

Study of Ratio of Platelet Count to Spleen Length in the Diagnosis of Oesophageal Varices in Liver Cirrhosis Patient

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Study Design: Review Article and Meta- analysis

Abstract:- With the increase in patient pool of liver cirrhosis patients need for oesophageal varices screening surged. So in our study we aimed to discover a less invasive and cheaper method for screening. Many studies were analysed and thoroughly searched and it was found that ratio of platelet count and spleen diameter can be used as an alternative to upper GI endoscopy in high risk patients.

Keywords:- Liver cirrhosis, Oesophageal Varices, Ratio of platelet count to spleen diameter.

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I. Introduction:-

Development of oesophageal varices in the patient of liver cirrhosis is a very common finding.¹ Prevalence of OV in patients with liver cirrhosis ranges from 60-80% and mortality 17-57%.²⁻⁵ Therefore early diagnosis of varices in cirrhosis patient is pivotal for the further management of the patient.⁶ Platelet count to spleen diameter ratio (PSR) was first proposed by Giannini et. al. in the year 2003 for predicting the presence of varices in the cases of liver cirrhosis.⁶

For screening of OV in cirrhotic patient frequent endoscopies are done which is an invasive, expensive and time consuming procedure.⁷ So in order to avoid unnecessary endoscopic examination this alternate modality was discovered and it has proven to be among the best non- invasive procedure.⁷

Although it has been observed that decreased platelet count and presence of splenomegaly can be due to other causes in a liver cirrhosis patient but to see the relation between the studied parameters we took the ratio of platelet count to spleen diameter.¹

II. Methodology:-

Data selection, data extraction and quality assessment of studies were conducted by the author. A thorough search was done in Google scholar and PubMed databases using keywords like liver cirrhosis, platelet count to spleen diameter ratio and references that were relevant were also screened and cross references from chosen articles were also checked for additional data. Duplicate and case reports were excluded. Included studies were those which showed a positive correlation between the development of oesophageal varices and PSR in diagnosed cases of liver cirrhosis.

III. Result:-

Although endoscopy still remains the gold standard for the diagnosis of oesophageal varices but in the patients of liver cirrhosis with high risk of developing oesophageal varices (low PC/SD ratio < 909) we can use this non invasive, time conserving and less expensive method.

Table 1: Comparison of characteristics of cirrhotic patients as per the study of giannini.

Variables	NOV	OV	p Value
PSR	1638(545-3500)	533(77-909)	<0.0001

NOV-no oesophageal varices;OV-oesophageal varices.

Table 2:Result of meta-analysis in subgroups for any varices.

Groups	Sensitivity (95% CI)	Specificity (95% CI)	PLR (95% CI)	NLR (95% CI)
Threshold of 909	0.84 (0.82-0.86)	0.80 (0.78-0.82)	3.95 (2.66-5.86)	0.21 (0.13-0.32)
Prevalence of varices				
<50%	0.91 (0.88-0.93)	0.86 (0.83-0.88)	5.29 (3.03-9.23)	0.11 (0.04-0.30)
≥50%	0.83 (0.81-0.84)	0.73 (0.70-0.75)	3.15 (2.45-4.05)	0.19 (0.13-0.26)

CI-Confidence Interval; NLR-negative likelihood ratio;PLR-positive likelihood ratio.

IV. Discussion:-

With the increase in the number of chronic liver disease patients, need for screening of oesophageal varices presence is also going to increase.⁸⁻⁹ So ratio of platelet count to spleen diameter could prove to be a more cost effective and a non invasive diagnostic modality. Both retrospective and prospective studies showed almost similar results.¹⁰

V. Conclusions:-

Aim of any screening or diagnostic procedure is earlier detection of a disease so that it can either be prevented or caught at an early stage, so that it can be managed accordingly. Endoscopy has proven to be the best for both screening as well as diagnosing the varices in liver cirrhosis patients but it had a downside of being invasive procedure. So in search of a less invasive solution we discovered that platelet count to spleen diameter ratio is a better alternative with good predictive value and is good for triaging the patients before performing an endoscopy. And it can also aid in better management of patients with higher risk of developing varices in liver cirrhosis disease.

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