

SPOT URINE SODIUM TO POTASSIUM RATIO AS A TOOL TO ASSESS SEVERITY & MORTALITY AMONG PATIENTS WITH DECOMPENSATED CIRRHOSIS HAVING ASCITES

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Background: Decompensated cirrhosis (DC) of liver is considered as a systemic disease affecting the functions of several other organs. Renal function is an independent prognostic factor for patients with decompensated cirrhosis, but assessing renal function through glomerular filtration rate are not convenient, specially for routine use. Previous study found that spot urinary sodium to potassium ratio (UNa/K) was associated with renal dysfunction which influences the severity and outcome in decompensated cirrhosis of liver patients having ascites. The present study was aimed to determine the relation of the ratio of sodium to potassium in randomly collected urine samples (UNa/K) with severity of disease and mortality in decompensated cirrhosis having ascites. **Methods:** This longitudinal study was conducted at the Department of Gastrointestinal, Hepatobiliary and Pancreatic Disorders (GHPD), BIRDEM General Hospital, Shahbagh, Dhaka, Bangladesh, from July, 2019 to August, 2021. A total of 150 patients with a confirmed diagnosis of decompensated cirrhosis with ascites were enrolled in this study. A detailed history and thorough clinical examination were carried out in each patient, along with relevant investigations. Data collection was done through a structured questionnaire. Data were analyzed using the statistical software SPSS 23. **Results:** Age of the patients was 59.0±12.91(mean±SD) years, male predominance was observed (52%). The UNa/K ratio was 4.24±3.25(mean±SD) with a range of 0.42 to 18.46. Diagnostic accuracy of UNa/K ratio in the detection of severity and mortality was estimated by the receiver operating characteristic (ROC) curve. The AUC of UNa/K ratio was 0.608 and 0.640 for severity and mortality respectively. Sensitivity, specificity, PPV and NPV at cut-off 2.55 were 50.0, 66.0, 42.4 and 72.5; at 2.65 were 54.0, 66.0, 44.3, and 74.2; at 2.87 were 58.0, 62.0, 43.3, and 74.7; at 3.21 were 58.0, 58.0, 40.8, and 73.4 respectively for severity score(MELD). Patients with UNa+/K+ less than 2.87 or equal, had a significantly higher MELD score category (p= 0.02). At 3 months follow-up, 24.7% mortality was observed. Sensitivity, specificity, PPV and NPV at cut-off 1.62 were 51.4, 85.8, 54.3 and 84.3; at 1.79 were 54.1, 79.7, 46.5 and 84.1; at 1.83 were 59.5, 77.0, 45.8 and 85.3; at 2.87 were 58.0, 62.0, 43.3, and 74.7 respectively for mortality. The UNa/K ratio was statistically low among the patients who didn't survive (p<.05). **Conclusion:** This study revealed that decreased ratio of spot urinary sodium to potassium was associated with the severity and mortality among decompensated cirrhosis of liver patients with ascites.

Keywords: Spot Urine, Sodium Potassium Ratio, Decompensated Cirrhosis, Ascites

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