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Haematological Profile in Patients with Decompensated Liver Disease in a Tertiary Care Centre

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Abstract: ***Background: Decompensated liver disease (DLD) is characterised by the liver's inability to perform its normal synthetic and detoxifying functions, leading to systemic complications. Haematological abnormalities are commonly observed in DLD patients, influencing disease progression and patient outcomes. Methods: This is a prospective cohort study conducted at ACS Medical College and Hospital, Chennai, from March 2023 to March 2024. A total of 25 patients aged over 18 years with clinical evidence of decompensated chronic liver disease were included. Patients without signs of decompensation were excluded. Results: Anemia was observed in 100% of patients. Three patients had severe anemia (Hb <6 g/dL), while the rest had mild to moderate anemia (Hb 6-12.9 g/dL). Normocytic morphology was the most common RBC pattern. Thrombocytopenia was seen in 75% of patients. Four patients had severe thrombocytopenia (<50,000/mm³), all associated with splenomegaly. Fourteen had platelet counts between 50,000–150,000/mm³. Hepatic coagulopathy (INR >1.1 and prolonged PT) was found in 80% (18 males and 2 females), though bleeding manifestations were seen in only 10 patients, with in-hospital bleeding in 2 cases. Leukocytosis was more prevalent than leukopenia and was particularly noted in cases with spontaneous or secondary bacterial peritonitis. Conclusion: Anaemia is the most common haematological abnormality in decompensated liver disease, followed by thrombocytopenia and coagulopathy. While abnormal coagulation profiles were frequent, clinical bleeding was not universal. Haematological monitoring and early intervention are vital in reducing morbidity and mortality in cirrhotic patients.***

Keywords: Decompensated liver disease, Haematological profile, leukocytosis, Anaemia in liver disease, Thrombocytopenia, coagulopathy, Prolonged INR, Prothrombin time, Splenomegaly, Cirrhosis

1. Introduction

- The liver plays a key role in hematopoiesis and hemostasis.
- Chronic liver disease can result in a reduction in all cell lineages and clotting factor synthesis, which is multifactorial.
- The liver plays a major role in maintaining the haematological parameters in normal conditions and maintaining hemostasis. The liver is the storage site for iron, B12 and folic acid, which are necessary for normal hematopoiesis. The liver also secretes the clotting factors and the inhibitors, and keeps the hemostasis in equilibrium.

Aims and Objectives:

- The study aims to detect various haematological abnormalities and hepatic coagulopathy in patients presenting with decompensated liver disease.

2. Materials And Methods:

- This is a prospective cohort study conducted at the ACS Medical College and Hospital, Chennai, from March 2023 to March 2024.
- This study involved 25 patients with decompensated chronic liver disease.

Inclusion Criteria:
- AGE >18years
- Patients with decompensated liver disease.

Exclusion Criteria:
- Age < 18 years
- Patients without signs of decompensation of liver disease

Anemia in Patients with Decompensated CLD

Anemia (Hb in gm/dl)	Male	%	Female	%
<6	3	14%	0	-
6 - 8.9	7	33%	3	75%
9 - 12.9	11	53%	1	25%
Total	21		4	

- All 25 patients had anaemia.
- 3 patients had severe anaemia (<6gm/dl)
- The rest had mild to moderate anaemia (6 - 12.9gm/dl)

Thrombocytopenia in Decompensated CLD

Platelets	Male	%	Female	%
<50000	4	19%	0	25%
50k – 1L	8	38%	4	75%
1L - 1.5L	2	1%	0	-
1.5L - 4L	7	33%	0	-
>4.5L	0	-	0	-

- Severe thrombocytopenia of <50, 000 cells/mm3 was found in 4 patients, and all 4 patients had splenomegaly.
- Thrombocytopenia with a cell count of 50, 000 - 1, 50, 000 cells/mm3 was seen in 14 patients.
- Platelet count was normal in 7 patients
- Hepatic coagulopathy with prolonged PT and INR >1.1 was found in 18 males and 2 female patients
- But h/o bleeding manifestations, either in the form of hematemesis or melena, was present only in 10 patients
- In the hospital, bleeding manifestations were seen in 2 patients.

3. Conclusion

1) According to this study conducted with a limited cases of 25 patients, we inferred a few conclusive results regarding the haematological and hemostatic abnormalities in decompensated chronic liver disease patients.
2) All the patients had anaemia in any one of the forms, which makes anaemia the most common haematological abnormality in CLD. The most common RBC morphology in cirrhosis is normocytic
3) Leukopenia is found to be rare as per the study, and Leucocytosis is more common in patients with spontaneous bacterial peritonitis and secondary peritonitis.
4) Thrombocytopenia is present in 75 % of patients and is commonly present in patients with splenomegaly.
5) Prolonged Prothrombin time and INR, although seen in 80% of the patients, bleeding manifestations were seen only in 48% of the patients
6) Hence, with this study, all the cirrhosis patients must be evaluated for haematological and hemostatic abnormalities and should be monitored for any complications. Early treatment to correct these comorbidities can decrease mortality.

References

[1] Qamar AA, Grace ND, Groszmann RJ, et al. Incidence of and risk factors for hepatocellular carcinoma in compensated and decompensated cirrhosis: A prospective study. *Clin Gastroenterol Hepatol.*2009; 7 (7): 889–894. doi: 10.1016/j. cgh.2009.04.004
[2] Peck - Radosavljevic M. Thrombocytopenia in chronic liver disease. *Liver Int.*2017; 37 (6): 778–793. doi: 10.1111/liv.13317
[3] Schuppan D, Afdhal NH. Liver cirrhosis. *The Lancet.*2008; 371 (9615): 838–851. doi: 10.1016/S0140 - 6736 (08) 60383 - 9
[4] Tripodi A, Mannucci PM. The coagulopathy of chronic liver disease. *N Engl J Med.*2011; 365 (2): 147–156. doi: 10.1056/NEJMra1011170
[5] Goulis J, Chau TN, Jordan S, et al. Thrombocytopenia in chronic liver disease: evidence for a hypersplenic platelet destruction. *Clin Sci (Lond).1*999; 96 (1): 59–63. doi: 10.1042/cs0960059
[6] Iqbal S, Iqbal T, Hanif F. Hematological parameters in decompensated liver cirrhosis: A cross - sectional study. *Pak J Med Sci.*2019; 35 (5): 1408–1412. doi: 10.12669/pjms.35.5.768