



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1484466>Available online at: <http://www.iajps.com>

Research Article

**ASSOCIATION OF CHRONIC LIVER DISEASE WITH  
DEFECTIVE BONE MINERALIZATION**<sup>1</sup>Dr. Ammara Ibrahim, <sup>2</sup>Dr. Fawad ul haq, <sup>3</sup>Dr Aamir Hamid<sup>1</sup>King Edward Medical University Lahore<sup>2</sup>District Head Quarter Teaching Hospital Dera Ismail Khan<sup>3</sup>Latin-American School Of Medicine, Cuba**Abstract:**

**Objective:** To find out the prevalence of osteoporosis among patients suffering from cirrhosis of liver. **Methodology:** This cross sectional study conducted over 30 to 70 years old cirrhotic patients, who were diagnosed for more than a year.

**Result:** After data collection osteoporosis was confirmed by finding T score on DEXA scan which if more than 2.5 was considered positive for osteoporosis. Total participants were 250, male to female ratio was 152 and 98, respectively. Results: the mean age of participants was 46.4 years. 34% were affected with osteoporosis. 36 out of 9 were females, 49 out of 152 were males. Thus osteoporosis was more prevalent in females. P value was 0.09. Osteoporosis was more common in patients suffering from cirrhosis for more than 3 years. **Conclusion:** Osteoporosis is more prevalent in female patients suffering from liver cirrhosis for more than 3 years. The results of study are presented in tabular form. 152 were males while 98 were females, out of 250 patients. The females were more commonly suffering from osteoporosis after hepatic cirrhosis as compared to males.

**Conclusion:** Osteoporosis is more prevalent in female patients suffering from liver cirrhosis for more than 3 years. Thus accurate bone density assessment should be done among patients with cirrhosis in order to avoid fractures and disabilities associated with this complication.

**Keywords:** Cirrhosis, osteoporosis, prevalence, DEXA scan.

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Please cite this article in press Ammara Ibrahim et al., Association of Chronic Liver Disease with Defective Bone Mineralization., Indo Am. J. P. Sci, 2018; 05(11).

**INTRODUCTION:**

Liver cirrhosis is the chronic liver disease which is characterized by replacement of liver parenchyma with the fibrous tissue. It has multiple etiologies including viral infections, autoimmune, alcoholic, drug induced etc. [1]. Higher incidence of osteoporosis was observed in patients with liver cirrhosis. Thus bone density should be studied more accurately in those suffering from chronic liver disease [2]. According to an estimate over 200 million patients suffer from osteoporosis thus causes must be sorted out in order to avoid disabilities and fractures as a result of that [3]. Osteoporosis risk estimation in chronic liver disease patients was also done and found out to be higher than normal individuals in a study conducted by Cijevski C, et al [4].

**METHODOLOGY:**

The study was conducted at department of internal medicine Nishtar hospital, Multan following cross

sectional study design over a period of one year from January 2017 to January 2018. 250 known cases of cirrhosis for more than a year were included in study. The age of patients was from 30 to 70 years. The clinical findings of cirrhosis like ascites, shrunken liver, hypoalbuminemia, increased PT, were included. Patients having co-morbid conditions like end stage renal disease, diabetes mellitus and heart diseases were not included. DEXA (Dual Energy Xray Absorbometry) scan was done, T score less than 2.5 was considered significant. P value less than 0.05 was considered significant. Chi square test was applied.

**RESULTS:**

The results of study are presented in tabular form. 152 were males while 98 were females, out of 250 patients. The females were more commonly suffering from osteoporosis after hepatic cirrhosis as compared to males.

Table: 1 Study variables.

Study variables	Mean	Range
Duration of cirrhosis	6.7±3	3 years
Age	45.7±6.8	30-70

Table:2 Osteoporosis and its relation with variables.

Variables		Osteoporosis	
		Yes	No
Gender	Male	49/152	53/152
	Female	36/98	62/98
Age	40 to 53	9 (10%)	75 (90%)
	55 to 65	71 (42%)	95 (57.2%)
Duration of cirrhosis	Less than 3 years	16.5%	83.5%
	More than 3 years	59%	49%

**DISCUSSION:**

Serum vitamin D level is low in almost 2/3<sup>rd</sup> of patients with chronic liver disease. Despite of this, incidence of osteopenia is lower in cirrhotic individuals. However the incidence of osteoporosis is present in 12 to 55% of patients suffering from liver disease. The prevalence has decreased as compared to last two decades, it was 26-57% previously [5]. The disease is labeled as osteodystrophy, including bone disorder associated with cirrhosis of liver which includes osteoporosis and rarely osteomalacia.

Osteoporosis is defined as reduced bone mass, which leads to higher rate of bone fractures, as compared to

normal individuals. Vitamin D deficiency and

osteoporosis are very common complications associated with chronic liver disease. More than 1/4<sup>th</sup> patients with chronic liver disease have osteoporosis [6].

Six case control studies were compared and meta analysis was done regarding prevalence of osteoporosis in cirrhosis, the prevalence was found to be higher in CLD patients as compared to control. Total 372 cirrhotic and 1272 controls were included in this meta analysis, p value was less than 0.0001 [7].

In a study conducted by Jordi Sanchez-Delgado, prevalence of osteoporosis and fractures in patients with hepatic cirrhosis and investigation of the associated factors POC was studied, results were in favour of the higher prevalence of understudy problem among cirrhotic individuals [8].

#### CONCLUSION:

Osteoporosis is more prevalent in female patients suffering from liver cirrhosis for more than 3 years. Thus accurate bone density assessment should be done among patients with cirrhosis in order to avoid fractures and disabilities associated with this complication.

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