

Introduction

- Variceal bleeding is the most dreadful complication of portal hypertension
- Current guidelines recommend periodic endoscopic surveillance for the detection of esophageal varices (EVs)
- However, due to its high cost and invasive nature, it is avoided by most of the patients.
- Non-invasive parameters might predict high risk esophageal varices without use of endoscopy

Aim

The aim was compare the diagnostic performance of different non-invasive indices in predicting high risk esophageal varices.

Proposed models for esophageal varices

- PCSD**- Platelet count($\times 10^9/\text{ml}$) /Splenic Diameter (cm)
- APRI**- $[(\text{AST}/\text{upper limit of the normal AST range}) \times 100]/\text{Platelet Count}$
- SPRI**-splenic stiffness(Kpa)/Platelet count($\times 10^9/\text{ml}$) index
- FIB-4**-Age (years) $\times \text{AST}$ (U/L)/ $[\text{PLT}(\text{10}^9/\text{L}) \times \text{ALT}^{1/2}$ (U/L)]
- ASPRI**-Age(in years) x Splenic stiffness(Kpa)/Platelet count ratio
- INPR**- International Normalized ratio (sec)/Platelet count($\times 10^9/\text{ml}$)
- LSSDPC**- Liver stiffness(Kpa) x Splenic stiffness(Kpa)/Platelet count ratio
- EVENDO**- $[(9.5 \times \text{international normalized ratio} + \text{aspartate transaminase}/35)/(\text{platelets}/150 + \text{blood urea nitrogen}/20 + \text{hemoglobin } 15)] + 1$ point for ascites.
- P²/MS ratio**- $[\text{Plt count } (10^9/\text{L})]^2 / [\text{monocyte fraction } (\%) \times \text{seg. neutrophil fraction } (\%)]$

Methods

- Cross-sectional study

INCLUSION CRITERIA	EXCLUSION CRITERIA
<ul style="list-style-type: none"> ➤ Recently diagnosed cirrhotic patient with age > 18 years and presence of esophageal varices on endoscopy were included in the study 	<ul style="list-style-type: none"> ➤ Patients with ascites ➤ Previous history of endoscopic intervention for esophageal varices ➤ Patients with liver cancer and other malignant tumors ➤ Patients with liver failure ➤ Patients with thrombocytopenia and splenomegaly caused by hematological diseases, splenectomy ➤ Patients on propranolol and other vasoactive drugs to reduce portal hypertension ➤ Patients with portal vein thrombosis ➤ ALT >10 times the normal upper limit, patients with infection

LOW RISK VARICES	HIGH RISK VARICES
<ul style="list-style-type: none"> ➤ Small esophageal varices without red wale sign. 	<ul style="list-style-type: none"> ➤ Small varices with red wale sign ➤ Medium to large sized esophageal varices

- Eighteen previously proposed predictive models were compared
- AUROC was obtained for these proposed models and diagnostic accuracy was calculated

Results(n=91)

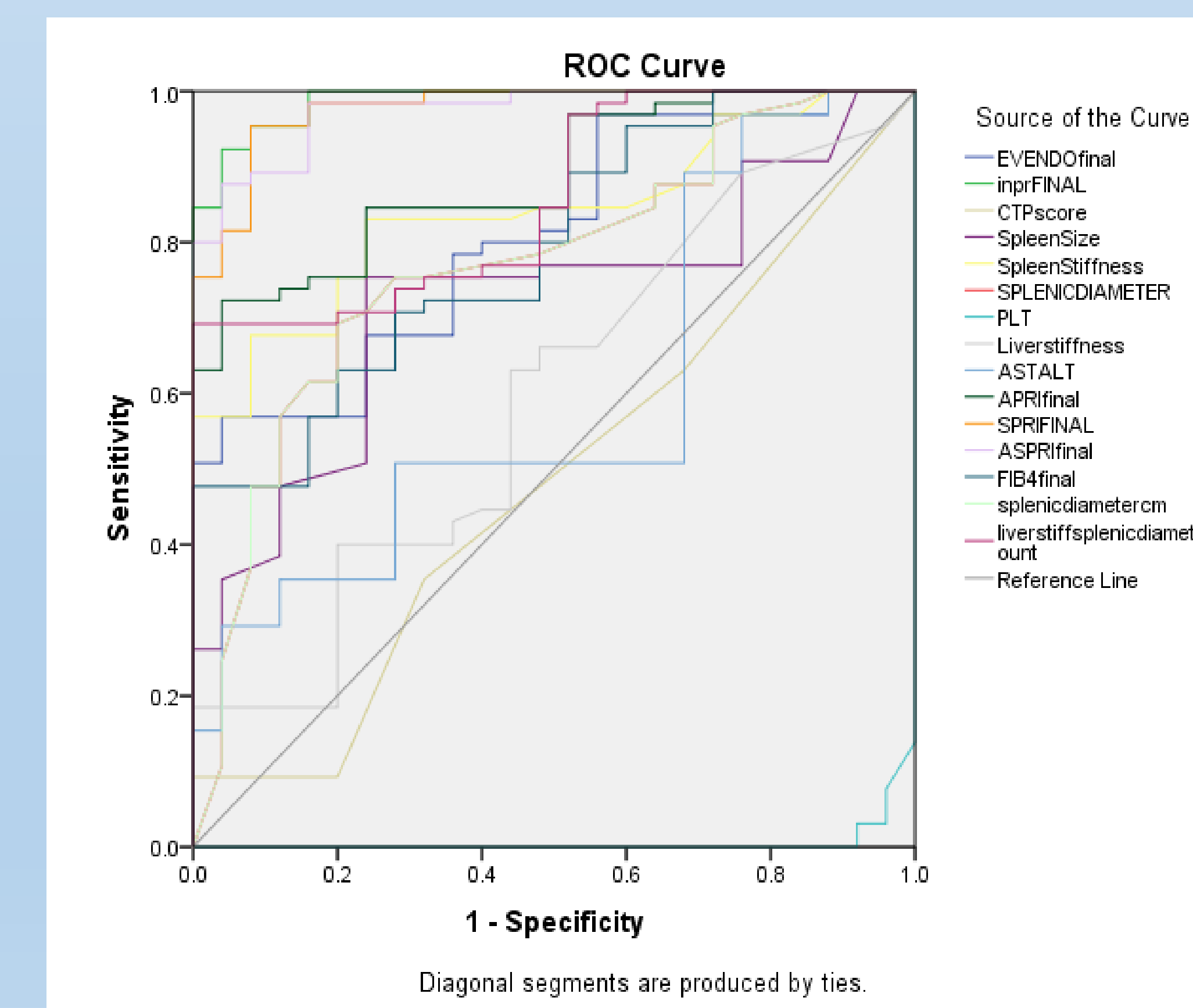
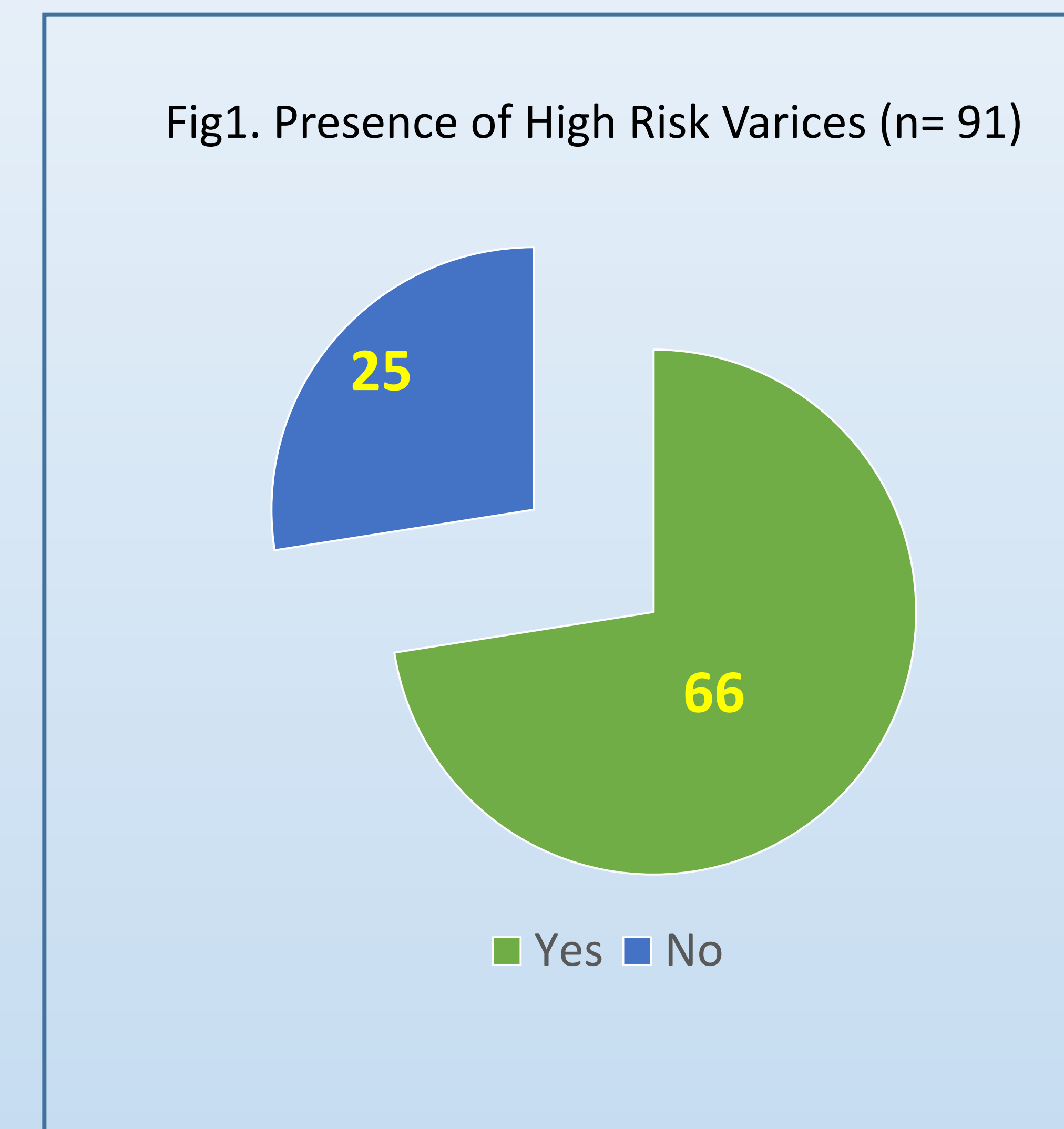


Figure 2 showing highest AUROC for INR to platelet ratio(AUROC-0.98)

Predictive model	ROC	Cutoff	SN	SP	PPV	NPV	DA
EVENDO	0.81	≥ 15	78.6%	64%	85.25%	53.33%	74.73%
INPR	0.98	≥ 1.1	95%	84%	94%	96%	95%
APRI	0.89	≥ 43	83%	68%	87.3%	60.71%	79.12%
ASPRI	0.97	≥ 15	97%	84%	94%	91%	93%
SPRI	0.98	≥ 16	94%	92%	97%	85%	94%
LSSDPC	0.86	≤ 0.02	86%	34%	76%	50%	71%
P2MS	0.90	≤ 16.2	57%	83%	82%	72%	81.82%
PCSD	0.98	≤ 634	86	96	98	72.7%	90%

Table 1-Diagnostic accuracy of different models in predicting high risk esophageal varices

Conclusion

Among the studied indices, Splenic stiffness to platelet count ≥ 16 is a reliable non-invasive bedside assessment tool for the detection of high risk esophageal varices with an excellent sensitivity, specificity and diagnostic accuracy.

However, further studies comprising of large sample size are required to validate these indices.