

FREQUENCY OF POSITIVE FECAL OCCULT BLOOD TEST IN PATIENTS WITH CIRRHOSIS

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ABSTRACT**OBJECTIVES**

The objective of this study is to determine the frequency of positive fecal occult blood tests in patients with cirrhosis.

METHODOLOGY

This descriptive cross-sectional study had a total of 154 patients observed for six months i.e., from 12/3/2023 to 12/9/2023 in the Department of Medicine, Khyber Teaching Hospital, Peshawar. Patients (aged 18-70 years) were worked up with detailed history and clinical examination to reveal ascites, coagulopathy, jaundice, splenomegaly, cachexia, and gynecomastia. After having excluded the confounders, a morning fecal sample was taken under aseptic conditions in a specialized fecal occult blood testing kit and sent for laboratory evaluation for interpretation. The sampling technique was consecutive non-probability. All investigations were done from the same laboratory and under the supervision of a hematologist with three years of fellowship experience. Data was stored and analyzed by the statistical program IBM-SPSS version 22. Frequencies and percentages were calculated for qualitative variables like gender, child-pugh class for cirrhosis, and positive fecal occult blood test. Post-stratification was done through a chi-square test and p-values <0.05 were considered as significant.

RESULTS

In this study, the mean age was 57 years with SD ± 11.27. Sixty-two percent of patients were males while 38% of patients were females. The mean duration of the disease was 1 year with SD ± 3.57. More than 37% of patients had a positive fecal occult blood test while 63% of patients had a negative fecal occult blood test.

CONCLUSION

Our study shows that the frequency of positive fecal occult blood tests was 37% in patients with cirrhosis.

KEYWORDS: Positive, Fecal Occult Blood Test, Cirrhosis

INTRODUCTION

Chronic liver disease (CLD) and liver cirrhosis are clinically and pathologically defined diseases.¹ The main causes of cirrhosis of the liver include chronic infection by viral agents (hepatitis B and C virus), as well as metabolic, toxic/drug-induced, and autoimmune causes, resulting in persistent inflammation and progressive fibrosis.^{2,3} Those cases that have reached the level of cirrhosis can be noted by the following: nerve problems, male breast growth, Dupuytren's contractions, hair loss, kidney failure, redness of palms, lack of appetite, testicular shrinkage, weakness, weight loss, itching, gallstones, and ascites.^{4,5} One of the disastrous complications of liver cirrhosis is coagulopathy and esophageal varices. When they bleed, melena happens. Melena can lead to iron deficiency anemia and needs early detection and treatment. Fecal occult blood testing is one such investigation to exclude microscopic blood loss in cirrhotic patients due to either esophageal varices or congestive gastropathy.^{3,6} It was

found that the frequency of positive fecal occult blood tests was 34% in patients with cirrhosis.⁷ Liver cirrhosis is a major public health problem in Pakistan.⁸ One Pakistani study concluded that hepatitis C virus (HCV) caused liver fibrosis and liver cirrhosis or hepatocellular carcinoma (HCC) Furthermore; HCV genotype 3a was more common.⁹ Another study concluded that cirrhotic patients had a very poor quality of life. Furthermore, low serum albumin and hemoglobin, preceding history of decompensation (upper gastrointestinal bleed and encephalopathy), etc., were found to be connected with underprivileged health-related quality of life.¹⁰ Other Pakistani researchers Ali et al observed that the prevalence of HBV infection varied with the population residing in different parts of the country. They suggested that Afghan refugees in Pakistan, drug abusers, professional blood donors, health care professionals, prisoners, multiple transfused patients, patients with HCC, psychiatric patients, general population of some specific areas like Southern Punjab, Interior Sindh,

District Tatta, Kurram agency, Baltistan and some areas of Lahore had very high HBV prevalence of more than 5%.¹¹ Although fecal occult blood testing has been studied well as a screening tool for colorectal carcinoma, studies for fecal occult blood test positivity in cirrhotic patients are scarce. Therefore, this study was done to determine the local frequency of positive fecal occult blood tests in patients with cirrhosis. Routine fecal occult blood tests will provide important information that will help refine clinical strategies in our general population with cirrhosis, provided the frequency of melena among such patients is found to be higher.

METHODOLOGY

It was a descriptive cross-sectional study in the Department of Medicine, Khyber Teaching Hospital, Peshawar for a duration of six months i.e., from 12/03/2023 to 12/09/2023. The sample size was calculated using 34% relevance of positive fecal occult blood test, 5% margin of error and 95% confidence interval under the WHO formula for sample size determination in health studies which is given below $n = z^2 \cdot p \cdot q / d^2$, where proportion (positive fecal occult blood test) is $P=34\%$. With $q=1-p$ and $d=7.5\%$ and Confidence level = 95% and $n=154$. The sampling technique was consecutive (nonprobability) sampling. Inclusion criteria had patients aged 18 to 70 of both genders with liver cirrhosis > six months as per operational definition. Child-Pugh Score was for cirrhosis A/B/C (Annexure-II) whereas, West Haven criteria was used for hepatic encephalopathy.¹² For exclusion criteria, a history of peptic ulcer disease, colorectal cancer, hemophilia, or Von Willebrand's disease was sorted out. Patients on oral iron supplements and those who had consumed eatables like radish, turnip, and red meat in the preceding 72 hours were also on the list of exclusions. All of them act as confounders and included, would have introduced bias in the study results. After getting approval from the hospital ethics committee (vide letter No: 22008) to conduct the study, data was collected from all those patients with established liver cirrhosis presenting to the Out-patient Department (OPD). They were admitted for further evaluation. An informed written consent was taken from those patients fulfilling the inclusion criteria. Patients (aged 18-70 years) were worked up with detailed history and clinical examination to reveal ascites, coagulopathy, jaundice, splenomegaly, cachexia, and gynecomastia. After having excluded the confounders, a morning fecal sample was taken under aseptic conditions in a specialized fecal occult blood testing kit and sent for laboratory evaluation for interpretation. All investigations were done from the

same laboratory and under the supervision of a hematologist with three years of fellowship experience. After interpreting the fecal occult blood test results in the selected sample population with established cirrhosis, data was recorded. All data including age, gender, weight, symptoms, disease duration, severity of cirrhosis, and fecal occult blood were recorded into a proforma. Data was analyzed by the statistical program IBM-SPSS version 22. All the quantitative variables like age, disease duration, Child-Pugh score, and weight were analyzed for mean \pm standard deviation. Frequencies and percentages were calculated for qualitative variables like gender, Child-Pugh class for cirrhosis, and positive fecal occult blood test. A positive fecal occult blood test was stratified among age, gender, weight, disease duration Child-Pugh score and class, and symptoms and signs for cirrhosis to see effect modifiers. Post-stratification was done through a chi-square test and p-values <0.05 were considered as significant.

RESULTS

Table 1: Stratification of Positive Fecal Occult Blood Test W.R.T Gender and Age Distribution (N=154)

Gender Distribution			Age (Years) Distribution				
Positive Fecal Occult Blood	Male	Female	Positive Fecal Occult Blood	30-40	41-50	51-60	61-70
Positive	35	22	Positive	3	13	20	21
Negative	60	37	Negative	5	22	34	36
Total	95	59	Total	8	35	54	57

Note: A chi-square test was applied in which the P value was 0.9555 for gender and 0.9999 for age distribution.

Table 2: Stratification of Positive Fecal Occult Blood Test W.R.T BMI Distribution (N=154)

Positive Fecal Occult Blood	≤ 22 Kg/M ²	>22 Kg/M ²	Total
Positive	31	26	57
Negative	54	43	97
Total	85	69	154

Note: Chi-square test was applied in which the P value was 0.8770

Table 3: Stratification of Positive Fecal Occult Blood Test W.R.T Duration of Disease (n=154)

Weight in kg	Number (n=65)	%age
Severe pre-eclampsia	22	22.68
Eclampsia	08	8.24
Abruption	09	9.27
Placenta previa	14	14.43
Prolonged labor	12	12.37
Big baby	08	8.24
Prolonged PROM	07	7.21
Multiple pregnancies	17	17.52
Total	97	100

Note: Chi-square test was applied in which the P value was 0.9749

Table 4: Stratification of Positive Fecal Occult Blood Test W.R.T Child Pugh Score for Cirrhosis (n=154)

Positive Fecal Occult Blood	Grade A	Grade B	Grade C	Total
Positive	16	32	9	57
Negative	27	54	16	97
Total	43	86	25	154

Note: Chi-square test was applied in which the P value was 0.9935

DISCUSSION

Both liver cirrhosis and chronic liver disease (CLD) are clinically and pathologically defined and common diseases.¹ The main causes of cirrhosis of the liver include chronic infection by viral agents (hepatitis B and C virus), as well as metabolic, toxic/drug-induced, and autoimmune causes, resulting in persistent inflammation and progressive fibrosis which can be explained by the fact that chronic motivation of the wound healing response, which is the major catalyst for gradual buildup of extracellular matrix (ECM) components, ultimately leads to liver cirrhosis and hepatic failure.^{2,3} Those cases that have reached the level of cirrhosis can be noted by the following: nerve problems, male breast growth, Dupuytren's contractions, hair loss, kidney failure, redness of palms, lack of appetite, testicular shrinkage, weakness, weight loss, itching, gallstones, and ascites. A fecal occult blood test is used to identify human hemoglobin from stool samples of patients by using antibodies.¹³ While, it is highly effective in discovering blood from patients with gastrointestinal lesions, such as carcinomas and polyps, it has an excessive rate of false positive results.¹⁴ Liver cirrhosis-affected individuals eventually cultivate upper gastrointestinal hemorrhage due to different reasons, including portal hypertension and gastropathy.¹⁵ This blood can pass on to the lower gastrointestinal pathways and be detected in stool, hence this formed a basis for performing fecal occult blood tests among liver cirrhosis patients in this study. In this current study, the mean age was 57 years with SD \pm 11.27. Sixty-two percent of patients were male while 38% of patients were female. The frequency of positive fecal occult blood tests was 37% in patients with cirrhosis. Similar results were observed in another study in which the frequency of positive fecal occult blood tests was 34% in patients with cirrhosis.¹⁶ Another study reported that positive FOBT found a higher yield of abnormal lesions for EGD than for colonoscopy (24% to 36% versus 13% to 26%, respectively).¹⁷ In a study reported that the frequency of positive fecal occult blood tests was 36% in patients with cirrhosis.¹⁸ Another study reported that a positive fecal occult blood test was found in 38% presenting

with liver cirrhosis.¹⁹ Ultimately, the decision to perform fecal occult blood tests or other diagnostic tests in liver cirrhosis patients should be individualized based on clinical judgment, patient-specific factors, and the presence of signs or symptoms suggesting gastrointestinal bleeding.

LIMITATIONS

The study was a single-center study. Extrapolating the findings of a single-centered study to the whole local population might not be truly depictive of the trend of fecal occult blood positivity in the region. Hence, multi-centered studies highlight the correlation of fecal occult blood results with endoscopy findings and any interventions will prove to be more convincing and promising in the future.

CONCLUSIONS

Our study shows that the frequency of positive fecal occult blood tests was 37% in patients with cirrhosis.

CONFLICT OF INTEREST: None

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