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The study of hematological manifestation in chronic liver disease and it's correlation with severity and complication of disease

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Abstract: *Chronic liver disease in the clinical context is a disease process of the liver that involves a process of progressive destruction and regeneration of the liver parenchyma leading to fibrosis and cirrhosis."Chronic liver disease" refers to disease of the liver which lasts over a period of six months. It consists of a wide range of liver pathologies which include inflammation(chronic hepatitis),liver cirrhosis,and hepatocellular carcinoma. A prospective study carried out in patients of CLD from December 2015 to September 2017 who had undergone treatment for the chronic liver disease in the department of Medicine and for hematological analysis in Department of Pathology, S.P. Medical College, Bikaner ,were included in this study.The present study comprised of 100 cases. Out of total, 90 (90%) were male and 10(10%) cases were female. In the study population, 51%(51) cases were Alcholic and 49% (49) were Non –Alcholic. In this study 24% cases have WBC count >11,000/ul. Neutrophilia in 38% cases, lymphopenia in 30% cases. Thrombocytopenia in 66% cases. MCV >100fl in 33% cases, MCV <80fl in 22% cases.*

Key words- *Chronic liver disease, Alcoholic, Thrombocytopenia, coagulopathy*

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I. Introduction

Chronic liver disease may be caused commonly by persistant viral infections,alcohol,metabolic diseases,drugs,autoimmune hepatitis ,or unknown factors.Hepatocytes play role in synthesis of most essential serum proteins(albumin,carrier proteins,coagulation factors,many hormonal and growth factors),the production of bile and its carriers(bile acids, cholesterol ,lecithin ,phospholipids), the regulation of nutrients(glucose,glycogen,lipids,cholesterol,amino acids),and metabolism and conjugation of lipophilic compounds(bilirubin,anions,cations,drugs) for excretion in the bile or urine[1].The most commonly used liver "function" tests are measurements of serum bilirubin,albumin, and prothrombintime.The serum bilirubin level is a measure of hepatic conjugation and excretion and the serum albumin level and prothrombin time are measures of protein synthesis.Abnormalities of bilirubin,albumin, and prothrombin time are typical of hepatic dysfunction.Frank liver failure is incompatible with life.Thrombocytopenia may result from several different mechanisms. Cytopenias also may be a consequence of hypersplenism. The liver is the primary site for synthesis of most procoagulant and anticoagulant proteins.Because of CLD decreased hepatic synthesis of factors II, VII, IX and X; the presence of inhibitors of these factors; decreased clearance of activated coagulation factors; thrombocytopenia; impaired platelet function; hyperfibrinolysis; and disseminated intravascular coagulation[2]. Coagulation defects complicating liver disease predispose to an increased bleeding tendency, which increases both morbidity and mortality[2,3]

.Anemia and impaired haemostatic function are frequent manifestation of Liver diseases[4] Approximately 75 % of patients with Chronic Liver disease (CLD) are found to have anemia as defined by a reduction in hemoglobin level[5,6].The anemia of liver disease is usually normocytic and normochromic or mildly macrocytic but it is rare for the MCV to exceed 115 fl in the absence of megaloblastic changes in bone marrow. Sometimes, microcytic anemia may develop in patients with liver disease as a result of blood loss chiefly from gastrointestinal tract[6].Thrombocytopenia is a common feature of chronic liver disease and is seen in 30 to 64% of cirrhotic patients[7,8]

II. Material and methods

Theprospectivestudywasconductedin100patientsofchroniccliverdiseaseadmittedinSardarPatelmedicalcollege&associatedhospital,Bikaner.Thepatientsareevaluatedforthefollowingparameters:

Inclusion criteria

All liver disease patients with deranged Liver Function tests (LFT), in correlation with a clinical and radiological diagnosis of chronic liver disease whose symptoms and signs persist for more than six months.Alcholic ,Post necrotic, cirrhosis ,metabolic complications patients are included.

Exclusion criteria

Patients with deranged LFT due to acute liver disease or other causes like hemolytic anemias ,Patient of known malignancy,Primary Coagulation disease,COPD, Cardiac failure, CKD, CAD are excluded.

The patients who satisfy the inclusion criteria will be evaluated for the following parameters:

Hematological parameters: Hemoglobin, Red cell indices and red cell count. Total and differential leucocyte counts, Platelet count, Peripheral blood smear examination. **Coagulation parameters:**Prothrombin and Activated partial thromboplastin time, Bleeding and Clotting time. **Liver fuctiontests**

RBS, Urea, Creatinine to excuse chronic kidney disease

Upper G.I.Endoscopy

Vital monitor study

MELD (model for end stage liver disease)score was implemented7, 2002 to prioritize patients waiting for a liver transplant. MELD is a numerical scale used for adult liver transplant candidates. The range is from 6 (less ill) to 40 (gravely ill

Lab values used in the MELD calculation:

Bilirubin, which measures how effectively the liver excretes bile;

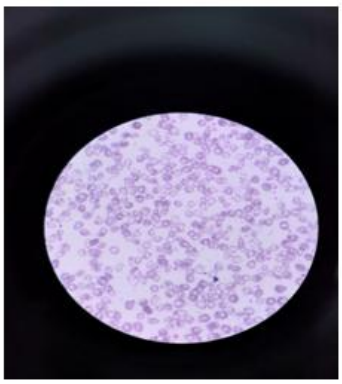
INR (formally known as the prothrombin time), measures the liver's ability to make blood clotting factors;

Creatinine, which measures kidney function. Impaired kidney function is often associated with severe liver disease.

III. Results

The present study comprised of 100 cases. Out of total, 90 (90%) were male and 10(10%) cases were female. In the study population, (51) 51%cases were Alcholic and (49) 49% were Non –Alcholic. In our study 24% cases haveWBC count >11,000/ul. Neutrophilia in 38% cases, lymphopenia in 30% cases. Thrombocytopenia in 66% cases which is common with the above study. MCV is >100fl in 33% cases, MCV <80fl 22% cases.

In our study most common anemia is normocyticnormochromic anemia, then macrocyic anemia. Microcytichypochromic anemia in 27% cases. In peripheral blood film target cells ,tear drop cells also



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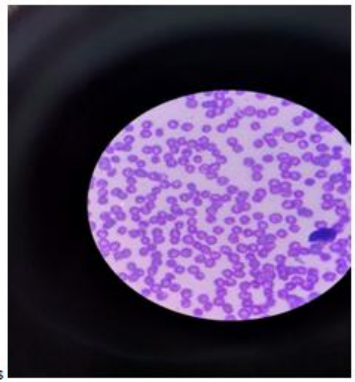

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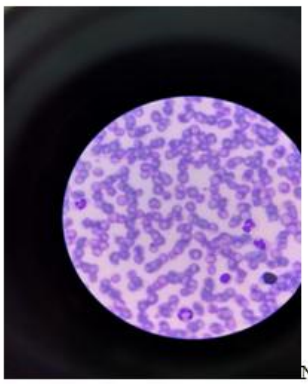


Neutrophilia

Table 1: Frequency of USG/Endoscopic Findings

USG/Endoscopic Findings	No. of Cases	Percentage
PHTN	37	37.0
Hepatomegaly/Fatty Liver	70	70.0
Ascites	39	39.0
Cirrhosis	16	16.0
GI Bleeding	12	12.0
Other	7	7.0

In out of 100 patients of portal hypertension in 37% patients, Hepatomegaly/Fatty liver in 70% patients, Ascites in 39% patients, Cirrhosis in 16%. Maximum patients of CLD have Fatty liver/Hepatomegaly.portal hypertension in 37% of cases and GI bleeding in 12% of cases.

Table -2: Frquency of alcoholic CLD

Alcoholic	No. of Cases	Percentage
Present	51	51.0
Non Alcoholic	49	49.0
Hepatitis	2	4
Metabolic	3	6
Undetermined	44	90
Total	100	100

In out of 100 patients Alcoholic CLD were 51% and non Alcoholic 49%. Ration of alcoholic CLD and non alcoholic CLD =1.04.In non alcoholic cuses hepatitis in 4% cases, metabolic in 6 % cases.Undetermined in 44% cases

.**Table 3:** Distribution of cases according to GI Bleeding in relation to platelet count

GI Bleeding	Platelet Count				Total	
	<1.5 lacs		≥1.5 lacs			
	No.	%	No.	%	No.	%
No	59	89.4	29	85.3	88	88.0
Yes	7	10.6	5	14.7	12	12.0
Total	66		34		100	

Table 4: Distribution of cases according to GI Bleeding in relation to prothrombin time

GIBleeding	Raised PT				Total	
	Yes		No			
	No.	%	No.	%	No.	%
No	0	-	88	100	88	88.0
Yes	12	100	0	-	12	12.0
Total	12		88		100	

In our study 12% patients had G.I bleeding and all the cases had raised P.T
Chi square value 100.0 and p value < 0.01so it was highly significant . coagulation abnormality is strongly associated with G.I.bleeding.

Table 5: Frequency of Platelet Count in CLD patients

Platelet Count	No. of Cases	Percentage
≤1.5 Lacs	66	66.0
>1.5-4.5 Lacs	34	34.0
Total	100	100

Table 3 depicts that 66% cases hading platlet count <1.5 lac.34% caes hading platlet count between 1.5-4.5 lac. Maximum caes having platlet count <1.5 lac.

Table 6: Frequency of Anaemia in CLD patients

Anaemia	No. of Cases	Percentage
Dimorphic	5	5.0
Macrocytic	29	29.0
MicrocyticHypochromic	27	27.0
Normocytic	39	39.0

Above table depicts that maximum cases (39%) hadNormocyticNormochromic anemia.29% cases had Macrocytic anemia.
27% cases hadMicrocytichypochromic anemia. 5% cases had dimorphic anemia.

IV. Discussion

In india prevalence of chronic liver disease range from 6 to 22%.

Age group in this study (adult patients who were admitted to the hospital at different ages) range from 16 yrs to 85 yrs. In our study out of total 100 patients , 6%patients in 16 to 20 yrs age group are of CLD.35% in 21-40 age group, 46% in 41-60 age group, 13% in >60 age group are CLD.Maximum patient of CLD were in 41-60 age group . Under age of 40 (35%) cases and above 40(59%). Krishna C. Sajja 2011 carried out study of 2,048 patients admitted to Parkland Memorial Hospital at different ages.Those under the age of 40(219) and those over the age of 40(1,798).The average of all patients was 52±11.

Among patients hading CLD 90% were males and 10% were females. Male female ratio was 9:1

KudvaMV,et al 1990 carried out study in Kuala Lumpur. The male female ratio was 4.4:1. In our study 51%(51) cases are Alcholic and 49%(49) are non alcoholic.In which 4% are viral hepatitis and 6% are diabetic.Others are idiopathic.John D Scott 2008 performed review to detail the frequency and etiology of chronic liver disease in Aboriginal North Americans.Alcoholic liver disease is the leading etiology of CLD, but viral hepatitis, an important and growing cause of CLD.Among 10000 patients alcoholic CLD 65%, hepatitis B virus 2%.[9,10]

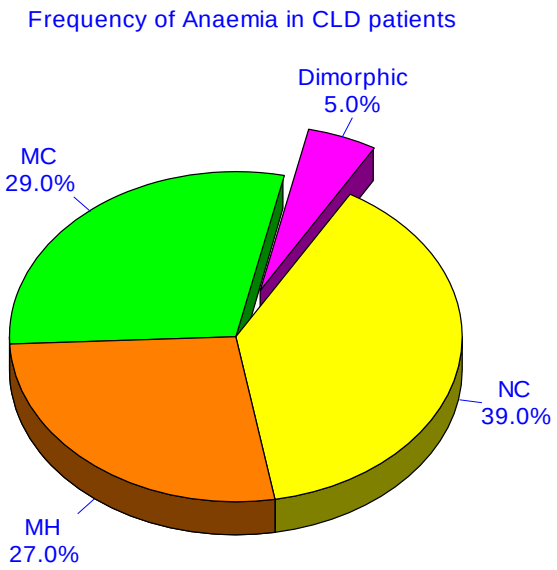
Frequency of level of SGOT,SGPT in CLD patients.

In our study SGOT level was higher in 79% of cases and SGPT level in 74% cases. SK Sayal AFMC, pune ,india 1997 stydied 46 cases of CLD. SGOT, SGPT level and their ratio was higher in patients of Alcholic CLD and viral hepatitis CLD.In this study serum SGOT,SGPT level was more than 40iu/l in almost all cases of Alcholic liver disease.Mean SGOT/SGPT ratio of 1.45 in alcoholic liver disease in this study.In our study SGOT,SGPT level is also elevated in our study

In our study 24% cases had WBC count >11,000/ul. Neutrophilia in 38% cases, lymphopenia in 30% cases. Thrombocytopenia in 66% cases which is common with the above study. MCV is >100fl in 33% cases, MCV <80fl 22% cases.

In our study G.I.bleeding was present in 12% cases and these all parents had raised P.T.time.Average P.T.was 15.2 INR.Platlet count <1.5 lac in 7% of G.I.bleeding patients.

In our study most common anemia was normocyticnormochromic anemia, then macrocyic anemia. Microcytichypochromic anemia in 27% cases. Thrombocytopenia (platelet count < 150 000/L) is common in patients with chronic liver disease; it has been reported in as many as 76% of patients with cirrhosis[7,8]. Rajkumar Solomon T 2017 studied 50 patients with chronic liver disease 50% patents had thrombocytopenia[11,12].



V. Summary and Conclusion

"Chronic liver disease" refers to disease of the liver which lasts over a period of six months. Testing for chronic liver disease involves blood tests, imaging including ultrasound and a biopsy of the liver.

- In present prospective study of 100 patients with chronic liver disease 90% were males and 10% were females Male: Female=9:1.
- CLD is most common in the 41-60 yrs age group.
- SGOT,SGPT,SERUM BILIRUBIN is elevated in >70% cases which is important diagnostic finding in CLD cases.
- Fatty liver, hepatomegaly in 70% cases,
- Complications of CLD -Ascites in 39% cases, portal hypertension in 37% cases and cirrhosis in 16% cases.
- Hepatic encephalopathy was observed in 15%,thrombocytopenia and raised P.T.was observed in all patients
- G.I.bleeding in 12% of cases .PT was raised in all cases and platlet count <1.5lac in 7% cases.
- P-value forG.I. bleeding patients hading raised P.T. <0.01.Coagulationabnormality is strongly associated with G.I bleeding
- Alcholic liver disease in 51% cases, non-alcholic liver disease in 49% cases.
- Among non alcoholic liver disease, undetermined cases of CLD were 44%.Further work out on these patients is required.
- Hematological finding- Neutrophilia in 38% cases, lymphopenia in 30% cases.
- Thrombocytopenia in 66% cases, Anemia in 70% cases.Most common anemia is normocyticnormochromic anemia.
- MCV is >100fl in 33% cases.
- MELD score was >25 in 12% of cases which indicate the severity of liver disease.Those patients were ideal candidate for liver transplant

Early diagnosis management remains crucial for better functional outcome.

References

[1]. Harrison's Principal of internal medicine-18th ed
[2]. Amitrano L, Guardascione MA, Brancaccio V, Balzano A. Coagulation disorders in liver disease. Semin Liver Dis. 2002:83–96.
[3]. Reverter JC. Abnormal hemostasis tests and bleeding in chronic liver disease: are they related? Yes. J ThrombHaemost. 2006:717–720.
[4]. RachelRosowsky and Peter W Marks. Haematological manifestations of systemic disease,liver disease and renal disease:In(eds)Ronald Hoffman, Edward J Benz, Bruce Furie. Haematology basic principles and practice.4thedition,ElsevierChurchillivingstone.Philadelphia. 2005:2564-2565
[5]. Alan B.M Grosset and George.M. Rodgers.Aquired coagulation disorders: In (eds) John Foerster, John Lukens, FrixosParaskevos; Wintrobes Clinical haematology .10thedition;Wiliams and WilkinsBaltimore,1999:1737-1739.
[6]. James H Jandl. The anaemia of liver disease: observations on its mechanism. J.clin invest.1955:390-404
[7]. Graudal N, Leth P, Marbjerg L, Galloe AM. Characteristics of cirrhosis undiagnosed during life: a comparative analysis of 73 undiagnosed cases and 149 diagnosed cases of cirrhosis, detected in 4929 consecutive autopsies. J Intern Med 1991; 230:165–171.
[8]. Bialek SR, Redd JT, Lynch A, Vogt TM, Lewis S, Wilson C, Bell BP. Chronic liver disease among two American Indian patient populations in the Southwestern United States, 2000-2003. J ClinGastroenterol 2008; 42: 949-954
[9]. Fischer G, Bialek SR, Homan C, Livingston S, McMahon BJ. Chronic liver disease among Alaska Native people, 2003-2004.Hepatology 2007; 46 Suppl 1: S895-S896.
[10]. UK national statistics, http://www.statistics.gov.uk/
[11]. Sherlocks textbook of liver diseases 12th edition; Haematological disorders of the liver, Pramod K Misry and Dhanpat Jain, Para 1. Sherlocks textbook of liver diseases 12th edition; Chapter 5: Haematological disorders of the liver, Pramod K Misry and Dhanpat Jain, Para 2.

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