



HEMATOLOGICAL ABNORMALITIES IN CIRRHOSIS OF LIVER

KEYWORDS

cirrhosis, anemia, hematological abnormalities, thrombocytopenia, leucopenia and hypersplenism.

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ABSTRACT

AIM: To study the distribution and pattern of anemia and other hematological abnormalities in cases of cirrhosis of liver.

METHODS: This cross sectional study was conducted in Acharaya Vinobha Bhawe Rural Health, Wardha. A total of 30 cirrhotic patients were studied in 6 months. Thirty patients with cirrhosis of liver were included in this study. Meticulous clinical examination was done. Relevant hematological investigations were carried out and patients were treated according. **RESULTS:** The study includes 30 cases of cirrhotic patients. In this study 73.3% constituted male patients 26.67% constituted female patients. As per sex wise distribution, cirrhotic cases was highest in males i.e. 22 cases (73.3%), as compare to females, 8 cases (26.6%). The most common age group was 31-40 years. The most common clinical manifestation presented was ascites i.e. 29 cases out of 30 (96.67%) and melena being the least common i.e. only 2 cases out of 30 cases (6.67%). 83.33% of the patients were found to be have anemia (Hb less than 11 gm%), out of which 40% ad Hb less than 7 gm%. Out of a total of 30 patients, 8 (26.66%) had normal MCV, 11 (36.66%) had macrocytosis and 11 (36.66%) had microcytosis. 10 (33.33%) had leucopenia, which can be due to hypersplenism. % had thrombocytopenia. **CONCLUSION:** anemia is the most common hematological abnormality in cirrhosis. The etiology is multifactorial. So it is imperative to correct the etiological factor for anemia and other hematological abnormalities

INTRODUCTION

Global prevalence of cirrhosis from autopsy studies ranges from 4.5% to 9.5% of the general population.^(1,2,3) Hence, we estimate that more than fifty million people in the world, taking the adult population, would be affected with chronic liver disease. Globally, alcohol, NASH and viral hepatitis currently are the most common causative factors. Prevalence of cirrhosis is likely to be underestimated as almost a third of the patients remain asymptomatic.

During 2001, the estimated worldwide mortality from cirrhosis was 771,000 people, ranking 14th and 10th as the leading cause of death in the world and in developed countries, respectively.⁽⁴⁾ Deaths from cirrhosis have been estimated to increase and would make it as the 12th leading cause of death in 2020.⁽⁵⁾

Liver is known to play a central role in haemopoiesis and synthesis of coagulation proteins; it's the major storage site of iron, vitamin b12 and folic acid. Hence liver diseases are always associated with a broad range of haematological abnormalities. Anemia arises through multiple mechanisms, haem metabolism is disturbed, and liver disease causes alterations in red cell lipid metabolism.

This study was conducted to assess the prevalence of anemia and nature of RBC'S, so that the treatment could be initiated towards reducing morbidity and mortality.

AIMS & OBJECTIVES

- To study the distribution and pattern of anemia in cases of cirrhosis of liver.

METHODOLOGY

Study design – observational cross sectional

Study setting – Acharya Vinoba Bhawe Rural Hospital (AVBRH), a 1180 bedded rural tertiary hospital of Datta Meghe Institute of Medical Sciences (DU), (grade 'A' accredited by NAAC), Sawangi (Meghe), Wardha, MH.

The Department of Medicine

Study duration – 2 months

Inclusion criteria:

All the subjects who were diagnosed as a case of 'Cirrhosis of Liver' by Ultrasonography (USG) and willing to undergo this clinical research after informed written consent.

Exclusion criteria:

All the diagnosed patients of liver cirrhosis but receiving treatment of anemia.

30 consecutive patients of established cirrhosis were included in this study. Detailed clinical examination was done proforma were filled. Signs and symptoms were noted. Patients were treated in the line of cirrhosis and it's attending complications on a case to case basis.

Methodology:

The blood sample was taken from the subjects and was sent for the following laboratory investigations:

- Complete haemogram (Haemoglobin estimation, TLC, DLC, Platelet count).
- Red cell indices (MCH, MCV, MCHC, Hematocrit).
- Bilirubin levels (total, conjugated, unconjugated).

All the parameters were compared with normal parameters.

OBSERVATIONS AND RESULTS

Graph 1: Distribution of patients according to Hb%

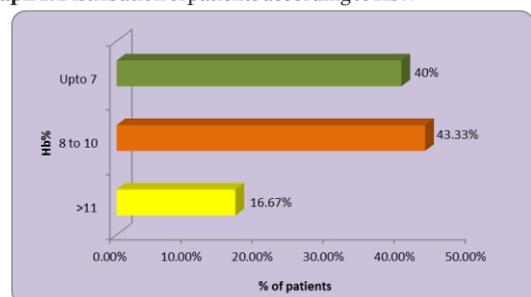
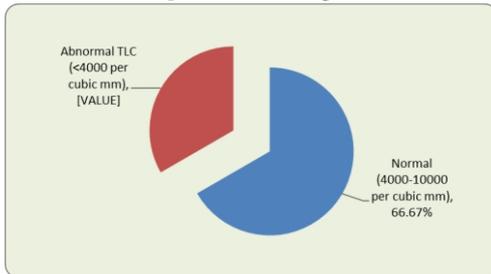


Table 1: Distribution of patients according to MCV

MCV	No of patients	Percentage(%)
Normal(80-100 fl)	8	26.66
>100 fl	11	36.66
<80 fl	11	36.66
Total	30	100.0

Graph 2: Distribution of patients according to TLC count



CONCLUSION AND DISCUSSION

Cirrhosis is a condition that is defined histopathologically and has variety of clinical manifestations and complications. It's common to encounter hematological abnormalities in cirrhosis patients, recent studies suggest that the presence of hematological cytopenias is associated with poor prognosis in cirrhosis.⁽⁶⁾

This hospital cross sectional study was conducted to study the proportion of anemia in cirrhotic patients.

In this study the mean age of the subjects was 42 years, out of which 73.33% were male and 26.67% were female subjects.

In this study, ascites was seen to be the most common clinical manifestation, seen in 96.67% of patients, followed by splenomegaly in 50%, pleural effusion in 33.33%, hepatomegaly in 26.67%, and melena in 6.67%, being the least common.

On studying the laboratory parameters of these patients 83.33% were found to be have anemia (Hb less than 11 gm%), out of which 40% had Hb less than 7 gm%.

These patients had active G.I bleed in form of malena and upper GI endoscopy of these patients revealed oesophageal varices and gastric varices. Acute blood loss causing rapidly deteriorating hematocrit in cases of cirrhosis indicate towards ongoing GI bleed in form of hematemesis and/or malena. Portal gastropathy is peculiar to cause iron deficiency anemia because of ongoing small amount of occult gastrointestinal bleeding

In our study 26.66 % had normal MCV 36.66% has microcytic blood picture ,36.6% had macrocytic blood picture.

Similarly, a study conducted by Kimber C et al⁽⁷⁾ reported 43% of macrocytosis, which was supported also by the study by Bingham et al. The incidence of macrocytosis in our patients was 36.6%, macrocytosis in cirrhosis is mostly due to the toxicity of alcohol on RBC production in the bone marrow and deficiency of B12 and folic acid.⁽⁸⁾

As per a study conducted by Shelia Sherlock⁽⁹⁾ and oxford textbook of hepatology⁽¹⁰⁾, they state that the most common anemia seen in cirrhotic patients is normochromic and normocytic anemia^(7,11) Abnormalities in hematological indices is common in cirrhosis.

Anemia of diverse etiology occurs in about 75% of patients with chronic liver disease. Folic acid and vitamin B12 deficiencies and iron deficiency develop frequently in patients with cirrhosis producing severe anaemia.⁽¹²⁾

In our study Leukopenia was seen to be present in 33.33% of patients, which can be due to hypersplenism causing decreased cell count.

Liangpunsakul et al⁽¹³⁾ reported that the presence of severe hypersplenism independently predicted the development of variceal bleeding and death. thus giving evidence to support the increased morbidity and mortality associated with hypersplenism.

Theoretically, lowered platelet counts can be the result of decreased platelet production, enhanced splenic sequestration or platelet consumption / use. Platelets can be increased, normal or reduced further depending on the availability of platelet in bone marrow to increase platelet production. These findings are in accordance with decreased, normal or increased reticulated platelets (young platelets) in cirrhosis. The main site of platelet consumption is in spleen.⁽¹⁵⁻²⁰⁾

Commonly thrombocytopenia is a manifestation of hypersplenism⁽²¹⁾ Thrombocytopenia was a most common single abnormality and thrombocytopenia and leucopenia was the most common combined abnormality⁽²²⁾

Most authors agree on a decrease in platelet count in relation to the severity of cirrhosis^(23,24).

Thus it can be concluded hemostasis and hepatology are closely related.

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