



NON-INVASIVE PREDICTOR OF HIGH- RISK ESOPHAGEAL VARICES: THE BAVENO VI VALIDATION STUDY IN CLINICAL PRACTICE

I Dewa Nyoman Wibawa , Cokorde Istri Yuliandari Krisnawardani K
Gastroenterohepatology Division, Internal Medicine Department, School of Medicine, Udayana University,
Denpasar, Bali, Indonesia.

ABSTRACT

Introduction: The Baveno VI consensus proposed patients with liver stiffness > 20 Kpa and platelet count < 150.000 have a high risk of moderate to large esophageal varices, therefore endoscopy screening must be done in these patients. On the other hand, patients with liver stiffness < 20 Kpa and platelet count > 150.000 do not need to perform endoscopy screening. This study aims to evaluate the Baveno VI recommendation as a non-invasive method that could predict the presence of high-risk varices.

Methods: A cross-sectional study was conducted in a single centre, involving a newly diagnosed non Child-Turcotte-Pugh (CTP) C class liver cirrhosis, without a history of variceal bleeding and beta-blocker consumption. All the subjects underwent endoscopy screening to determine the presence and grading of the esophageal varices. The esophageal varices were graded as low risk (grade <2) or high risk (grade ≥2). Liver stiffness and platelet were also measured. The patient was classified according to the Baveno VI criteria. Table 2x2 was used to identify the diagnostic performance of Baveno VI criteria.

Results: This study included 103 patients, the mean age was 53 ± 12.09 years and 80.6 % were male. The majority were CTP-A class (55.3%), and 44.7% were CTP-B class. The aetiology of liver disease was hepatitis B in 49 (47.6%), hepatitis C in 25 (24.3%), and other causes in 29 (28.2%). Esophageal varices were found in 59 (57.3%) patients, and the high-risk varices prevalence was 55.3%. Moderate to large varices were detected in 21 (36.8%) and 36 (63.2%) patients with CTP-A and CTP-B classes, respectively. About 83/103 (80.58%) fulfil the Baveno VI criteria, it was correctly predicted that 53.39% (55) of high-risk varices. About 33.7% of patients who did not have oesophageal varices were falsely predicted to have varices. The Baveno VI criteria had a sensitivity 96.49%, specificity 39.13%, positive predictive value 66.26%, negative predictive value 10%, positive likelihood ratio 1.58, and negative likelihood ratio 0.08 to predict high-risk varices.

Discussion: The Baveno VI can be used as a non-invasive method to predict high-risk oesophageal varices, which high sensitivity but low specificity. Further studies are needed in combination with other non-invasive tests to increase specificity so as to avoid unnecessary endoscopic examinations.

Keywords: Baveno VI, Cirrhosis, Non-invasive method, Oesophageal Varices.

I DEWA NYOMAN WIBAWA
UDAYANA UNIVERSITY, BALI ,INDONESIA.
agusbobwibawa@yahoo.com
Ph: 62811398032

INTRODUCTION

The Baveno VI consensus proposed patients with liver stiffness > 20 Kpa and platelet count < 150.000 have a high risk of moderate to large esophageal varices that's why the endoscopy screening must be done in these patients

Otherwise, patients with liver stiffness < 20 Kpa and platelet count > 150.000 do not need to perform endoscopy screening

This study aims to evaluate the Baveno VI recommendation as a non-invasive method that could predict the presence of high-risk varices so that patients with low risk could avoid the unnecessary endoscopy.

METHODS AND MATERIALS

A cross-sectional study was conducted in a single center involving a newly diagnosed non Child-Turcotte-Pugh (CTP) C class liver cirrhosis patients, without a history of variceal bleeding and beta-blocker consumption.

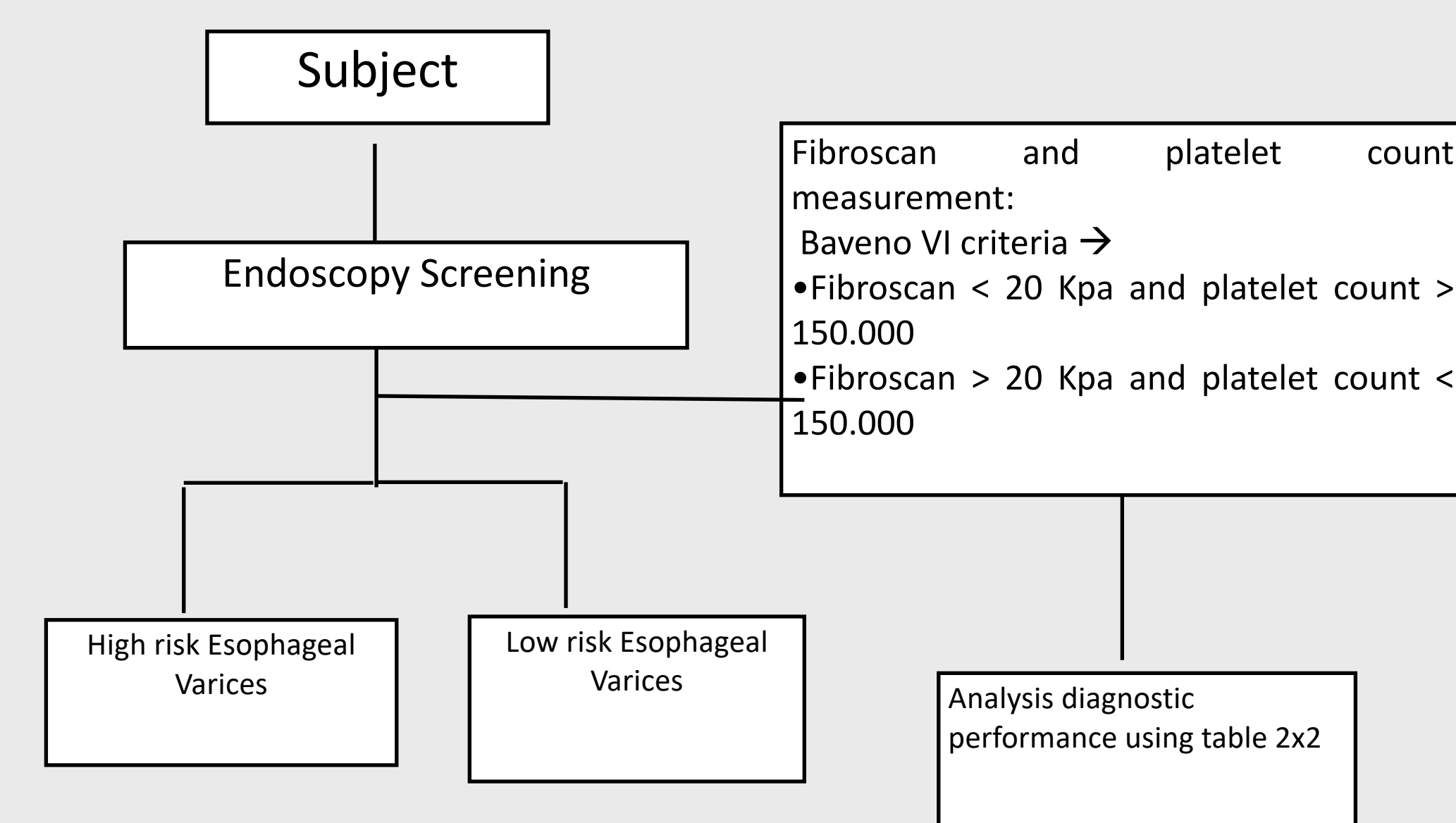
All the subjects underwent endoscopy screening to determine the presence and grading of the oesophageal varices.

The oesophageal varices were graded as low risk (grade <2) or high risk (grade ≥2).

Liver stiffness and platelet were also measured.

The patient was classified according to the Baveno VI criteria.

Table 2x2 was used to identify the diagnostic performance of Baveno VI criteria.



RESULTS

Subject Characteristic

Variables	Frequency/ Mean (n=103)
Age	53 ± 12.09
Sex	
Male	80.6% (83)
Female	19.4% (20)
Etiology of liver disease	
Viral hepatitis	
Hepatitis B	47.6% (49)
Hepatitis C	24.3% (25)
Others	28.2% (29)
Child-Turcotte-Pugh Classification	
A	55.3% (57)
B	44.7% (46)
Endoscopy (EGD)	
High risk Oesophageal varices	55.3% (57)
Low risk Oesophageal varices	44.7% (46)
BAVENO VI	
Fibroscan > 20 Kpa and platelet count < 150.000	80.6% (83)
Fibroscan < 20 Kpa and platelet count > 150.000	19.4% (20)

THE PRESENCE OF OESOPHAGEAL VARICES ACCORDING TO ENDOSCOPIC FINDINGS AND BAVENO VI CRITERIA

BAVENO VI CRITERIA	ENDOSCOPIC FINDINGS	
	HIGH RISK OESOPHAGEAL VARICES	LOW RISK OESOPHAGEAL VARICES
Fibroscan > 20 Kpa and Platelet count < 150.000	55	28
Fibroscan < 20 Kpa and Platelet count > 150.000	2	18

Sensitivity : 96.49 %

Specificity : 39.13 %

Positive predictive value : 66.26%

Negative predictive value : 10 %

Positive likelihood ratio : 1.58

Negative likelihood ratio : 0.08

DISCUSSION

High risk oesophageal varices were found in 21 (36.8%) patients with CTP A class and 36 (63.2%) patients with CTP-B class. These findings show the correlation between higher grades of varices with higher Child Pugh class. About 83/103 (80.58%) fulfil the Baveno VI criteria, it was correctly predicted that 66.26 % (55) of high-risk varices. Only 2 patients with high-risk varices were missed. These results support the application of the Baveno VI criteria in clinical practice and that a low proportion of patients with varices would be misclassified.

About 33.7% of patients who did not have oesophageal varices were falsely predicted to have varices by Baveno VI criteria.

CONCLUSIONS

- 1.The Baveno VI can be used as a non-invasive method to predict high-risk oesophageal varices, it has high sensitivity but low specificity
2. Future study is needed to combine other non-invasive parameters to increase its specificity so the subsequent negative endoscopy could be avoided.

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