



CHRONIC LIVER DISEASE; VITAMIN D DEFICIENCY IN THE PATIENTS

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INTRODUCTION

Chronic liver disease is the histological enlargement of the regenerative nodules enclosed via fibrous bands due to chronic liver injury.^{1,2} Compensated chronic hepatic disease is often 30 to 40%, asymptomatic and unsuspected awaiting appears complications.³ In situation of decompensation, patients with CLD generally present with ascites, portal hypertension, jaundice, gastrointestinal hemorrhage, SBP and the hepatic encephalopathy.⁴ Chronic liver disease results by several pathologies, together with viral hepatitis, schistosomiasis, alcohol abuse, metabolic diseases, drug toxicity and congenital abnormalities.^{5,6} HCV is a common cause of liver diseases overall the world regarding south Asia.⁷ Pakistan having common risk factors are commercial (road side) barbering,⁸ needles in healthcare settings, injection drug users (IDUs),

ABSTRACT... Objective: The objective of this study to detect the vitamin D deficiency associated to different risk factors in the patients with CLD. **Study Design:** Descriptive study. **Setting:** MMC Mirpur Khas and LUH Jamshoro / Hyderabad. **Period:** Nov 2013 to Apr 2014. **Patients and Methods:** All the cases with chronic liver disease and cirrhosis were included in the study after diagnosis. All the patients with HCC, diabetes and with renal failure were excluded from the study. Assessment of CLD causes was carried out by routine investigation, ultrasound of abdomen and patient's personal history. Furthermore to assessment of vitamin D status, by measuring serum concentration level as 25(OH) of the vitamin D. Blood sample of all the cases were send to the Diagnostic and research Laboratory of LUMHS. **Results:** Male were found in the majority 60.0% and female 40.0%, with the mean age of (mean±SD=49.8±6.5). Deficiency of the vitamin D was calculated according to different causes in according Vitamin D classification as; (Mild class 20–31 ng/ml), (Moderate class 7–19 ng/ml) and (Severe class <7 ng/ml). In the mild class HBV infected patients 78.95% were most common. In moderate class HBV +HCV infected patients were most common 52.94%. Patients with history of alcohol were found in majority with severe deficiency of vitamin D 57.14%. **Conclusion:** In this study we concluded that vitamin D deficiency increases with increases of liver severity, it's mostly found in the HCV infected and alcoholic liver disease, these patients should take vitamin D regularly, and food which contains rich source of Vitamin D.

Key words: Deficiency of vitamin D, CLD.

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dental practice and household contacts/spousal transmission.⁹ In the United States chronic liver diseases the 12th most common cause of death.

Vitamin D is strong immunomodulator which favors natural immunity and cell separation.^{11,12} Increased construction of 1,25-dihydroxy vitamin D3 results in the combination of cathelicidin, a peptide capable of destroying several viral infectious agents as well as "Mycobacterium tuberculosis".¹³ Deficiency of vitamin D is most common in 92% patients with CLD, and as a minimum 1/3rd from them having severe deficiency of vitamin D (<12 ng/mL).¹⁴ Israeli patients from different ethnic surroundings are on top risks of deficiency of vitamin D.¹⁵ Petta et al,¹⁵ reported the low serum vitamin D level associated to severe fibrosis and low responsiveness to interferon based therapy in genotype 1 CHC. Southern et al,¹⁷

have retrospectively shown that supplementation of vitamin D recovers the SVR in patients with hepatitis C genotype II-III, with mild to moderate fibrosis. Pakistan has a large burden of CLD,¹⁸ and GEV hemorrhage is very important cause of admission to hospital. Hospital mortality is very high from 8%-50%.¹⁹ Purpose of the present study to determine the vitamin D deficiency related to different risk factors in the patients with CLD and cirrhosis, this study may helpful to decrease the vitamin D deficiency, because it have important roll to healing the different diseases including hepatic damage and its complications.

MATERIALS AND METHODS

This descriptive study was carried out at MMC Mirpur Khas and LUH Jamshoro/Hyderabad. This study was contains total 150 patients, with duration of time, from November 2013 to April 2014, including both gender. All the cases with chronic liver disease and cirrhosis were included in the study after diagnosis. All the patients with HCC, diabetes and with renal failure were excluded from the study. Routine lab, investigations along with complete examination physical and the abdominal ultrasound were done to diagnosis of chronic liver disease. Assessment of CLD causes was carried out by routine investigation, ultrasound of abdomen and patient’s personal history. Furthermore to assessment of the status of Vitamin D, by measuring serum concentration level as 25(OH) vitamin D. Blood sample of all the were send to the Diagnostic and research Laboratory of Liaquat medical University hospital Hyderabad. Vitamin level was defined as mild (20–31 ng/ml), moderate (7–19 ng/ml) and severe (7 ng/ml).²¹ All the record was documented on proforma. Data was analyzed on SPSS program version 16.0.

RESULTS

Total 150 patients were selected in the study. Male were found in the majority 60.0% and female 40.0%, with the mean age of (mean±SD=49.8±6.5), mostly patients were belongs to urban areas 69.3% and 30.7% cases came from rural areas of anterior Sindh. Table-I.

ALT was calculated as (mean±SD=51±55) in all

the cases. Table-I

Characteristics	No. of patients / (%)
Age (mean±SD)	49.8±6.5
Gender	
Male	90/(60.0%)
Female	60/(40.0%)
Residential status	
Rural	46/(30.7.0%)
Urban	104/(69.3%)
ALT (mean±SD)	51±55

Table-I. Demographic characteristics of the patients. N=150

HCV was found most common 53.34% from all the causes of CLD, while HBV, HCV+HBV, Alcohol and Unknown causes were noted with percentage of 12.66%, 11.34%, 14.0% and 8.66% respectively. Table-II

Causes	No. of patients/(%)
HCV	80/(53.34%)
HBV	19/(12.66%)
HCV+HBV	17/(11.34%)
Alcohol	21/(14.0%)
Unknown	13/(8.66%)

Table-II. Causes of CLD. N=150

Vitamin D diffidence was calculated according to different causes in according Vitamin D classification as; (Mild class 20–31 ng/ml), (Moderate class 7–19 ng/ml) and (Severe class 7 ng/ml). In the mild class HBV infected patients 78.95% were most common, whereas; HCV infected were 56.25%, HCV+HBV infected 41.17%, Alcoholic infected 28.58% and patients with unknown causes were found in this class 38.46%. Table-III

In moderate class HBV+HCV infected patients were most common 52.94%, and HCV infected were 25.0%, HBV infected 15.79%, Alcoholic infected 14.28% and patients with unknown causes were noted in this class 46.16%. Table-III

Patients with history of alcohol were found in majority with severe deficiency of vitamin D 57.14%, while HCV, HBV, HCV+HBV infected patients and with Unknown causes were documented as percentage 18.75%, 5.26%, 5.89% and 15.38% respectively. Table-III

Risk factors	Vitamin D			Total
	Mild (20–31 ng/ml)	Moderate (7–19 ng/ml)	Severe (\leq 7 ng/ml)	
HCV	45(56.25%)	20(25.0%)	15(18.75%)	80(100%)
HBV	15(78.95%)	03(15.79%)	01(5.26%)	19(100%)
HCV+HBV	07(41.17%)	09(52.94%)	01(5.89%)	17(100%)
Alcohol	06(28.58%)	03(14.28%)	12(57.14%)	21(100%)
Unknown	05(38.46%)	06(46.16%)	02(15.38%)	13(100%)

Table-III. Vitamin D deficiency associate to different risk factors. N=150

DISCUSSION

Deficiency of vitamin D and osteomalacia was explained in chronic cholestatic disease of liver, like as PCB primary biliary cirrhosis.²² However, the frequency of deficiency of the vitamin D, specifically in alcoholic (ALC), has not been well described. A short data reported that there is a great incidence of lack of deficiency of the vitamin D in the cases with CLD.^{23,24}

In the study of Arteh J et al,¹⁶ reported that mean of the patients with CLD and deficiency of the vitamin D, as 53.2 ± 8.9 years, and also found ALT (mean \pm SD 60 ± 69 years). Similarly In this study mean age was noted as; (mean \pm SD= 49.8 ± 6.5 years), and ALT was calculated as (mean \pm SD= 51 ± 55) in all the patients. Anty R et al,²⁵ suggested that in the study male were in the majority. Falleti et al,²⁶ also found male in the majority with deficiency of the vitamin D, with chronic HCV. In this series male were found in the majority 60.0% as compare to female 40.0%.

A the study on vitamin D and chronic HCV by Edmondo Falleti et al,²⁶ suggested that 46.1% patients had deficiency of the vitamin D, (20 ng/mL). Low vitamin D levels (20 ng/mL) were detected in 95/206 patients with chronic hepatitis C, very low vitamin D levels (10 ng/mL) were detected in 32/206 patients with chronic hepatitis C. Jevora DI et al,²⁷ mentioned Above the 80% cases by HCV infected were with vitamin D deficiency. Farnik et al²⁸ quantitatively examined the levels of serum 25(OH)D in 203 untreated chronic hepatitis B patients, and found that there were 47% with deficiency of the vitamin D. In this series vitamin D diffidence was calculated according to different causes in according Vitamin D classification as; (Mild class 20–31 ng/ml), (Moderate class 7–19

ng/ml) and (Severe class \leq 7 ng/ml). In the mild class HBV infected patients 78.95% were most common, whereas; HCV infected were 56.25%, HCV+HBV infected 41.17%, Alcoholic infected 28.58% and patients with unknown causes were found in this class 38.46%.

Arteh J et al,¹⁶ reported in HCV cirrhosis group, 16.3% had mild and 48.8% had moderate deficiency of the vitamin D. In the hepatitis C non cirrhotic group, 22.8% had mild, and 52.6% had moderate deficiency of the vitamin D, furthermore he suggested in the non-hepatitis C cirrhosis group, 38.9% had mild, and 27.8% had moderate deficiency of the vitamin D. In the present study, in moderate class HBV+HCV infected patients were most common 52.94%, and HCV infected were 25.0%, HBV infected 15.79%, Alcoholic infected 14.28%and patients with unknown causes were noted in this class 46.16%.

Mikkel Malham et al,²⁹ suggested that the patients Alcoholic cirrhosis patients 18% having severe deficiency of vitamin D. Farnik et al²⁸ reported 34% HBV patients were with severe vitamin deficiency (<10 ng/mL). Arteh J et al,¹⁶ mentioned in HCV cirrhosis 30.2% patients were with severe deficiency of the vitamin D. In the hepatitis C non cirrhotic group, 14% cases were with severe vitamin D deficiency and 27.8% patients had severe deficiency of the vitamin D. Similarly in the present study patients with history of alcohol were found in majority with severe deficiency of vitamin D 57.14%, while HCV, HBV, HCV+HBV infected patients and with Unknown causes were documented as percentage 18.75%, 5.26%, 5.89% and 15.38% respectively.

CONCLUSION

In this study we concluded that vitamin D

deficiency increases with increases of liver severity, it's mostly found in the HCV infected and alcoholic liver disease, these patients should take vitamin D regularly, and food which contains rich source of Vitamin D. Because it is suggested that in many studies decreases of vitamin D level having good association with the severity of chronic viral hepatitis, non-alcoholic fatty liver disease and other CLD.

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PREVIOUS RELATED STUDY

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