

*Sugatadasa A.K, Vimalanathan S.*

**THE BLOOD PICTURE PECULIARITIES IN LIVER CIRRHOSIS:  
A PATHOPHYSIOLOGICAL STUDY IN CORRELATION TO COMPLETE BLOOD  
COUNT PARAMETERS**

**Tutor: PhD, associate professor Zhadan S.A**

*Department of Pathological Physiology  
Belarusian State Medical University, Minsk*

**Relevance.** Two significant hematologic abnormalities are linked to liver cirrhosis: high neutrophil-lymphocyte ratio (NLR), which indicates systemic inflammation brought on by bacterial translocation, and thrombocytopenia, which results from portal hypertension. Both metrics come from a standard complete blood count (CBC), which is an inexpensive, widely accessible test. Nevertheless, there hasn't been enough research done on the direct quantitative link between platelet count and NLR in individuals with established cirrhosis. Finding such an association would encourage the use of the CBC as an integrated severity assessment tool and offer pathophysiological knowledge, particularly in settings with limited resources.

**Aim:** examine the relationship between platelet count and neutrophil-lymphocyte ratio (NLR) in patients with proven liver cirrhosis, as well as any secondary relationships with anemia type and red cell distribution width (RDW).

**Materials and methods.** 14 patients with proven cirrhosis were analyzed cross-sectionally. Platelet count ( $\times 10^3/L$ ), absolute neutrophil and lymphocyte counts (NLR = neutrophils/lymphocytes), RDW (%), MCV (fL), and hemoglobin (g/dL) were all provided by CBC. WHO criteria were used to describe anemia, and MCV was used to determine the type of anemia (microcytic  $<80$ , normocytic 80–100, macrocytic  $>100$  fL). The significance level was set at  $p < 0.05$  using Spearman's rank correlation ( $\rho$ ).

**Results and their discussion.** The median platelet count was 143 (40–401) and the median NLR was 3.26 (1.33–8.40) among 14 patients (7 male, 7 female; median age 61–70 years). The platelet count and NLR showed a strong, significant inverse connection ( $\rho = -0.64$ , 95% CI  $-0.87$  to  $-0.23$ ,  $p = 0.01$ ). Additionally, there was an inverse correlation between platelet count and RDW ( $\rho = -0.58$ ,  $p = 0.03$ ). A positive but non-significant trend was observed in NLR and RDW ( $\rho = 0.48$ ,  $p = 0.08$ ). Ten out of fourteen (71%) had anemia. The lowest median platelet count (106) and greatest median NLR (4.74) were linked to macrocytic anemia (6 individuals). Two individuals with microcytic anemia had low hemoglobin but retained platelet counts (median 233). Portal hypertension and systemic inflammation are parallel processes, as evidenced by the negative platelet-NLR correlation. No patient had isolated thrombocytopenia without increased NLR, indicating that inflammation is already present when platelet counts drop below 150. The preponderance of macrocytic anemia in more severe disorders probably indicates dietary or alcohol-related deficits.

**Conclusions.** The relationship between portal hypertension and systemic inflammation is confirmed by the substantial inverse connection between platelet count and NLR ( $\rho = -0.64$ ,  $p = 0.01$ ). The most common kind, macrocytic anemia, is linked to higher NLR and fewer platelets, both of which are signs of more severe illness. Two major factors that contribute to the advancement of cirrhosis are captured by a standard CBC alone. To verify prognostic usefulness, prospective studies with clinical objectives are required.