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ASPARTATE AMINOTRANSFERASE (AST) TO PLATELET RATIO INDEX (APRI) NON INVASIVE MARKER FOR EVALUATION OF PROBABLE FIBROSIS IN ALCOHOLIC LIVER DISEASE

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ABSTRACT

Background: Alcoholic liver disease (ALD) is a major cause of liver disease caused by excessive alcohol intake. Liver fibrosis is most common complication of ALD. Diagnosis of fibrosis is usually invasive procedure or radiological procedure which is expensive. Hence this study was conducted to evaluate the use of APRI in ALD cases which is non- invasive procedure. **Material And Methods:** Observational study was conducted on 70 patients evaluated from medical ward, Deaddiction center. **Result:** Using APRI Cirrhosis was seen in 11(15.71%), Fibrosis in 23(32%), No Fibrosis in 36(51%).Out 11 cases of cirrhosis by APRI, 04 has shown hepatitis and 01 shown fatty liver by USG. Out of 23 cases of Fibrosis by APRI , 08 cases has shown hepatitis ,13 cases has shown fatty liver, 02 cases shown cirrhosis by USG. Out of 36 cases of No fibrosis by APRI has shown fatty liver by USG. **Conclusion:** The present study thus highlights the importance of nonnon-invasive method for diagnosis of fibrosis

KEYWORDS

APRI, ALD, Fibrosis

INTRODUCTION

Alcoholic liver disease(ALD) is a major cause of liver disease caused by excessive alcohol intake(1).Often disease is diagnosed based on history, clinically and laboratory parameter. Alcoholic liver injury manifest as fatty liver, hepatitis and cirrhosis.(2).Alcoholic Steatohepatitis occurs in 10-35% of alcoholics(3), followed by the fact that 30-35% develops fibrosis or cirrhosis.

Gold standard for diagnosis of fibrosis is invasive procedure by liver biopsy often patient end up with complication such as bleeding, peritonitis, death. Complications occur in almost 3% of cases (4).

There are other Imaging techniques used for evaluation of liver stage includes transient elastography, magnetic resonance imaging (MRI), Positron emission tomography (PET) often expensive. Hence there is need of cheaper and non-invasive method for evaluation of liver in alcoholic patient for better patient outcome.

Diagnostic utility of AST to platelet ratio index (APRI) for Hepatitis C is reported in several articles but its use in ALD is less. Hence this study was conducted to evaluate the use of APRI in ALD cases.

MATERIALS AND METHODS

Study design: Observational study

Place of study: Military hospital, Jabalpur

Participants: 70 patients evaluated from medical ward, Deaddiction center. Initially history was taken for alcohol intake and diagnosis of dependency was made based on ICD-10 WHO criteria.

Sample: Blood sample taken from peripheral vein was collected in vacutainer for testing for platelet CBC and Liver function test (LFT).PLT count was done using automated haematology analyser Beckman coulter LH750.

Calculations

APRI = ((AST [IU/L] 37 /IU/L) PLT [10^9/L]) * 100

APRI score	Result
<0.5	Healthy Liver
0.5-1.5	Fibrosis
>1.5	Cirrhosis

Gold standard test i.e. Liver biopsy for evaluation of fibrosis was not performed and Liver Elastography was also not performed Ultrasonography abdomen and pelvis was done on all patients.

RESULTS

The median age of the patients was 37.5 years and the majority belonged to the age group of 31-40 years (51.4%) as shown in Table 1. The study population were male (i.e., 100%).

Table:1 Age wise distribution of study population

Age wise distribution(years)	Study population
20-30	10
31-40	36
41-50	21
51-60	03

The median values of AST, platelet count, GGTS were 36 IU/L, 192.5x10^9/L,45.5 IU/L respectively. The median duration of alcohol intake was 15 years. On USG the majority of the patients had fatty liver (71.5%) followed by hepatitis (17.1%) and cirrhosis (11.4%). The clinico-morphological characteristics are shown in Table 2.

Table 2: The clinico-morphological characteristics

Clinico-morphological characteristics	Included patients (N = 70)
Duration of alcohol intake (median duration in years)	15 years
Splenomegaly (%)	10
Ascites	
No (%)	70
Mild (%)	18
Moderate (%)	12
Stages of ALD(USG finding)	
Fatty liver [n (%)]	8(11.9%)
Hepatitis [n (%)]	12(17.1%)
Cirrhosis [n (%)]	50(71.5%)

Using APRI Cirrhosis was seen in 11(15.71%), Fibrosis in 23(32%), No Fibrosis in 36(51%). Out 11 cases of cirrhosis by APRI, 04 has shown hepatitis and 01 shown fatty liver by USG.

Out of 23 cases of Fibrosis by APRI, 08 cases has shown hepatitis,13 cases has shown fatty liver, 02 cases shown cirrhosis by USG. Out of 36 cases of No fibrosis by APRI has shown fatty liver by USG.

DISCUSSION

Alcohol common cause of liver injury and often result in cirrhosis of liver. Gold standard for diagnosis of fibrosis is liver biopsy; hence study was conducted to evaluate use of APRI as non -invasive method in alcoholics for fibrosis.

The study population included were male. The highest number of males in our study as compared to other studies might reflect the clientele of our health facility those are mostly the serving armed force personnel. Other similar study has shown male: female ratio was 30:1(5). Another study by Sen et al. where Male: Female ratio in India was 4.5 : 1(6)

The median duration of alcohol abuse in our study population was 15 years. The average duration of alcohol intake observed in another

study by Silva et al. was 10 year (5) another study by Sen et al. was 18.09 years (6)

Physical examination has shown ascites in 30% individual, Splenomegaly in 10% of patients. Compared to other study shown ascites in 44.62% had splenomegaly, 30% individual. (5) In another study, Nand et al. Ascites was seen in 72% and splenomegaly (57%)(7)

The median value of APRI in our study 0.83 was significant for presence of fibrosis, similar study conducted by silva et al has shown median value of APRI for fibrosis as 0.8 (5)

Limitations

Gold standard test for fibrosis that is liver biopsy was not performed. Other radiological test such as Fibroscan and Transient elastography was also not performed as study was performed in resource limited setting.

CONCLUSIONS

Liver biopsy is invasive procedure and Transient elastography (TE) and Fibroscan are expensive and non-invasive modality to assess severity of liver fibrosis in ALD and usually not available in resource limited settings as in our case. Hence a screening tool based on biochemical test I.e. APRI can be used for assessing the severity in ALD using AST and platelet was done. These parameters are readily done in all centres for follow up of ADS cases.

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