

Abstract:

Background: Critical illness is associated with the activation of the hypothalamic-pituitary-adrenal(HPA) axis, which is characterized by increased serum corticotropin and cortisol levels. In patients with severe sepsis, the integrity of the HPA axis can be impaired by several mechanisms. These patients typically have an exaggerated pro-inflammatory response and are considered to be relatively corticosteroid insufficient. This syndrome is referred to as critical illness-related corticosteroid insufficiency (CIRCI) which is characterized by insufficient corticosteroid mediated down regulation of inflammatory transcription factors. CIRCI occurs due to corticosteroid tissue resistance along with inadequate circulating levels of free cortisol. Numerous papers have reported a high incidence of adrenal failure in critically ill patients, including those with end stage liver disease and liver transplant recipients. The term hepatoadrenal syndrome i.e. Adrenocortical insufficiency in patients with liver cirrhosis has been used to describe such a relation between liver disease and adrenal failure.

Aim of the study: To assess the prevalence of adrenal insufficiency in patients with chronic liver disease and also to evaluate the correlation between adrenal insufficiency and the disease severity scores and the complications of chronic liver disease.

Patients and methods: Our study was a prospective study, conducted on 100 patients diagnosed with chronic liver disease admitted to our institution in the period between January 2013 and January 2014, who were fulfilling the inclusion and exclusion criteria. All patients underwent full clinical assessment, laboratory investigation Child. Pugh classification, Ultrasonography and upper GI endoscopy. The adrenal function of all patients was assessed by Serum Cortisol done after a overnight fasting, measured between 8.00 a.m. and 9.00 a.m. Serum cortisol level $<5 \mu\text{g/dl}$ is highly suggestive of adrenal insufficiency.

Results: Our study revealed that adrenal insufficiency was found in 29 (29%) patients out of the 100 patients subjected to this study. The degree of AI correlated with the disease severity as measured by CTP AI being reported in 10(28.6%) of patients with CTP B and 19(54.3%) of patients with CTP C and none of the patients in CTP A. Adrenal insufficiency is more prevalent in patients presenting with complications of chronic liver disease such as variceal bleed (45.2%), hepatic encephalopathy (38.5%), hepatorenal syndrome (55.2%) and spontaneous bacterial peritonitis (42.9%)

Conclusion: Adrenal Insufficiency occurs frequently in patients with liver cirrhosis both during critical illness and in stable disease. Adrenal insufficiency occurs more frequently in patients with more severe liver disease and

correlated with disease severity scores. Significant correlation was found between serum cortisol and serum bilirubin, variceal bleeding, CTP score and hepatorenal syndrome

Key words: Liver cirrhosis, child classification, hepatoadrenal syndrome, adrenal dysfunction, relative adrenal insufficiency, CTP score.