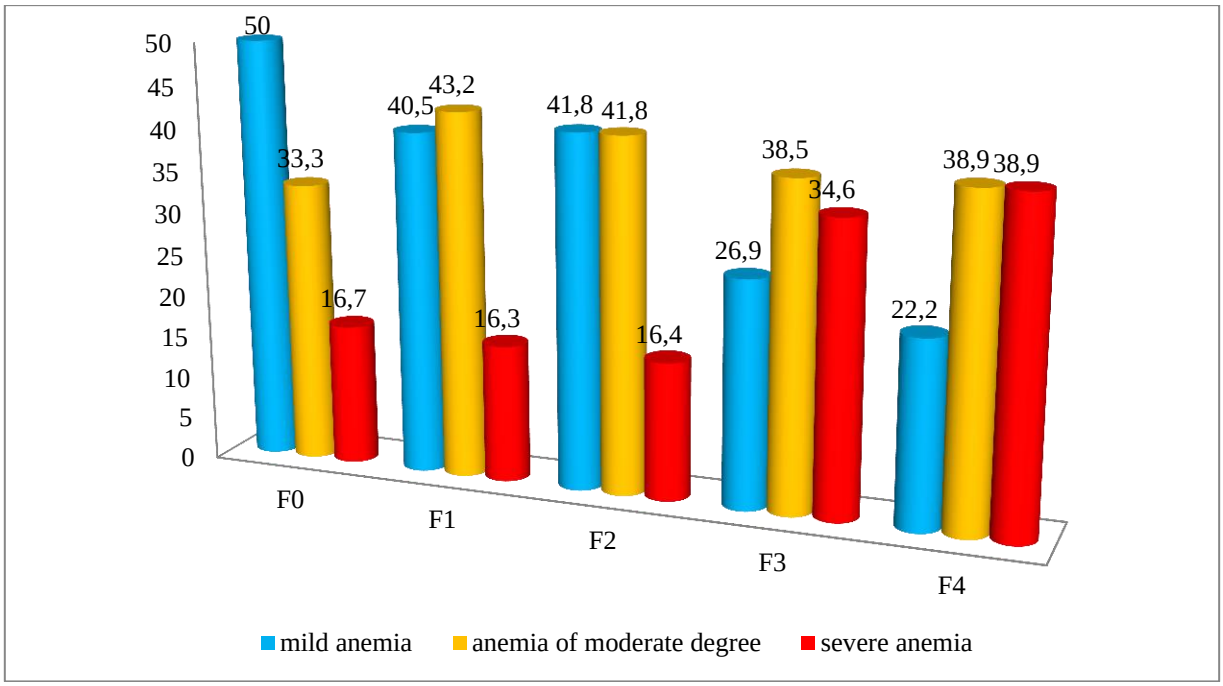

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Figure 3. Frequency of occurrence of anemia in different stages of liver fibrosis by types of anemia in patients with CVH (%)

With the development of portal hypertension, there is a high risk of acute or chronic bleeding, which always leads to the development of post-hemorrhagic iron deficiency anemia (IDA) of varying degrees.

The characteristics of anemia based on erythrocyte morphology have been studied. Microcytic hypochromic anemia was observed in 18%, macrocytic hyperchromic anemia in 32%, and normocytic normochromic anemia in 50%. Microcytic hypochromic anemia was identified in patients with a history of complicated bleeding due to portal hypertension (hemorrhoidal and esophageal bleeding).. In the correlation analysis, there was an inverse significant relationship between the level of hemoglobin and erythrocytes with the level of TIBC and bilirubin. ($p<0.05$).

The proportion of normo-, micro- and macrocytes on average at the start of fibrosis in the compared groups practically did not differ from each other ($p>0.05$). By the expressed stages of fibrosis, an increase in the relative number of normochromic macrocytes was observed, especially in the group of patients with elevated ALT and AST. ($p<0.05$). Among the morphological forms of erythrocytes in patients with microcytic-hypochromic anemia, discocytes (biconcave discocytes, echinocytes, stomatocytes and spherocytes), elliptocytes, pathological (dacryocytes, codocytes and acanthocytes) and degeneratively altered cell forms were determined.

Analysis of the results of serum iron and ferritin shows the following, there is a direct relationship between these parameters with a decrease in the diameter and staining of erythrocytes. So, as microcytic hypochromic anemia develops with blood loss. But in 72.5% of patients feedback was noted, in all stages of the severity of anemia, the levelserum iron and ferritin were normal, with macrocytic anemia, indicators were higher than normal. This shows that, in patients with CVH, anemia of chronic inflammation develops, which characterizes in normochrome and normocytic morphology of erythrocytes, the level of serum iron and ferritin is normal or higher.

Conclusion. The severity and types of anemia in patients with CVH are determined by a number of factors, among which can be identified as the degree of development of fibrosis and a complication of portal hypertension..

In patients with CVH associated with anemia, pronounced disturbances in the erythropoiesis system are observed, as evidenced by morphological changes in erythrocytes.

In the pathogenesis of CVH-associated anemia, inflammation processes and inhibition of erythropoiesis under the action of inflammatory cytokines occupy a significant place.

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A decrease in the number of red blood cells and hemoglobin levels is closely associated with the development of the severity of liver fibrosis.

The determination of serum markers for diagnosing anemia when it is associated with CVH gives a reliable conclusion about the pathogenesis and types of development of anemia. Performing these laboratory tests necessary for the correct tactics and timely correction of anemia associated with CVH.

References

1. Agherno A. Modern schemes of treatment chronic viral hepatitis C today. //Hepatology International. 2015. Vol. 9, Suppl. 1. Conference Abstracts 24th Annual Conference of Asian Pacific Association for the Study of the Liver (APASL). March 12-15, 2015, Istanbul, Turkey. Abstract 39.

2. Boltaev K.Zh., Akhmedova N.Sh. et al. The state of the platelet component of the hemostasis system in patients with chronic kidney damage// Infection, immunity and pharmacology. Uzbekistan. 2016 No. 5 pp. 19-23 (Russian)

3. Gonzalez-Casas, R., Jones, E. A., & Moreno-Otero, R. (2009). Spectrum of anemia associated with chronic liver disease. World journal of gastroenterology, 15(37), 4653–4658. https://doi.org/10.3748/wjg.15.4653

4. Hynicka LM, Heil EL. Anemia Management in Patients with Chronic Viral Hepatitis C. Annals of Pharmacotherapy. 2013;47(2):228-236. doi:10.1345/aph.1R513

5. Ogawa S. Clonal hematopoiesis in acquired aplastic anemia /S. Ogawa//Blood,2016,128,337-347

6. Poordad F, McCone J Jr, Bacon BR et al. Boceprevir for Untreated Chronic HCV Genotype 1 Infection. N. Engl. J. Med., 2011 Mar. 31, 364(13): 1195-206.

7. Safonova M.V. Anemia in chronic diffuse liver diseases // Kazan Medical Journal, 2011, Volume 92, No. 6 pp 883-887 (Russian)

8. Townsley D.M. Eltrombopag added to standard immunosuppression for aplastic anemia //N Engl J Med 2017,376,1540-1550

9. Yakovlev A.A., Firsov S.L., Opalikhina A.V. Hematological undesirable effects in the process of antiviral therapy in patients with chronic hepatitis C // Klin. perspective. gastroenterol., hepatol. 2010. - No. 4. - S. 19 – 24

10. Zeng Y. The complex pathophysiology of acquired aplastic anaemia. / Y. Zeng, E. Katsanis // Clin. Exp. Immunol. 2015, 180, 3, 361–7