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Non-Invasive Test for Estimation of Liver Fibrosis

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Abstract

Background: In 2015 the digestive disorders were the second leading cause of morbidity among Mongolian population. The observed mortality from cancer in 2013 was 23.4% including liver cancer which is the first most common cause of cancer death. Furthermore, the digestive disease related death accounts for 4.7% of all mortality. Recently many noninvasive markers for assessing liver fibrosis have been developed, and they are frequently used in clinical practice. FIB4 index had a predictive value to confirm the existence of significant fibrosis with a specificity of 74% and a sensitivity of 70% and APRI score had a sensitivity of 89% and a specificity of 75%.

Methods: Cross sectional study was carried out. A total of 120 patients were enrolled in this study including 40 healthy individuals, 40 patients with chronic viral liver disease and 40 patients with alcoholic liver disease. Complete blood count (PLT), biochemistry (AST, ALT), abdominal ultrasonography were performed. APRI, FIB-4 scores were calculated and compared with the results of the laboratory tests.

Results: A total of 120 patients were enrolled in this study; 40% of patients were males. Their mean age was 43.43±10.93 years. Liver fibrosis stages that are determined by APRI score: FO-1 mild fibrosis accounts for 54.3%, F2-3 moderate fibrosis 40.6%, F4- cirrhosis 11.5%; by FIB4 score: 62.8% was in F0-1, 20.3% was in F2-3, 11.5% was in F4 stage among alcoholic liver disease group. In viral disease group liver fibrosis stages that were evaluated by APRI score were 36.2%-F0-1 mild fibrosis, 32.4%-F2-3 moderate fibrosis, 31.4%-F4 severe fibrosis. Statistically significant difference were observed between alcoholic liver disease and viral liver disease groups in liver fibrosis stages that was determined with APRI score ($p<0.05$).

Introduction

In the abdominal ultrasonography increased echogenicity in alcohol group 32.5%, in virus group 52,5%, hepatomegaly in alcohol group 43.6%, vena portae dilated in alcohol group 8.3%, in virus group 10.6%, splenomegaly in alcohol group 14.1%, in virus group 20.1%, splenic vein dilated on alcohol group 20.3%, in virus group 14.75%. Alcohol and viral hepatitis abdominal ultrasonography is a statistically significant difference.

In the present study, we found a statistically significant negative correlation between FIB4 score and platelet count, moderate negative correlation between FIB4 score, and albumin, total protein level, weak correlation between alkaline phosphatase, GGT, total bilirubin levels and FIB4 score ($p<0.05$). APRI correlated significantly with AST and ALT levels, whereas platelet count, total protein albumin levels demonstrated moderate negative correlation with APRI scores ($p<0.05$).

Conclusion

The APRI F2-3, the FIB4 F0-1 and F4 scores showed high sensitivity for the diagnosis of alcohol related liver fibrosis. The FIB4 F2-3, F4 score showed high sensitivity for the diagnosis of virus related liver fibrosis. These measures also demonstrated significant correlation with the stage of liver fibrosis in patients with viral hepatitis. For non-invasive diagnosis of liver fibrosis F2-3, using FIB4 was related to necroinflammation, F4 was related with necroinflammation, cholestasis, hypersplesnism, liver failure syndromes.

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