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A STUDY OF CLINICAL PROFILE OF 50 PATIENTS WITH PORTAL HYPERTENSION AND TO EVALUATE ROLE OF NONINVASIVE PREDICTOROF ESOPHAGEAL VARICES

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INTRODUCTION

Portal hypertension (PH) is defined as an increase of portal venous pressure > 5 mmHg. The gold standard to measure portal venous pressure is the evaluation of hepatic venous pressure gradient (HVPG). Portal venous pressure can be assessed by HVPG, which is measured invasively by a balloon catheter inserted through the right jugular vein and assessed by the difference between free hepatic venous pressure and wedged hepatic venous pressure.A HVPG of 10 mmHg or higher is considered to be clinically significant portal hypertension (CSPH) and is associated with an increased risk of complications like gastrointestinal varices, ascitic decompensation, gastrointestinal hemorrhage from portal hypertensive collaterals and hepatic encephalopathy. Early diagnosis of CSPH is mandatory to optimize patient care and prevent hepatic decompensation(1). As a secondary event, portal hypertension induces splanchnic and systemic arterial vasodilation, leading to the development of a hyperdynamic circulatory syndrome and thereby aggravating and driving clinically detrimental complications(2). The Child–Turcotte–Pugh (CTP) and MELD scores are two of the most commonly used scores in everyday practice for patients with liver cirrhosis (3). A Platelet count-to-spleen diameter ratio (PSDR), platelet count, and spleen diameter have been suggested as possible non-invasive screening tools of EV as they are relatively simple and less expensive. These methods can be used for initiation of treatment with non-selective beta blocker and patient follow up, as well as prioritizing for endoscopy in resource constraint areas(4). Predictive models derived from these parameters were therefore constructed as surrogate tools for the prediction of OV or large OV [10–19]. None of these noninvasive means have been validated in patients with cirrhosis(5). Most of the reported variables are directly or indirectly associated with portal hypertension, such as decreased platelet count, splenomegaly and ascites. However, in patients with liver cirrhosis, the presence of decreased platelet count can be associated with several factors unrelated with portal

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hypertension, such as shortened platelets mean half life, decreased thrombopoietin production, or mielotoxic effects of alcohol. On the other hand, the presence of splenomegaly in cirrhotic patients is likely the result of vascular disturbance that are mainly linked to portal hypertension. Overall, no variable alone have enough power to assess the presence of esophageal varices without upper endoscopic study(6).

AIMS AND OBJECTIVES

▪ To study clinical and investigative profile in selected patients of Portal Hypertension.

▪ To study the predictive power of noninvasive investigative parameters for detection of esophageal varices in patients with Portal Hypertension as compared to invasive parameter (upper gastrointestinal endoscopy).

MATERIAL AND METHODS

▪ 50 patients with Portal Hypertension, between January 2023 to October 2023,were studied.

▪ Those who were diagnosed with hepatocellular carcinoma, metastasis in liver, parental drug addiction, H/O treatment taken for Portal Hypertension in the form of surgery or endoscopy banding or sclerotherapy were excluded.

▪ Detailed clinical history was taken and physical examination done.

▪ All patients underwent the required hematological, biochemical, radiological and endoscopic investigations.

CORRELATIONBETWEEN PLATELET COUNT AND ESOPHAGEALVARICES

Platelet count(cu mm/dl)	Grade 0	Grade 1	Grade 2	Grade 3
<50000	0	1	2	5
50000-100000	2	5	6	8
100000-150000	0	3	3	2
150000-200000	5	0	1	2
>200000	3	1	1	0

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CORRELATIONBETWEENSPLENIC SIZE AND ESOPHAGEALVARICES

Spleen(mm)	Grade 0	Grade 1	Grade 2	Grade 3
<120	4	3	1	1
>120	6	7	12	16

CORRELATIONBETWEENPLATELETCOUNT/SPLENIC SIZE AND ESOPHAGEAL VARICES

Platelet count/splenic size ratio	Grade 0	Grade 1	Grade 2	Grade 3
<500	0	3	4	10
500-1000	2	4	5	8
1001-1500	3	2	1	2
>1500	5	0	1	0

RESULTS

- Male preponderance(M:F=2.1:1),with mean age of 41 yrs.
- There was significant correlation between platelet count and esophageal varices. In present study, 68%(27/40)patients with esophageal varices had platelet count<100000/cu mm, while 80%(8/10) of patients without esophageal varices had platelet count >100000/cu mm.

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- 88%(35/40)patients with varices had spleen size>120mm. 44%(4/9)with normal spleen size had no varices.
- 93% (28/30) patients with grade 2 or 3 varices had spleen diameter >120 mm. 22% (2/9) patients with normal spleen size had Grade 2 or 3 esophageal varices .
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- Platelet count(cells/cumm)/splenic size(mm) showed a significant correlation between presence or absence and grade of esophageal varices.
- If a cut off value of 1000 is taken, then 85%(34/40)patients with esophageal varices had ratio <1000 , while 80%(8/10)of patients without varices had ratio >1000. It was also observed that lower the ratio, higher the grade of varices.

DISCUSSION

- Most commonly affected patients were middle aged males coming from lower socioeconomic class.
- Most common etiology for PORTAL HYPERTENSION was alcoholic cirrhosis of liver which is potentially preventable form.
- Abdominal distension was the most common specificpresenting complaint followed by jaundice and edema over feet, Pallor ,ascites were common sign followed by splenomegaly and icterus.
- Incidence of esophageal varices in patients with PORTAL HYPERTENSION is approximately 90-95% but only 30-50% develop variceal bleeding.
- Endoscopy is an invasive and costly diagnostic procedure. Therefore ,introduction of noninvasive parameter for assessment of presence and size of varices is a major goal of numerus studies.
- In general, most important noninvasive parameter of esophagealvarices are decrease platelet count and splenomegaly.
- This ratio will help to identify patients at higher risk for development of esophageal varices.
- It will provide insight into the relationship between clinical, biochemical, hematological imaging abnormalities and development of clinically significant esopahageal varices.

CONCLUSION

Portal hypertension is largely a preventable condition because the commonest etiology is

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alcoholism. Asymptomatic esophageal varices, which is quite common can be easily diagnosed with invasive endoscopy but also can be suspected with noninvasive platelet count/spleen size ratio in country like ours, where financial constraint is a main problem. It can be very useful and applicable at small centers likeCHC and PHC in our countrywith limited resources.

REFERENCES

1. Brol, M.J., Gödiker, J., Uschner, F.E. *et al.* Non-invasive Assessment of Clinically Significant Portal Hypertension. *Curr Hepatology Rep* **22**, 206–215 (2023). https://doi.org/10.1007/s11901-023-00609-4

2. : Iwakiri Y, Trebicka J, Portal hypertension in cirrhosis: Pathophysiological mechanisms and therapy, JHEP Reports (2021), doi: https://doi.org/10.1016/j.jhepr.2021.100316.
3. Glisic, T.; Stojkovic Lalosevic, M.; Milovanovic, T.; Rankovic, I.; Stojanovic, M.; Toplicanin, A.; Aleksic, M.; Milivojevic, V.; Martinov Nestorov, J.; Lolic, I.; et al. Diagnostic Value of Non-invasive Scoring Systems in the Prediction of Esophageal Varices in Patients with Liver Cirrhosis—Single Center Experience. *Medicina* **2022**, *58*, 158. https://doi.org/10.3390/medicina58020158
4. Haile Tesfaye Gebregziabiher, Workagegnehu Hailu, Zenahebezu Abay, Segenet Bizuneh, Meiraf Daniel Meshesha,Accuracy of non-invasive diagnosis of esophageal varices among cirrhotic patients in a low-income setting, Heliyon, Volume 9, Issue 12,2023, e23229,ISSN 2405-8440, https://doi.org/10.1016/j.heliyon.2023.e23229
5. Alassan Kouamé Mahassadi, Fulgence Yao Bathaix, Constant Assi, Aboubacar Demba Bangoura, Emile Allah-Kouadio, Henriette Ya Kissi, Abdoulaye Touré, Stanislas Doffou, Issa Konaté, Alain Koffi Attia, Mathieu Benoit Camara, Thérèse Aya Ndri-Yoman, "Usefulness of Noninvasive Predictors of Oesophageal Varices in Black African Cirrhotic Patients in Côte d'Ivoire (West Africa)", *Gastroenterology Research and Practice*, vol. 2012, Article ID 216390, 10 pages, 2012. https://doi.org/10.1155/2012/216390
6. Francisco Barrera, Arnoldo Riquelme, Alejandro Soza, Álvaro Contreras, Gerty Barrios, Oslando Padilla, Paola Viviani, Rosa María Pérez-Ayuso, Platelet count/spleen diameter ratio for non-invasive prediction of high risk esophageal varices in cirrhotic patients, Annals of Hepatology, Volume 8, Issue 4, 2009, Pages 325-330, ISSN 1665-2681, https://doi.org/10.1016/S1665-2681(19)31745-4.