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Cirrhosis of the Liver and Incidence of associated Osteoporosis.

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Abstract:

Objective: The main aim of this study is to find the incidence of osteoporosis (a bone weakening and breaking disease) in cirrhosis of the liver.

Place and Duration of the Study: This study was carried out in services hospital Lahore in a period of 8 months form May 2018 to December 2018.

Materials and Methods: Patients were selected who presented in the medical department of Services hospital Lahore. Patients were selected randomly and only those patients were selected who were willing to take part in this study. Mean age of the patients was between 40 t0 70 years and all the patients had cirrhosis of the liver either due to Hepatitis B or C. On DEXA scan T score <2.5 was considered to have osteoporosis. Informed consent was taken from all the patients.

Results: A total of 50 cases were seen with cirrhosis of the liver and included 18(36%) and 32(64%) males. Mean age of the patients was 47 years. 14(28%) of the patients had osteoporosis. More males 10 (31.25%) were affected with osteoporosis. In age group 56 to 70 years the incidence was much higher. Duration for which the patient had cirrhosis had no significant effect on the incidence.

Conclusion: Almost every 4th to 5th case of cirrhosis of the liver suffers from osteoporosis which is neglected mostly and not given significance. In people with higher age the complication is more frequent.

Keywords: T-score, Osteoporosis, DEXA scan. Cirrhosis

Introduction: Cirrhosis is defined as fibrosis of the liver that ultimately results in liver failure. Inflammation, regrowth and then fibrosis occurs during different phases. All the processes are irreversible that results in fatal health problems and can even lead to the death of the patient. Incidence rate is variable in different countries but in under developed countries like India, Bangladesh and Pakistan higher incidence rate is seen. Multiple serious complications like encephalopathy, ascites, hepato-renal syndrome, osteoporosis and vericeal hemorrhages can occur. In past a little attention has been paid to the osteoporosis associated with liver cirrhosis but recently focus has increased showing varying association of the osteoporosis with liver cirrhosis. In this disease, density of minerals in bone is decreased. Higher tendency of bone demineralization is seen in cirrhotic patients in comparison with non-cirrhotic patients as shown in these studies. In general population frequency varies from 20 to 420 in 100000 people. Other etiological factors like genetics, old age, female gender, smoking habits, less exposure to sunlight and other associated factors like DM and alcoholism have significance role in development of osteoporosis. Multiple cytokines and other mediators like insulin growth like factors and fibronectin haven been shown to play significant role but alone mechanism of liver causing the osteoporosis is still debatable. DEXA scan is the most frequently used entity for measuring bone density. Osteoporosis was found in 26% of the cases by Javed M et al in his study while 38% incidence was seen by Cijevschi C et al.

Materials and Methods: Patients were selected who presented in the medical department of Services hospital Lahore. Patients were selected randomly and only those patients were selected who were willing to take part in this study. Mean age of the patients was between 40 t0 70 years and all the patients had cirrhosis of the liver either due to Hepatitis B or C. On DEXA scan T score <2.5 was considered to have osteoporosis. Informed consent was taken from all the patients.

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Table: Cirrhosis with Regard to Cofounders:

	Variables	Osteoporosis	
		Yes	No
Gender	Male	10 (31.25%)	22 (68.75%)
	Female	04 (25%)	14 (75%)
Age Group	40-55	02 (14.28%)	12 (85.72%)
	56-70	12 (33.33%)	24 (66.67%)
Duration of liver Cirrhosis	< 5 years	04 (28.57%)	10 (71.43%)
	> 5 years	10 (27.77%)	26 (72.23%)

Discussion: Ascites, portal hypertension, esophageal webs, cyanosis, clubbing of the nails and multiple other systemic issues can arise because of cirrhosis that increases the death rate in patients. Multiple systems are damaged due to cirrhosis which increases the morbidity and other associated complications like decreased oral intake, reduced exposure to sunlight that leads to osteoporosis. Incidence of the osteoporosis associated with cirrhosis of the liver is seen in 14 (28%) of the cases which is in accordance with the previous studies in which incidence rate of 20-50% was seen in case of cirrhosis. The variability among the results usually arise due to different guidelines used and different bones used for scan. Heel and vertebrae are mostly used bones. In the study by Javed M et al incidence of osteoporosis was 26% where he used the same parameters as in this study yielding the matching results. People between the age of 56 to 70 years, ratio was significantly high effecting 12 (33.3%) cases. Increasing age had been shown to have significant correlation with osteoporosis in previous studies. It has been explained by the fact that disease has been present for longer duration in people with higher age. Old age itself is the biggest risk for osteoporosis.

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