Using dimeric to monomeric IgA ratio to diagnose portal hypertension in viral hepatitis: a pilot cohort study

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Background: Portal hypertension (PHT) diagnosis in liver cirrhosis is vital to prevent life-threatening complications, however endoscopy is difficult to access in remote/ low resource settings. Dimeric IgA to monomeric IgA ratio (dIgA ratio) is a potential biomarker of gut mucosal leakage in portal hypertension. We evaluated the diagnostic performance of a novel point-of-care (POC) dIgA ratio test for PHT.

Methods: Stored plasma samples and matched clinical data from people with viral hepatitis were used in this cross-sectional pilot study. 5mcL of plasma was applied to the POC dIgA ratio test and read <20 minutes using the Axxin hand-held reader. PHT was defined as platelet count < 150 and splenomegaly (liver ultrasound), or clinical evidence of portal hypertension on gastroscopy. Associations between dIgA ratio, PHT and clinical parameters were determined by linear and logistic regression. ROC analysis was used to determine diagnostic accuracy.

Results: 809 patients were included; 280 (29%) had cirrhosis, 508 (63%) had hepatitis B and 801 (19%) had hepatitis C, mean age was 47 +/- 12.9 years and 58% were male. 121 (9%) had PHT and 21 (2%) had current varices. Median dIgA ratio was higher in patients with PHT (1.14 vs 0.4, p<0.001), ascites (1.4 vs 0.7, p<0.001) and hepatic encephalopathy (1.4 vs 0.82, p<0.001). Diagnostic accuracy of POC dIgA ration was good for portal hypertension (AUROC 0.86, 95% CI 0.78-86); a POC dIgA ratio cutoff of 0.6 had sensitivity 84%, specificity 78%, PPV 40% and NPV 97% for PHT. In a subset with endoscopic confirmation of the presence of varices, POC dIgA had moderate sensitivity (71%), specificity (80%), high NPV (99%) but low PPV (10%) for oesophageal varices.

Conclusion: POC dIgA ratio test had good accuracy for the presence of PHT and varices. Further validation and cost-effectiveness studies in low-resource settings are warranted.

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