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Role of serotonin in detection of esophageal and fundal varices

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Portal hypertension is a major complication of liver cirrhosis and can be a direct cause of variceal hemorrhage and of bleeding related death. Oesophageal variceal bleeding is one of the most dreaded complications of liver cirrhosis because of its high mortality Prevalence of varices in patients with cirrhosis is 60-80% with incidence increasing 5% per year. The American Association of the Study of Liver Disease and the Baveno V Consensus Conference on portal hypertension recommended that all cirrhotic patients should be screened for the presence of O.V when liver cirrhosis is diagnosed Identification of non-invasive predictors of O.V and portal gastropathy will able us to carry out UGE in selected group patients thus avoiding unnecessary intervention and at the same time not missing the patients at risk of bleeding. Serotonin (5-hydroxytryptamine, 5HT) has been the subject of intense biological research since its synthesis in 1951.Erspamer and Asero.originally isolated a potent vasoconstrictor substance from the intestine, which they called enteramine. About 95% of serotonin in the body is found in the GI tract, of which 90% is in enterochromaffin cells (ECs) and 10% in enteric neurons. The remaining of serotonin (5%) is found in the brain. As serotonin cannot cross the blood-brain barrier, the brain must synthesize its own serotonin. Virtually all of the serotonin in the blood is derived from the GI tract With respect to the liver, it was found that serotonin has the ability to regulate hepatic blood flow at both the portal and sinusoidal levels Serotonin is able to induce the contraction of fenestrae which is achieved via a rapid influx of extracellular Ca2+ leading to activation of the myosin light chain In these cells serotonin also inhibits cAMP production, and activates phospholipase A2, causing the release of arachidonic acid The exact significance of these findings has not been fully qualified, it is, however, well established that SEC fenestrae play an important role in the exchange of fluid, solutes and particles between the parenchyma and the blood. Serotonin may therefore play a role in regulating the exchange of various fluids, solutes and particles across the space of Disse. Serotonin in these cells may also exert complex control over various aspects of inflammation and immunity since arachidonic acid is a precursor of various prostaglandins, prostacyclin, and thromboxane.

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