IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 23, Issue 10 Ser. 10 (October. 2024), PP 66-70
www.iosrjournals.org

A Study On Haematological Abnormalities In Decompensated Chronic Liver Disease At Government General Hospital, Vijayawada

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Abstract
Background: *chronic liver failure is usually associated with hypersplenism and diminished erythrocyte survival is frequent. Dietary deficiencies, alcoholism, bleeding and defective hepatic synthesis of proteins used in blood formation or coagulation worsen the problem. Plasma volume is increased in patients with cirrhosis,particularly in those with ascites ,this hypervolemia may account for a low peripheral hemoglobin or erythrocyte level.*
Materials and methods: *this is a crosssectional,analytical study of 100 patients conducted in patients with decompensated chronic liver disease admitted in siddhartha medical college hospital during the period january 2023 to december 2023.*
Results: *our study included 100 patients with decompensated chronic liver disease,upon performing haematological profile ,anemia is seen in 88%,thrombocytopenia is seen in 80%,elevated pt,inr in 37% patients which predict the chances of upper gi bleed.derangements in these parameters can ultimately lead to grave complications.*

Date of Submission: 16-10-2024 Date of Acceptance: 26-10-2024

I. Introduction

Liver plays a key role in homeostasis. Any disease affecting the liver functions will cause a breach in whole body homeostasis. Liver plays a key role in metabolism of carbohydrates, lipids and proteins. Its role in endocrine and hematological manifestations are important as well.So, loss of Liver function can cause derangements in metabolic and hematological parameters which can ultimately lead to grave complications.

Liver is the storage site for iron, B12 and folic acid which are necessary for the normal hematopoiesis. Liver also secretes the clotting factors and the inhibitors of clotting mechanism and keep the hemostasis in equilibrium. Both parenchymal hepatic disease and cholestatic jaundice may produce blood coagulation defects.

Spontaneous bleeding, bruising and purpura with a history of bleeding after minimal trauma such as venepuncture, are most important indications of a bleeding tendency in patients with liver disease.

II. Materials And Methods

The study was conducted in patients with decompensated chronic liver disease patients admitted in Siddhartha Medical College Hospital during the period January 2023 to December 2023 in the Department of Medicine, Government General Hospital, Vijayawada.

Study Design: cross sectional analytical study

Study Location: Government General Hospital, Vijayawada, Andhra Pradesh.

Study Duration: January 2023 to December 2023.

Sample Size: 100 decompensated chronic liver disease patients who were fulfilling the inclusion and exclusion criteria were studied

Inclusion Criteria:
The following criteria were used in selection of cases:
1.All patients with liver disease with symptoms more than 6 months
2.Alcoholic cirrhosis, Post-infective & metabolic causes of chronic liver diseases are taken into consideration

Exclusion Criteria
1. Patients with known primary hepatocellular carcinoma or GI malignancies were excluded.
2.Patients with primary coagulation disorders or primary abnormalities in hemostatic function were excluded.
3.Patients with pre-existing anaemia due to other causes were excluded.
4.Patients with Acute cause of hepatic failure were excluded.
5.Patients suffering from other end stage medical diseases like chronic kidney disease, Coronary artery disease, Cardiac failure, COPD were excluded
6. Patients who didn't gave consent.

Data Analysis

Out of 100 patients in this study, there are 86 male patients and 14 female patients. The age of patients in this study were in the range from 20 to 60.

Table 1. Severity Of Anemia Among Study Population

Severity Of Anemia	No.Of Patients	Percentage
>12(Normal)	9	9%
10-12(Mild)	19	19%
8-10(Moderate)	53	53%
<8(Severe)	29	29%

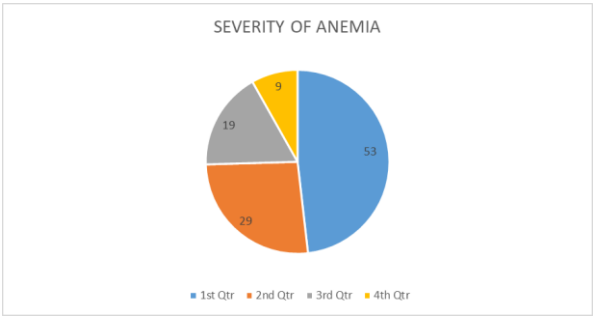


Table 2. Peripheral Smear Among Study Population

Peripheral Smear	No.Of Patients	Percentage
Normal	8	8%
Normocytic Normochromic	41	41%
Macrocytic	23	23%
Microcytic Hypochromic	14	14%
Dimorphic	14	14%

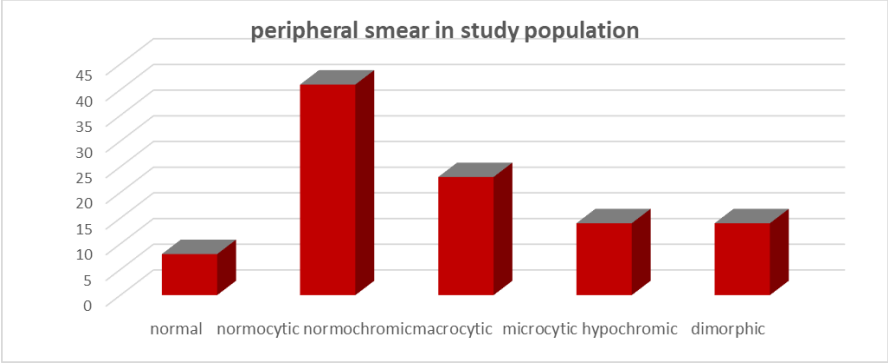


Table 3. Platelet Count Among Study Population

Platelet Count	No.Of Patients	Percentage
<50,000	22	22%
50,000-1 Lakh	36	36%
1 - 1.5 Lakh	22	22%
1.5 -2 Lakh	8	8%
>2 Lakh	12	12%

Table 4. Wbc Count Among Study Population

Wbc Count	No. Of Patients	Percentage
<3000	19	19%
3000-6000	47	47%
6000-9000	17	17%
9000-12000	6	6%
>12000	11	11%

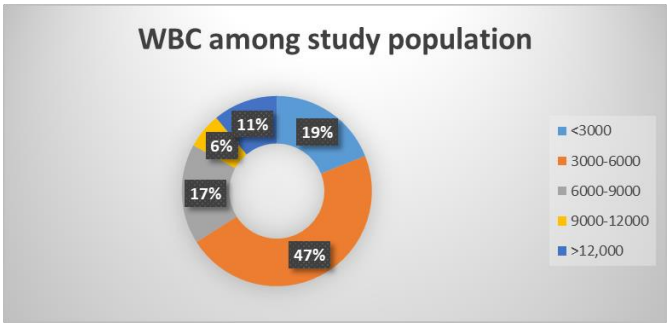


Table 5. Pancytopenia Among Study Population

Pancytopenia	No.Of Patients	Percentage
Present	35	35%
Absent	65	65%

Table 6. Prothrombin Time Among Study Population

Prothrombin Time	No Of Patients	Percentage
14-18.2 Sec	16	16%
18.2-20.2 Sec	13	13%
>20.2 Sec	71	71%

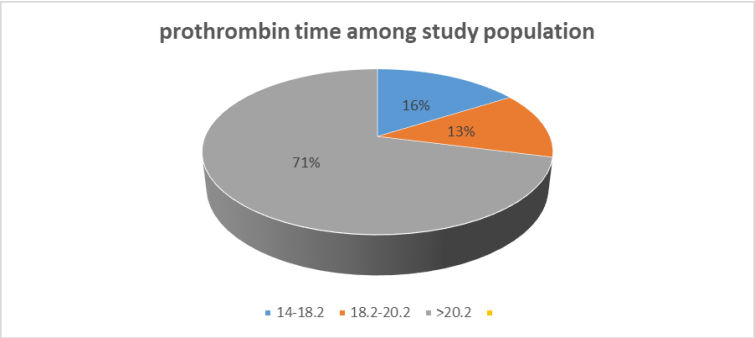
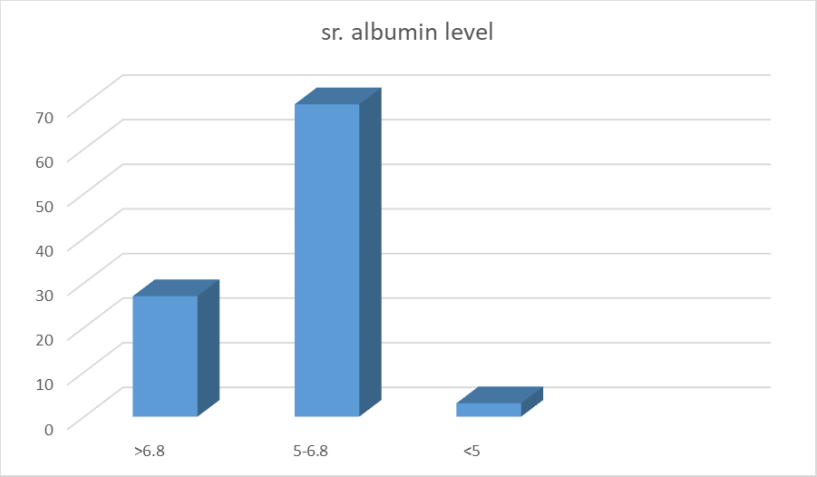


Table 7. International Normalised Ratio Among Study Population

Inr	No.Of Patients	Percentage
<1.7	63	63%
1.7-2.3	34	34%
>2.3	3	3%

Table 8. Serum Albumin Levels Among Study Population

Serum Albumin	No.Of Patients	Percentage
>3.5	5	5%
3.0-3.5	24	24%
<3.0	71	71%



III. Discussion

The study involving 100 patients done at government medical hospital, Siddhartha has confirmed the results with previous published reports. In this study involving 100 patients, 86 patients were males and 14 were females. Mean age of the study population in our study was 47.39.

Most common etiology found in our study was alcoholism seen in 67% of patients followed by Viral hepatitis observed in 13% cases and NASH-related CLD in 8% of cases. Most common presenting symptom in the study population is abdominal distension which is present in all 100 patients followed by 74 Upper GI bleed in the form of hemetemesis and/or malena, present in about 54 patients. In the study population, about 28 patients had hepatic encephalopathy.

88% of patients in this study had anaemia. Severe anaemia (Hb < 8gm%) was observed in 29% patients.Mean Hb of the study group was 9.142gm%.Mean Hb was less in alcohol-related CLD when compared to CLD of other etiologies.86% cases were anemic with 16% of patients had Hb <6gm%. Most common anaemia observed was normocytic normochromic anaemia (41%). 23% had macrocytic anaemia, 14% had microcytic 75 hypochromic anaemia and in 14% cases,dimorphic blood picture was observed.

In our study group, all the 100 patients, WBC total count are in the range of 1,300 to 18,200 cells per mm3. About 17 patients had leucocytosis, which were mostly due to community-aquired infection, nosocomial infection, spontaneous bacterial peritonitis and secondary peritonitis due to repeated peritoneal paracentesis. About 50% of patients with leucocytosis had high-grade fever and all patients with leucocytosis had increased cell count mostly of polymorphs in ascitic fluid analysis, which suggests the presence of peritonitis in this group of patients. Leucopenia was observed in 19% patients and the rest had normal WBC count

Thrombocytopenia was found out in 80% of patients in our study. Platelet count of most of the patients ranges between 0.5 to 1 lakh/mm3 . In our study, thrombocytopenia observed in 80% cases probably since most of the patients were having advanced liver disease, as evidenced by mean CTP score of 9.72. 46% of patients belong to child C class (CTP score 10 or more) and 54% belong to child B class (CTP 7 to 9). Platelet count decreases as CTP score increases (p 0.001). This implies that patients with more advanced end-stage disease tend to have a higher degree of thrombocytopenia than those with less advanced CLDs.

Out of 100 patients in the study , 35 patients had pancytopenia, of which 33 patients are alcoholic. This indicates there is a definite positive co-relation between alcoholism and pancytopenia.

37% patients had PT/INR value more than or equal to 1.7. In our study, the prothrombine time and INR values increases exponentially with the grading of varices. And patients with increased PT/ INR had multiple episodes of UGI bleeding.

Patients with episodes of upper GI bleed had mean platelet count of 66,460, while those who presented without any episodes of upper GI bleed had a mean platelet count of 1,52,420 . Patients with episodes of upper GI bleed had mean Prothombin time of 24.25, while those who presented without any episodes of upper GI bleed had a mean Prothrombin time of 21.05. Patients with episodes of upper GI bleed had mean INR of 1.73, while those who presented without any episodes of upper GI bleed had a mean INR of 1.5.

IV. Conclusion

1. Most common haematological abnormalities observed were anaemia (88%) and thrombocytopenia (in 80% cases).
2. 29% cases of anaemias were severe and 58% of patients with thrombocytopenia had platelet count <1 lakh
3. Alcoholic CLDs had low, mean Hb than non-alcoholic CLDs.

4. Most common anaemia observed was normocytic normochromic anaemia.
5.Pancytopenia is common in alcoholic CLDs.
6.Decreasing Platelet count is a clear indicator for UGI BLEED and presence of varices in OGD scopy
7.Elevated Prothrombin Time /INR is a predictor of upper GI bleeding in CLD patients.

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