ORIGINAL RESEARCH

Analysis of serum renal profile in liver cirrhosis patients

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ABSTRACT
Background: The present study was conducted for analyzing serum renal profile in liver cirrhosis patients. **Materials & methods:** A total of 100 patients with diagnosis of Cirrhosis liver of varied etiologies were enrolled. Complete demographic and clinical details of all the patients was obtained. Blood samples were obtained and serum renal profile was evaluated. All the patients were graded according to Child-Pugh scoring. According to it, Grade A represented minimal severe grade while Grade C represented maximum severity. All the results were compiled and analyzed by SPSS software. **Results:** Mean blood urea levels and serum creatinine levels were found to be 38.14 mg/dL and 1.23 mg/dL respectively. Raised renal profile was present in 35 percent of the patients. While analyzing the correlation of renal profile with severity of liver cirrhosis, it was seen that higher severity grade of liver cirrhosis was associated with deranged renal profile. **Conclusion:** Renal profile should be carefully monitored in liver cirrhosis patients.
Key words: Cirrhosis, Liver

INTRODUCTION

Cirrhosis is defined as the histological development of regenerative nodules surrounded by fibrous bands in response to chronic liver injury, that leads to portal hypertension and end stage liver disease. Recent advances in the understanding of the natural history and pathophysiology of cirrhosis, and in treatment of its complications, resulting in improved management, quality of life and life expectancy of cirrhotic patients.[1-3]

Despite the global prevalence and disease burden of cirrhosis, there is less public awareness and concern regarding cirrhosis than for other common chronic diseases, such as congestive heart failure, chronic obstructive pulmonary disease, and chronic kidney disease. Currently, there remains an insufficient understanding of the clinical relevance of cirrhosis, which can therefore lead to unnecessary disease progression and outcomes.[4-6]

The spectrum of causes for AKI in cirrhosis includes (i) prerenal AKI (i.e. hypovolemia due to gastrointestinal bleeding, aggressive diuretic treatment, lactulose-induced diarrhea or infections), (ii) the hepatorenal syndrome-type AKI (HRS-AKI), which is defined as a potentially reversible deterioration of renal function unresponsive to volume resuscitation, caused by renal vasoconstriction in the absence of alternative identifiable causes, (iii) intrinsic causes such as acute tubular necrosis and, although very rare, (iv) postrenal causes.[7-9] Hence; the present study was conducted for analyzing serum renal profile in liver cirrhosis patients

MATERIALS & METHODS

The present study was conducted for analyzing serum renal profile in liver cirrhosis patients. A total of 100 patients with diagnosis of Cirrhosis liver of varied etiologies were enrolled. Complete demographic and clinical details of all the patients was obtained. Physical examination was concentrated to detect stigmata of chronic liver disease like clubbing in fingers and toes, central and peripheral cyanosis, presence of spider angioma, telangiectasia, jaundice, collateral veins in abdomen, ascites, level of consciousness, splenomegaly, dyspnoea, peripheral edema, palmar erythema and pleural effusion for underlying etiology. Second part of physical examination was done to look for any evidence of cardiac or renal involvement. Blood samples were obtained and serum renal profile was evaluated. All the patients were graded according to Child-Pugh scoring. According to it, Grade A represented minimal

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severe grade while Grade C represented maximum severity. All the results were compiled and analyzed by SPSS software. Chi-square test and one-way ANOVA were used for assessment of level of significance. P-value of less than 0.05 was taken as significant.

RESULTS

Mean age of the patients was 52.8 years. Majority proportion of patients were males and were of rural residence. Mean blood urea levels and serum creatinine levels were found to be 38.14 mg/dL and 1.23 mg/dL respectively. Raised renal profile was present in 35 percent of the patients. While analyzing the correlation of renal profile with severity of liver cirrhosis, it was seen that higher severity grade of liver cirrhosis was associated with deranged renal profile.

Table 1: Distribution of subjects according to Blood Urea levels

Serum creatinine levels	Number	Percentage
Normal	65	65
Raised	35	35
Total	100	100

Table 2: Distribution of subjects according to Serum Creatinine values

Serum creatinine levels	Number	Percentage
Normal	65	65
Raised	35	35
Total	100	100

DISCUSSION

Cirrhosis can arise in consequence of an exogenous/toxic, infectious, toxic/allergic, immunopathological/autoimmune, or vascular process or an inborn error of metabolism. The commonest causes of cirrhosis in Germany are alcoholic and non-alcoholic fatty liver disease and viral hepatitis (B or C). Cirrhosis usually develops from chronic hepatitis and transitions into compensated cirrhosis, after which there is a progression into decompensated cirrhosis. The early diagnosis of LC is difficult due to the absence of overt symptoms, the patient's neglect and a lack of appropriate biomarkers. Traditional liver biopsies have been widely accepted as the gold standard for the evaluation of liver fibrosis and liver parenchymal inflammation. Although liver biopsies are very safe with the use of ultrasonic guidance, these biopsies are still invasive procedures.[10-12]Hence; the present study was conducted for analyzing serum renal profile in liver cirrhosis patients.

Mean age of the patients was 52.8 years. Majority proportion of patients were males and were of rural residence. Mean blood urea levels and serum creatinine levels were found to be 38.14 mg/dL and 1.23 mg/dL respectively. Raised renal profile was present in 35 percent of the patients. While analyzing the correlation of renal profile with severity of liver cirrhosis, it was seen that higher severity grade of liver cirrhosis was associated with deranged renal profile. In the early 2000s, the model for end-stage liver disease (MELD) score emerged as a simple, more objective, alternative to Child–Pugh score. The 3 variables entered in the MELD score have been selected on the basis of statistical analysis, not empirically. The weight associated to each of the variables also derives from statistical analysis. Interestingly, besides serum bilirubin and international normalized ratio (INR) which are basic markers of liver function, the third component of the MELD score, serum creatinine, is essentially a marker of renal function. This finding highlights the prognostic significance of the interactions between liver function and renal function in cirrhosis. The value of creatinine weighs heavily on the MELD score. As an example, an increase in serum creatinine from 1 to 1.5 mg/dl (88 to 132 μmol/L) in a patient with a bilirubin of 2.9 mg/dl (50 μmol/L) and an INR of 1 results in a 40% increase in the MELD score.[13-15]Wang, Dexinet al investigated the estimated glomerular filtration rates of chronic hepatitis B (CHB) patients with or without liver cirrhosis, and to explore the related risk factors.A total of 559 CHB patients were enrolled. Liver cirrhosis was diagnosed with ultrasound. The Child-Pugh scoring system was used to stage patients with liver cirrhosis. The Modification of Diet in Renal Disease (MDRD) formula was used to calculate the estimated glomerular filtration rate (eGFR).A total of 296 patients were involved. The results showed that the incidence of renal impairment in patients with liver cirrhosis was 8.45% (25/296). The incidence of renal impairment in Child-Pugh C patients was significantly higher than that in Child-Pugh B and Child-Pugh Grade A patients (i.e., 17.2% [17/99] vs 6.67% [7/105] vs 1.09% [1/92], respectively, P < .001); age, hyperuricemia, and Child-Pugh score are all risk factors for impaired renal function.With the deterioration of liver function in patients with cirrhosis, the incidence of impaired renal function has increased significantly, and renal function should be closely monitored to guide patients in clinical medication.[16]

CONCLUSION

Renal profile should be carefully monitored in liver cirrhosis patients.

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