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PREVALENCE OF OSTEOPENIA, OSTEOPOROSIS AND HYPOVITAMINOSIS D IN PATIENT OF CIRRHOSIS OF LIVER AND THEIR CORRELATION WITH SEVERITY

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Background: Hepatic osteodystrophy is a frequent late complication in chronic liver diseases in which patients usually present with bone mineral density reduction, osteopenia, and osteoporosis and fractures. Hepatic osteodystrophy is an important extrahepatic manifestation of advanced liver disease mimicking features of classical osteoporosis with an increased risk for fractures. Cirrhotic patients present with lower levels of 25-hydroxyvitamin D and 1, 25 dihydroxy vitamin D. They also have diminished bone mineral density, most frequently in the spine.

Objective: The present study was conducted with an objective to assess osteopenia & osteoporosis and measure the concentrations of 25-hydroxy vitamin D in patients with cirrhosis of liver and their correlation with severity.

Materials and Methods: This cross-sectional analytical study was conducted in the Department of Gastroenterology, BSMMU, Bangladesh during the period of January 2016 to September 20017. 70 eligible patients more than 18-year-old, diagnosed with chronic liver disease/Cirrhosis were enrolled. They were subjected to haematological, biochemical investigations, evaluation of Vitamin D. Bone Mineral Density (BMD) was estimated by Dual Energy X-ray Absorptiometry (DEXA). Patient's samples were collected, tested and results recorded.

Results: A total of 70 patients with mean age 51.5±10.1 years (M-51.4%) were included in the study. Among them 7(10%) patients had normal BMD while 63 (90%) had a low BMD. Out of these 63 patients, 10 (14.3%) were diagnosed to have osteopenia and 53(75.7%) were found to have osteoporosis. The prevalence of low BMD in patients of cirrhosis of liver were 90% among them 14.3% were osteopenia and 75.7% were osteoporosis whereas prevalence of Serum 25 (OH) D were 92.9%. In bone marrow density based on CTP scoring we found that in CTP-A, higher number of patients were in osteoporosis (37.71%) followed by osteopenia and normal. In the CTP-A, B and C higher number of patients were in osteoporosis group. The difference in prevalence of osteopenia and osteoporosis among various Child groups was not significant statistically. Mean S. vitamin 25(OH)D were 24.9±6.3, 13.6±5.2 and 10.4±4.4 in Child-Pugh A, Child-Pugh B and Child-Pugh C stages respectively. Mean S. vitamin 25(OH)D was gradually decreased as the changes of stage from lower to higher. Vitamin D levels and severity of liver disease had linear correlation with low BMD.

Conclusion: Among the liver diseases patients 90% of them were with Low BMD. The prevalence of low BMD in patients of cirrhosis of liver were 90% among them 14.3% were osteopenia and 75.7% were osteoporosis whereas prevalence of Serum 25 (OH) D were 92.9%. There were no correlations with gender, severity of liver disease by CTP score and etiology of liver cirrhosis did not determine hepatic osteodystrophy. There was linear decreased in mean s. vitamin 25(OH) D as the changes of stage from lower to higher. Routine vitamin D testing and early scanning for osteoporosis in patients with liver cirrhosis will reduce the risk of morbidity and mortality.

BIOGRAPHY

Mukesh Prasad Sah is an assistant professor at KIST Medical college and teaching Hospital, Nepal. He is the member of the Nepalese Association of Surgical Gastroenterology (NASG) and Nepalese society of Gastroenterologist. He was medical officer and tutor at JMC Teaching Hospital, Nepal (2009-2011), and has completed his sMD residency (2018) in gastroenterology from Dhaka, Bangladesh. His areas of interest and research works are in metabolic liver disease and Gut microbiota.

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