

Clinical Evaluation of APRI as a Non-Invasive Screening Tool for Liver Fibrosis and Cirrhosis in Faisalabad, Punjab, Pakistan

Introduction

- In Pakistan, HBV and HCV both cause more than **75%** of cirrhosis-related morbidity and mortality, developing liver cirrhosis, a major public health burden.
- Liver biopsy is a **diagnostic gold standard**, which is invasive, expensive, and risky, which limits its routine use in areas with limited resources.
- Non-invasive** routine biomarkers such as Aspartate Amino Transferase-to-platelet Ratio Index (APRI) offers a reliable, low cost procedure for early liver disease screening by using routinely available laboratory parameters.



NORMAL

CIRRHOTIC

Objectives

- To evaluate the accuracy and clinical utility of APRI score as a non invasive, low cost screening diagnostic tool for liver **fibrosis** and **cirrhosis** among adult patients in Faisalabad
- To measure the statistical relationship between serum AST , Platelet counts and APRI score risk categories

Methodology

Study Design & Setting:

A prospective cross-sectional study was conducted at **six diagnostic centers in Faisalabad**. (N=247)Adults aged 18-70 (51.8% female, 48.2% male) were selected.

Sampling Technique:

Non-probability purposive sampling used. Patients with history of dengue, malaria, or blood transfusion within 14 days, NAFLD, hepatic malignancies, and prior liver transplantation were excluded.

APRI was calculated as:

$$APRI = \frac{(AST\ Level / AST\ Upper\ Limit\ of\ Normal)}{Platelet\ Count\ (10^9/L)} \times 100$$

Statistical analyses

Spearman's rank correlation and Receiver Operating Characteristic (ROC) curve analysis were performed using IBM SPSS.

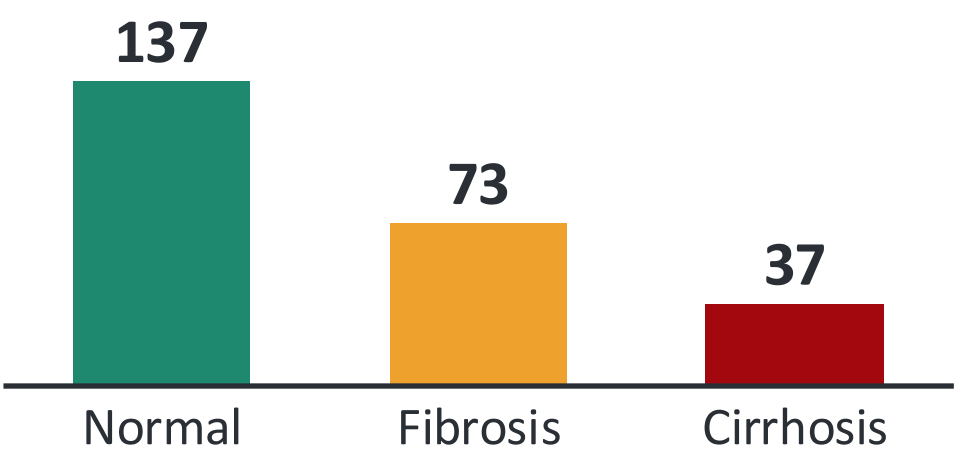
Results

Demographics:

The two most prevalent age groups were 31–45 years old (37.7%) and 46–60 years old (32.8%).

Distribution of APRI Scores:

- Normal** (<0.5) cut-off n=137 (55.5%)
- Fibrosis** (>1.5) cut-off n=73 (29.6%)
- Cirrhosis** (≥2.0) cut-off n=37 (15.0%)

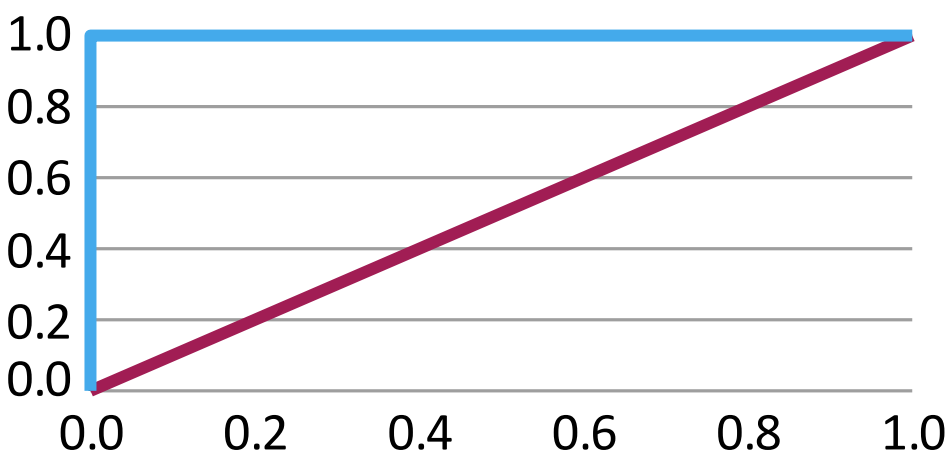


Correlation Analysis:

- According to Spearman's rho, Platelet count and AST had a strong negative correlation ($r = -0.817$, $p < 0.01$)
- APRI correlated positively with AST ($r = 0.951$) and a negatively correlated with platelets ($r = -0.930$)

Diagnostic Accuracy:

ROC curve analysis yielded An **AUC of 1.000** (**95% CI: 1.000–1.000; $p < 0.001$**) showing high diagnostic performance



Conclusions

- APRI showed **high diagnostic accuracy**, enabling early detection of for liver **fibrosis** and liver **cirrhosis** in Faisalabad, backed by strong correlations and perfect ROC classification.
- It remains an essential, **low-cost screening tool** for detection and reduces the clinical expenditure in Pakistan's resource-limited healthcare systems.

