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SECTION 20. Medicine.

DERRANGED COAGULATION PROFILE & RISK OF GASTROINTESTINAL BLEEDING

Abstract: Objective: Purpose of conducting this study was to determine risk of gastrointestinal bleeding due to abnormal coagulation profile in patients with chronic liver disease.

Study design and setting: This study was done in in DHQ Teaching Hospital Gujranwal Medical College Gujranwala, Pakistan.

Study duration: This study was started in January 2018 and completed in July 2018 consisted on period of 7 months duration

Patients and Methods: Patients with chronic liver disease with deranged coagulation profile and signs and symptoms of gastrointestinal bleeding presenting to outpatient door or emergency ward of study institution during study period were selected. Proper history taken and physical examination was done followed by necessary investigations such as USG abdomen, clotting profile (PT, APTT, INR), CBC with platelet count, LFTs, RFTs and stool culture for occult blood or malena. Unstable patients presented in emergency ward well given initial resuscitation and bleeding were stopped with conservative management successfully. Only those cases were selected having No chronic disease other than CLD, Not taking any anticoagulant for any disease and no family history of bleeding disorder. A performa was designed containing necessary questions like age, duration of disease, signs and symptoms of CLD such as ascites, hematemesis, per rectal bleeding, malena etc. Data was analyzed on Microsoft office and statistical software. Relative risk was calculated with 95% confidence interval.

Results: Total 280 cases reported with chronic liver disease out of which 150 cases were having gastrointestinal bleeding having history of malena and hematemesis. There were 76.7% cases with prolonged prothrombin time. In 88.6% cases APTT was prolonged. 88.6% were having low platelet count less than 1.5×10^5 . There were 58.7% male and 41.3% female cases. Age of patients was in range of 30-75 years with mean age of 50.4 years ± 14.6 SD. Confidence interval was 95%, relative risk 1.55 and P value was less than 0.05. In 70% cases hematemesis or malena was present. In 42.7% only hematemesis, 63.3% having malena and in 46.6% both were present. 31.3% cases had encephalopathy, 48.7% fever, 60.7% jaundice, 25.3% hepatomegaly, 69.3% splenomegaly, 56.7% ascites and 8% cases had spider angioma.

Conclusion: Chronic liver disease is most prevalent disease in Pakistan in which coagulation profile is deranged with prolonged PT, APTT and decreased platelet count. Gastrointestinal hemorrhage is common presentation in CLD.

Key words: Complications of CLD, Derrange coagulation profile, gastrointestinal bleeding.

Language: English

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INTRODUCTION

Chronic liver disease has very high incidence in Pakistan and other asian countries as well. In this disease liver functions are compromised. Liver is very important organ of body related to metabolism, glucose production, protein synthesis and

detoxification of toxic metabolites.¹ Most common cause of lchronic liver disease is viral hepatitis due to HCV and HBV. Other viruses like HAV and HEV also causes hepatitis but their incidence is very low in our country and usually don't cause chronic liver disease.² Other cause of CLD is Willson disease.



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Signs and symptoms in this disease are hematemesis, per rectal bleeding, black stools, abdominal distension due to ascites, chronic on and off fever, unexplained weight loss, indigestion, anemia, palmar erythema, Jaundice, hepatomegaly, splenomegaly spider angiomas and encephalopathy. There may be chronic constipation and hemorrhoids.³ Chronic liver disease occurs many years after infection with HBV or HCV so cases with CLD are usually old age. Liver functions are gradually lost. Very important function of liver is to maintain portal pressure and in case of liver failure in CLD liver cirrhosis occurs causing portal hypertension and complications related to it such as hemorrhoids, gastric or esophageal variceal bleeding and ascites. In this disease protein synthesis is impaired.⁴ Albumin is very important protein synthesized by liver maintaining oncotic pressure intravascularly. Its level is also used to diagnose liver failure and to monitor prognosis of disease and outcome of treatment. Normal value of prothrombin time is 11-13.5 which is prolonged greater than 14 in liver disease. In severely ill cases its value becomes greater than 45. Vitamin K dependent clotting factors 2, 7, 9 and 10 factor synthesis occurs in liver. Liver failure causes impaired vitamin metabolism so decreasing level of clotting factors. Prognostic factors in CLD are blood albumin level, PT and APTT level, platelet count and fibrinogen level. Patients with deranged coagulation profile and low albumin level have worst prognosis.⁵ Medical management includes intravenous albumin transfusion, vit K, sandostatin and intravenous fluids etc. Definite treatment includes liver transplantation, but this option is suitable in surgically fit patients. Patients in old age are not fit for this surgery so they are treated conservatively. Most of the patients are reported in hospitals in advance disease stage as initial signs symptoms of disease are general and easily misdiagnosed or ignored.⁶ Patient considers he is healthy and it is incidentally diagnosed when serum viral markers are checked for any surgery or before donation of blood. Most common cause of viral hepatitis is blood born transmission from infected patients, infected syringes and from mother to child during delivery and from body fluids of infected person.

Patients and Methods

This is a cross sectional study conducted in a teaching hospital of Pakistan with study duration of seven months. Patients with chronic liver disease with deranged coagulation profile and signs and symptoms of gastrointestinal bleeding presenting to outpatient door or emergency ward of study institution during study period were selected. Proper history taken and physical examination was done followed by necessary investigations such as USG abdomen, clotting profile (PT, APTT, INR), CBC

with platelet count, LFTs, RFTs and stool culture for occult blood or malena. All necessary investigations of study cases were done from the laboratory of study institution. Unstable patients presented in emergency ward well given initial resuscitation and bleeding were stopped with conservative management successfully. Only those cases were selected having no chronic disease other than CLD, Not taking any anticoagulant for any disease and no family history of bleeding disorder. Signs and symptoms in this disease are hematemesis, per rectal bleeding, black stools, and abdominal distension due to ascites, chronic on and off fever, unexplained weight loss, indigestion, anemia, palmar erythema, Jaundice, hepatomegaly, splenomegaly spider angiomas and encephalopathy. Patients above 30 years of age were included and those having age less than this were excluded from the study. Patients having hematological diseases like leukemia, lymphomas and aplastic anemia etc were not included in this study. Proper written consent was taken from each and every patient for including their data in study and also from the medical superintendent of the hospital for conducting study. Privacy of patient was maintained. A performa was designed containing necessary questions like age, duration of disease, signs and symptoms of CLD such as ascites, hematemesis, per rectal bleeding, malena etc. Data was analyzed on Microsoft office and statistical software. Relative risk was calculated with 95% confidence interval.

Results

Patients presenting in outpatient door and emergency ward due to signs and symptoms of chronic liver disease were studied. Total 280 cases reported with chronic liver disease out of which 150 cases were having gastrointestinal bleeding having history of malena and hematemesis. There were 76.7% cases with prolonged prothrombin time. In 88.6% cases APTT was prolonged. 86(57.3%) were having low platelet count less than 1.5×10^5 , 10(11.6%) cases had platelet level between one lac to 1.5 lac, 59(68.6%) cases had platelet range of fifty thousand to one lac and 17(19.7%) cases had platelet count below fifty thousand. There were 88(58.7%) male and 62(41.3%) female cases. Age of patients was in range of 30-75 years with mean age of 50.4 years ± 14.6 SD. Confidence interval was 95%, relative risk 1.55 and P value was less than 0.05. In 105(70%) cases hematemesis or malena was present. In 64(42.7%) only hematemesis, 95(63.3%) having malena and in 70(46.6%) both were present. 47(31.3%) cases had encephalopathy, 73(48.7%) fever, 91(60.7%) jaundice, 38(25.3%) hepatomegaly, 104(69.3%) splenomegaly, 85(56.7%) ascites and 12(8%) cases had spider angioma. There were 12(8%) cases between 30-35 years, 28(18.7%) with



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age 36-40 years, 20(13.3%) between 41-45 years, 18(12%) cases between 41-45 years, and 25(16.7%) cases were above 60 years of age.

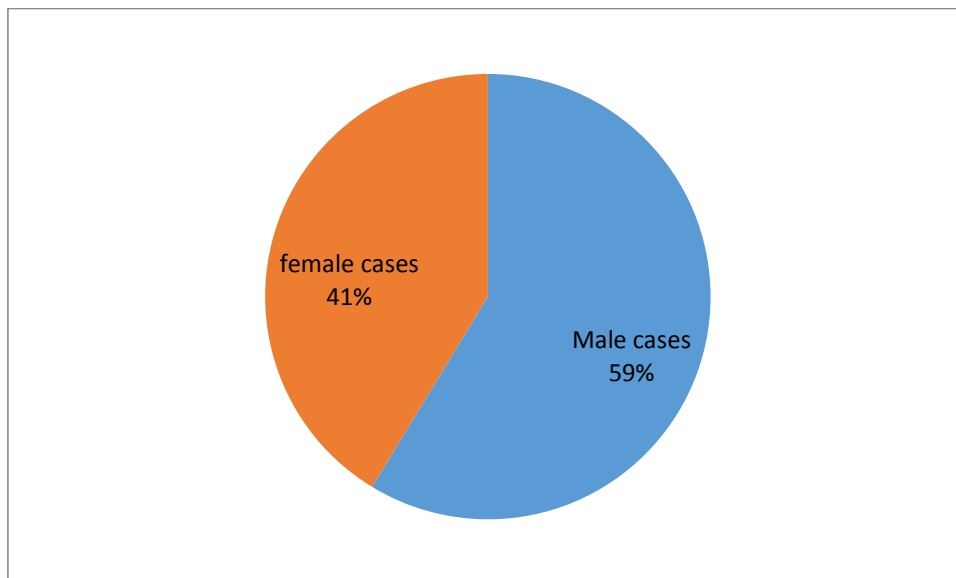


Figure-1 Gender distribution of patients in study group

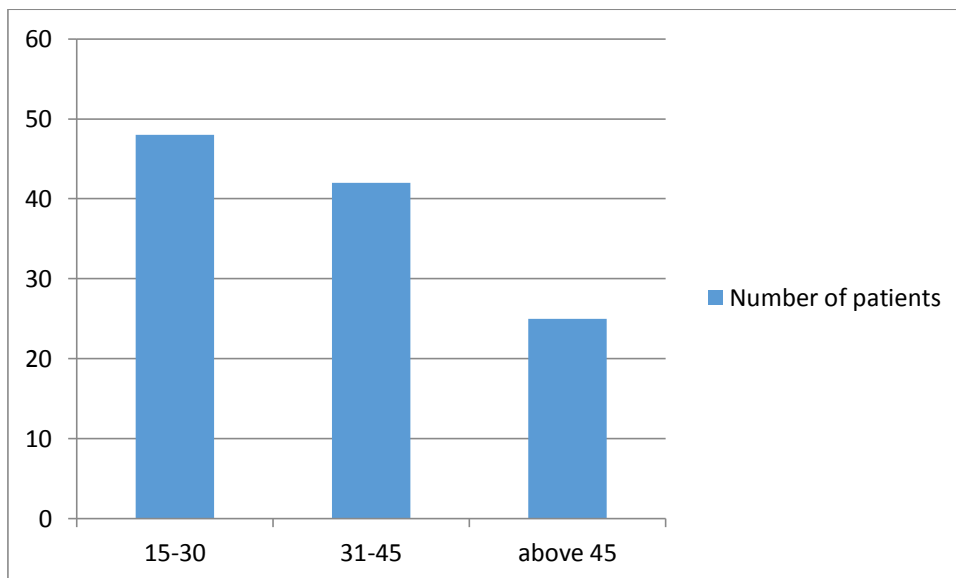


Figure-2 Frequency of patients with prolonged prothrombin time (PT above 35 sec)

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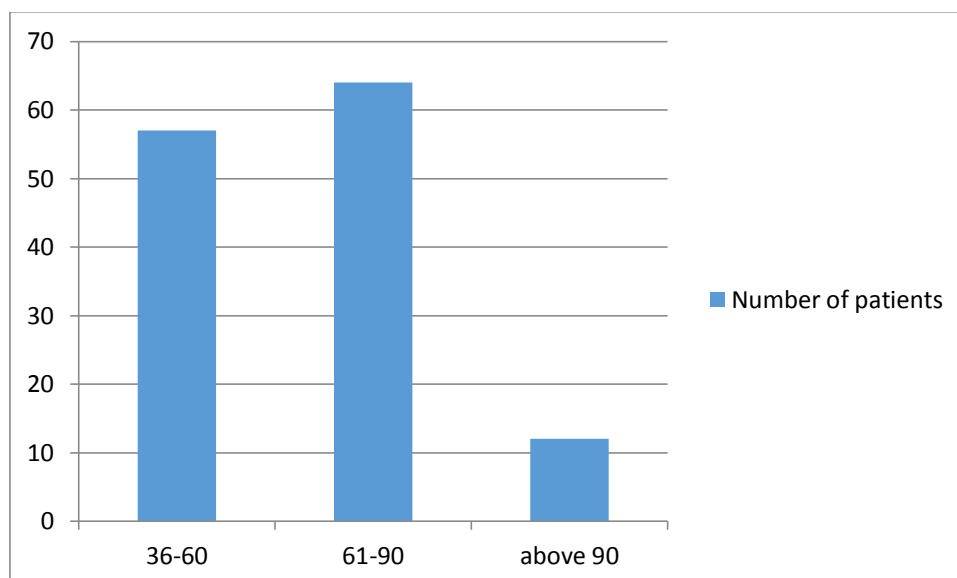


Figure-3 Frequency of cases with prolonged APTT (above 35 sec)

Table-1

Age distribution among cases of study group

Age of patients (years)	Number of patients	%
30-35	12	8
36-40	28	18.7
41-45	20	13.3
46-50	18	12
51-55	32	21.3
56-60	15	10
Above 60	25	16.7

Table-2

Frequency of signs and symptoms of CLD among the patients in study group

Sign and symptoms of CLD	Number of patients	%
	64	42.7
Hematemesis	95	63.3
Fever	73	48.7
Jaundice	91	60.7
Hepatomegaly	38	25.3
Splenomegaly	104	69.3
Ascites	85	56.7
Spider angioma	12	8
Encephalopathy	47	31.3

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DISCUSSION

Chronic Liver disease due to viral viral hepatitis has high prevalence in Pakistan and most commonly involving males than females.⁷ Old age people are mostly involved as compared to young age people. There are many other causes of CLD but viral hepatitis is most common reason in Asian countries.⁸⁻¹⁰ In this disease hematological abnormalities are one of many complications in which prothrombin time and APTT is raised, Platelet count is decreased as well. In this disease protein synthesis is impaired. Albumin is very important protein synthesized by liver maintaining oncotic pressure intravascularly. Its level is also used to diagnose liver failure and to monitor prognosis of disease and outcome of treatment. Normal value of prothrombin time is 11-13.5 which is prolonged greater than 14 in liver disease. In severely ill cases its value becomes greater than 45. Vitamin K dependent clotting factors 2, 7, 9 and 10 factor synthesis occurs in liver. Liver failure causes impaired vitamin metabolism so decreasing level of clotting factors.^{11,12} Prognostic factors in CLD are blood albumin level, PT and APTT level, platelet count and fibrinogen level. Patients with deranged coagulation profile and low albumin level have worst prognosis. Medical management includes intravenous albumin transfusion, vit K, sandostatin and intravenous fluids etc.¹³⁻¹⁵ This is a cross sectional study conducted in a teaching hospital of Pakistan with study duration of seven months. Patients with chronic liver disease with deranged coagulation profile and signs and symptoms of gastrointestinal bleeding presenting to outpatient door or emergency ward of study institution during study period were selected. Proper history taken and physical examination was done followed by necessary investigations such as USG abdomen, clotting profile (PT, APTT, INR), CBC with platelet count, LFTs, RFTs and stool culture for occult blood or malena. All necessary investigations of study cases were done from the laboratory of study institution. Patients presenting in outpatient door and emergency ward due to signs and symptoms of chronic liver disease were studied. Total 280 cases reported with chronic liver disease out of which 150

cases were having gastrointestinal bleeding having history of malena and hematemesis. There were 76.7% cases with prolonged prothrombin time. In 88.6% cases APTT was prolonged. 86(57.3%) were having low platelet count less than 1.5×10^5 , 10(11.6%) cases had platelet level between $1-1.5 \times 10^5$, 59(68.6%) cases had platelet range of fifty thousand to one lac and 17(19.7%) cases had platelet count below fifty thousand. Proper written consent was taken from each and every patient for including their data in study and also from the medical superintendent of the hospital for conducting study. Privacy of patients was maintained. A performa was designed containing necessary questions like age, duration of disease, signs and symptoms of CLD such as ascites, hematemesis, per rectal bleeding, malena etc.¹⁶⁻¹⁷ Data was analyzed on Microsoft office and statistical software. Relative risk was calculated with 95% confidence interval. In severely ill cases its value becomes greater than 45. Vitamin K dependent clotting factors 2, 7, 9 and 10 factor synthesis occurs in liver. Liver failure causes impaired vitamin metabolism so decreasing level of clotting factors. Prognostic factors in CLD are blood albumin level, PT and APTT level, platelet count and fibrinogen level. Patients with deranged coagulation profile and low albumin level have worst prognosis. According a study done in Rawalpindi military hospital reported hepatitis B and C as a cause in majority of cases (86%) with CLD.

CONCLUSION

Chronic liver disease is very common in Pakistan and most common cause is viral hepatitis. There are many complications of this disease but coagulation abnormalities are most important of them which may lead to fatal hemorrhage. In such cases prothrombin time and activated partial thromboplastin time both are prolonged. Thrombocytopenia is also found in majority of these cases. These factors show bad prognosis of the disease.

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