

Combining Noninvasive Scores May Predict Patients With Advanced Liver Fibrosis More Accurately

George Trad, Karina Herrera, Robert J Pattison, John Ryan, Syed Abdul Basit
Comprehensive Digestive Institute of Nevada, Southern Hills Hospital & Medical Center, Las Vegas, Nevada, United States



GRADUATE
MEDICAL
EDUCATION
CONSORTIUM



Introduction

- Prevention of progression of Nonalcoholic Fatty Liver Disease to Fibrosis is essential to outcomes in NAFLD.
- AST/ALT score and AST to Platelet Ratio Index (APRI) score have been developed in the past to help appropriately predict the likelihood of liver fibrosis.
- AST/ALT score and AST to Platelet Ratio Index (APRI) score have been developed in the past to help appropriately predicting significant hepatic fibrosis in patients with chronic hepatitis C, chronic hepatitis B and non-alcoholic fatty liver disease.^{1,2}

Aim

To assess whether combining AST/ALT score and APRI score leads to higher accuracy for identifying patients with advanced liver fibrosis

Methods

- We performed a retrospective cohort study to evaluate the efficacy of combining AST/ALT score and APRI score in predicting advanced liver fibrosis compared to AST/ALT score and APRI score alone.
 - AST/ALT score ≥ 0.9 and APRI score > 0.7 were considered as the cutoff to diagnose patients with advanced liver fibrosis.
- Echosens FibroScan[®] results were used as the standard method to accurately assess and measure the stage of liver fibrosis.
- Patients who obtained FibroScan[®] were divided into two groups based on their FibroScan[®] results:
 - Group 1: Patients with fibrosis score of F1 and F2 (2kPa-10kPa).
 - Group 2: Patients with fibrosis score of F3 (10kPa-14kPa).

**Group 1 (145 subjects):
Classes F1 & F2**

Patients with mild to moderate or no scarring of the Liver

**Group 2 (44 subjects):
Class F3**

Patients with severe scarring of the liver

- Duration: 12 months.
- Demographics: age, gender.
- Outcome Measures
 - Sensitivity, specificity, positive likelihood ratio, negative likelihood ratio, positive predictive value, negative predictive value, and accuracy of AST/ALT score, APRI score, and the combination of AST/ALT and APRI scores were compared.

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.

Results

Table 1. General characteristics of the study participants.

Categories	Group 1: Classes F1 & F2	Group 2: Class F3
Number of patients	145 (76.72%)	44 (23.28%)
Males	69	21
Females	76	23
Average Age	50	55

Table 2. Participants' significant past medical history.

Categories	Group 1: Classes F1 & F2 (patients)	Group 2: Class F3 (patients)
History of hepatitis C only	21	9
History of alcohol dependence only	23	12
History of alcohol dependence and hepatitis C	3	2
No history of alcohol dependence or hepatitis C reported	98	21

- The Combination of AST/ALT and APRI scores resulted in a higher sensitivity, specificity, PPV, NPV, and accuracy in identifying patients with advanced liver fibrosis compared to AST/ALT score or APRI score alone (table 3).

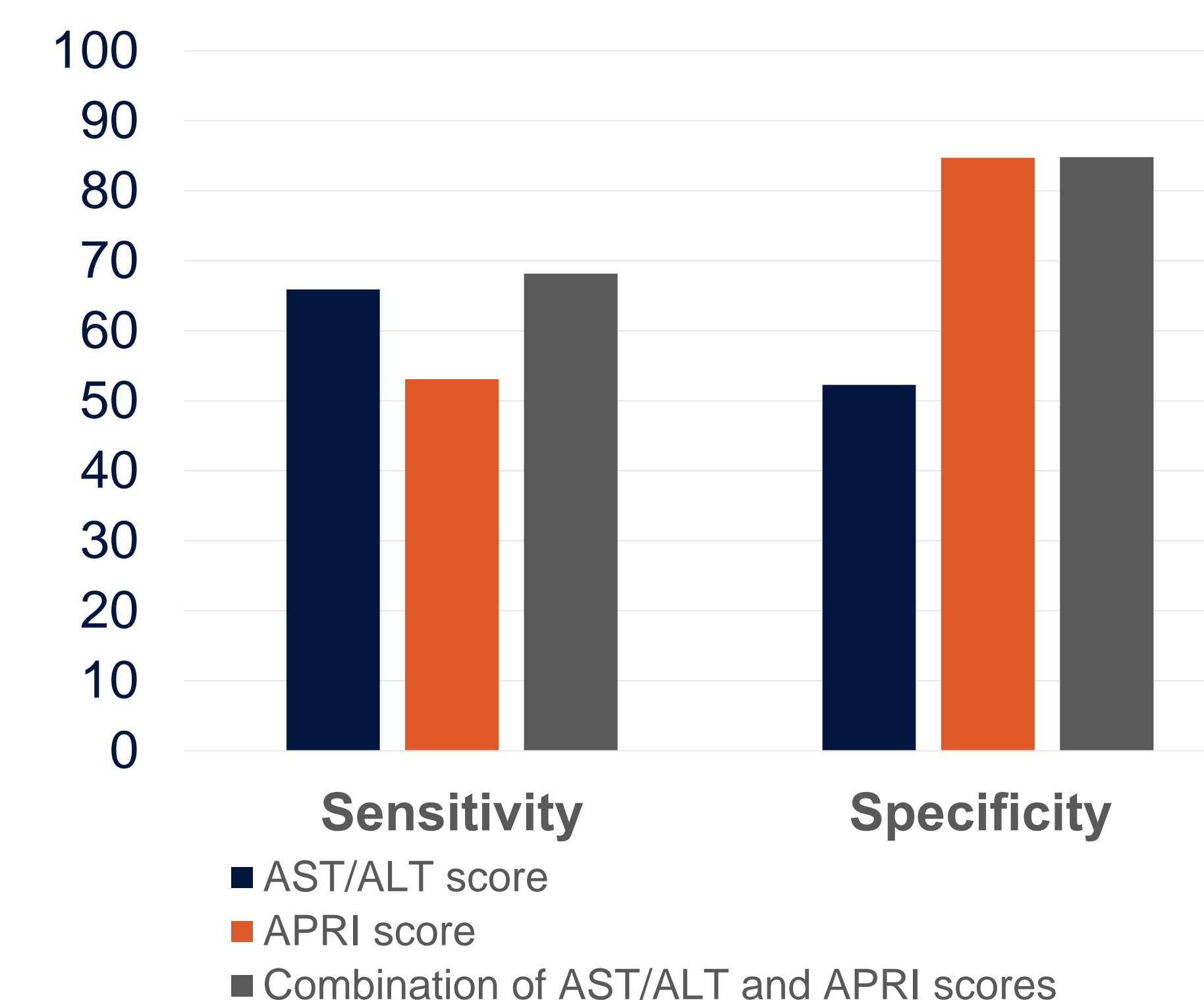


Figure 1. Sensitivity and specificity of Identifying patients with advanced liver fibrosis using AST/ALT score, APRI score and the combination of AST/ALT and APRI scores.

Table 3. Results of comparing AST/ALT score vs. APRI score vs. the combination of AST/ALT and APRI scores.

Statistic	AST/ALT score	APRI score	Combination of AST/ALT and APRI scores
Sensitivity	65.91%	52.27%	68.18%
Specificity	53.10%	84.73%	84.81%
Positive Likelihood Ratio	1.41	3.45	4.49
Negative Likelihood Ratio	0.64	0.56	0.38
Positive Predictive Value	29.92%	51.14%	57.69%
Negative Predictive Value	83.68%	85.40%	89.77%
Accuracy	56.09%	77.24%	80.94%

Conclusion

- Combining AST/ALT and APRI scores results in higher accuracy of identifying patients with advanced liver fibrosis.
- Combination of AST/ALT and APRI scores can be used as an appropriate substitute to diagnose advanced liver fibrosis when FibroScan[®] is not available.
- Given that these results are based on our retrospective study, additional randomized controlled studies are necessary to corroborate the beneficial effects of combining AST/ALT and APRI scores in identifying patients with advanced liver fibrosis when FibroScan[®] is not available.

References

1. Amernia B, et al. *BMC Gastroenterology* 2021; 21(1), 11-14.
2. Shah N, et al. *African Journals Online* 2017; 9(2), 12-17.

