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THE ROLE OF HEMATOLOGICAL CHANGES IN PREDICTING COMPLICATIONS OF VIRAL HEPATITIS B

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Abstract: This article presents hematological changes that can be observed in chronic viral hepatitis and chronic liver diseases. The changes in peripheral blood analysis indicators were analyzed using the results of several scientific works conducted by scientists. The importance of early diagnosis of the course of the disease and complications is also presented.

Keywords: chronic viral hepatitis, thrombocytopenia, leukopenia, neutropenia, liver cirrhosis.

In recent years, there has been an increase in the number of patients with chronic diffuse liver disease (CHD) in many countries of the world, especially among people of working age. CKD is characterized by a severe course, leading to serious complications and is one of the main causes of disability in patients in developed countries. According to WHO, cirrhosis of the liver is the eighth leading cause of death. Therefore, studying the epidemiology, clinical symptoms, diagnosis and treatment methods of these diseases is one of the urgent problems of modern hepatology. [1,7].

According to WHO estimates, 296 million people were infected with chronic hepatitis B in 2019, and 1.5 million new infections are diagnosed each year, resulting in approximately 820,000 deaths, mainly due to cirrhosis and hepatocellular carcinoma (primary liver cancer). It leads to lime [2]. Hepatitis viruses are pantropic viruses that can affect the hematopoietic system at different stages of the disease. [3,8].

It is known that various hematological disorders occur in liver diseases. 324 adults with acute viral hepatitis were studied to understand hematological changes in acute viral hepatitis. 3 of them have acute hepatitis A, 91 have acute hepatitis B, 99 have acute hepatitis not related to A and B viruses, and 181 have acute hepatitis on the background of chronic hepatitis B. 233 men and 91 women participated in the study; age ranged from 16 to 74 years (average age 39 years). The results showed that thrombocytopenia (platelet count less than 120,000/m^3), anemia (Hb level less than 12% in men and less than 10% in women), leukocytosis (leukocyte count more than 10,000/m^3) and leukopenia (leukocyte count less than 4000/m^3) was 19.3%, 12.6%, 10.8% and 7.4%, respectively. In hypertensive patients treated with chronic hepatitis B, the incidence of anemia and thrombocytopenia was significantly higher than in patients with acute hepatitis B. Patients with anemia, thrombocytopenia, or leukocytosis had significantly higher mean serum bilirubin and prolonged prothrombin time, suggesting that hematologic changes are closely related to the degree of hepatocyte injury. In addition, 3 cases (0.9%) complicated by aplastic anemia were noted during follow-up. Of these 3 cases, 2 died of complications related to aplastic anemia and 1 survived with normal hematologic parameters [4].

Hepatitis B virus infection is a serious medical problem that can lead to cirrhosis with a high risk of death. Patients with liver cirrhosis can be divided into compensated and decompensated diseases. Mortality

increases dramatically as patients progress to decompensated cirrhosis. Currently, the only effective therapy for patients with decompensated liver cirrhosis due to chronic hepatitis B is liver transplantation. However, liver transplantation is limited by a shortage of available donors, the risk of surgical complications, and high costs. Thus, the identification of objective and accurate diagnostic systems for the prognosis of decompensated liver cirrhosis in patients with chronic hepatitis B remains an urgent problem to help identify high-risk patients and change strategies in clinical practice [5].

In physiological and pathological conditions, there is a close relationship between the liver and leukocytes. With viral hepatitis B, leukocyte metabolism changes. The metabolic state of leukocytes in the peripheral blood can reflect the level of metabolic disorders in the human body. Morphofunctional changes of enzymes in peripheral blood neutrophils during viral hepatitis in children were studied. Cytochemical tests reflecting the course of chronic viral hepatitis B can be used to evaluate the effectiveness of therapy and the prognosis of the disease. In chronic viral hepatitis B, clear changes in the metabolism of peripheral blood neutrophils have been revealed. The normalization of neutrophil metabolic indicators in this disease was noted only in the 5-6th or decade of the disease, clearly lagging behind the speed of clinical recovery and was mainly observed in mild forms of the disease. Changes in the metabolism of neutrophils are associated with the infectious-toxic effect of the pathogen on cell membranes and organelles. Tests that detect dehydrogenases in liver pathology characterize the state of an important metabolic process associated with the protective bactericidal functions of neutrophils. They can serve as an additional criterion for evaluating the severity of the disease, the course and the effectiveness of therapy [6].

The effects of chronic hepatitis C on the hematological system are many. The virus can cause platelet dysfunction and thrombocytopenia [9]. As a result of such mechanisms of action of hepatitis viruses, severe complications occur in patients. This means that the development of early diagnosis of complications is an urgent problem for the medical field and our society.

REFERENCES

1. Margarita Viktorovna Safonova, Irina Vadimovna Kozlova, Alexander Gennadievich Novoseltsev, Kazan Medical Journal, 2011, Vol. 92, No. 6.
2. Raissa Martins Deodato, Deborah Regina López dos Santos, Mayara Torquato Lima da Silva, Helena Medina Cruz, Vanessa Salete de Paula, Livia Melo Villar,https://doi.org/10.1016/j.ijbiomac.2023.126644.
3. Yanmei Hu, Yunfei Chen, Lei Zhang, Glob Med Genet 2023;10:229–233.
4. SMLin,CM Chu,L. YuandYF Liaw, December1991; 14 (4):253-8.
5. Ting Mao, Bin Zhang, Ti Yang, Yinyan Qian, Chenchen Zhou, Chunyan He,https://doi.org/10.1016/j.heliyon.2023.e18556.
6. Madumarova M.M., Yakubova R.M., Valieva N.M. "Economics and society" #1(92)-2 2022
7. Breakey VR, Main S, Ng W, Allen C, Dockal I, Lansdorp PM, Abla O, et al. Hepatitis-associated aplastic anemia presenting as a familial bone marrow failure syndrome. J Pediatr Hematol Oncol 2009, 31: 884–887.
8. Huang Y, Yan Q, Fan R, Song S, Ren H, Li Y, Lan Y. Hepatitis B virus replication in CD34+ hematopoietic stem cells from umbilical cord blood. Med Sci Monit 2016, 22: 1673–1681
9. Ya. V. Gadjiev, U. I. Mamedova Biomedicine 1/2018.

10. Akhmedova N.Sh. Sulaymonova G.T. Early diagnosis of Podocytic Dysfunction and Tubulointerstitial processes with hypertension and diabetes mellitius // Asian journal of Pharmaceutical and biological research. Volume 10, Issue 3. Sept-Dec 2021. 177-183.
11. Akhmedova N.Sh., Sulaymonova G.T., Boltayev K.J. Prognostic significance of biomarkers in the early diagnosis of nephropathy in type II diabetes // Journal of Pharmaceutical Negative Results – 2022. -Volume 13 ¦ Special Issue 10 – P. 118-1191. Scopus
12. Sulaymonova G.T.Jumayeva M.F. Kayumov L.K. Features of the course of chronic kidney disease according to the degree of nephrinuria in a comorbid state with hypertension and diabetes mellitus.// Texas Journal of Medical Sciences, United States of America – 2021, December.Volume 3. 23-26.
13. Sulaymonova G.T. The study of the functional reserve of the kidneys in the concominant state of hypertension with diabetes mellitus // Art of Medicine. International Medical Scientific Journal – 2022. - Volume 2, Issue-3. P.3-9.
14. Ахмедова Н.Ш., Сулаймонова Г.Т. Гипертония касаллиги қандли диабет билан коморбид холатда келганда буйрак ичи гемодинамикаси ва буйраклар функционал захирасини бахолаш // Биомедицина ва амалиёт журнали.- Тошкент, 2022. - 7 жилд, 3 сон, 453-460.
15. Сулаймонова Г.Т. Особенности течения хронической болезни почек по степени нефринурии в коморбидном с гипертониеской болезнью и сахарным диабетом.// Тиббиётда янги кун. – Тошкент, 2021. - №6 (38), 269-271.
16. Сулаймонова Г.Т. Гипертония касаллиги қандли диабет билан коморбид холатда ва улар алохида кечгана касалликлар давомийлигидан келиб чиқиб юз берадиган лаборатор кўрсаткичлар тахлили // Доктор ахборотномаси. - Самарқанд ,2022. - №3.1 (107) 118-121. (14.00.00: № 20)
17. Boltayev K., Shajanova N. Anemia associated with polydeficiency in elderly and senile people //Galaxy International Interdisciplinary Research Journal. – 2022. – Т. 10. – №. 2. – С. 688-694.
18. Boltayev K. J.; Ruziyev Z. M.; Ulug'ova Sh. T. FEATURES CHANGES IN THE HEMOSTASIS SYSTEM IN PATIENTS WITH COVID-19. Web. of. Sci. 2022, 3, 479-486.
19. Болтаев К. Ж., Ахмедова Н. Ш. Характеристика феномена развития полидефицитных состояний при старении //Проблемы биологии и медицины. – 2020. – Т. 1. – С. 24-26.
20. Boltayev K., Shajanova N. Anemia associated with polydeficiency in elderly and senile people //Galaxy International Interdisciplinary Research Journal. – 2022. – Т. 10. – №. 2. – С. 688-694.
21. Болтаев К. Ж., Мирзоева М. Р. Особенности течения анемии у больных с хроническими вирусными гепатитами //Вестник Башкирского государственного медицинского университета. – 2019. – Т. 1. – С. 55-61.
22. Гиёсова Н.О. Взаимодействие сердечно-почечного континуума в развитии нефропатии // Oriental Renaissance: Innovative, educational, natural and social sciences 597-606. 2022
23. Giyosova N.O. Modern diagnostic markers of nephropathy in patients with arterial hypertension and diabetes mellitus // Web of scientist: international scientific research journal. Volume 3, Issue 11, 142-150. Nov., 2022
24. Giyosova N.O. Nurov B.B. Course and therapy of arterial hypertension in patients with covid-19 // Web of scientist: international scientific research journal. Volume 3, Issue 12, 1142-1149. Dec., 2022

25. Ахмедова Н.Ш., Гиёсова Н.О. Буйрак функционал заҳирасини аниқлаш - сурункали буйрак касалликлари эрта диагностикасида предиктор сифатида // Journal of Cardiorespiratory Research. Материалы II международной научно-практической конференции (Самарканд, 7-8 апрель 2023 г) Том II
26. Naimova N. S. et al. Features of coagulation and cellular hemostasis in rheumatoid arthritis in patients with cardiovascular pathology //Asian Journal of Multidimensional Research (AJMR). – 2019. – Т. 8. – №. 2. – С. 157-164.
27. Наимова Ш. А. The degree of secondary osteoporosis in rheumatological patients and ways of its prevention //Новый день в медицине. – 2020. – №. 1. – С. 56-58.
28. Naimova S. A. Principles of early diagnosis of kidney damage in patients of rheumatoid arthritis and ankylosing spondiloarthritis //British Medical Journal. – 2021. – Т. 1. – №. 1.