A Reterospective Study to Asses the Prevalence of Type 2 Diabetes Mellitus among Patient with Chronic Liver Disease at a Selected Hospital in Kancheepuram District, Tamil Nadu

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Abstract

A Retrospective study was conducted to assess the prevalence of type 2DM among chronic liver disease in a selected hospital at Kelambakkam, Tamil Nadu. The objectives were to assess the prevalence of type 2DM among patient with chronic liver disease by collecting the data from the medical records of the patients and to find the association between type 2 diabetes mellitus with the selected demographic variables among patient with chronic liver disease. The literature review was done and organised under various aspects on studies related to prevalence of type 2DM among patients with CLD. The research approach used for the study was quantitative approach and the design was non- experimental retrospective design, 50 samples were participated in the study by using convenient sampling technique. Demographic variables are assessed by using the statistical measurement and prevalence of type 2DM among patient with chronic liver disease. The level significance selected was $p<0.05$ level. The collected data was tabulated and analysed by using inferential statistics. The study showed that there is significant association between type 2DM with selected demographic variable.

Keywords: *Diabetes mellitus, chronic liver disease.*

Introduction

Liver disease has increased over the last few decades, with its incidence estimated to be 39.4 per 100,000 inhabitants. Mortality trends from liver disease have increased considerably[1]. For example, in 2002 liver diseases represented the fifth leading cause of death in the general population, whereas in 2007 liver disease became the third leading cause of death, after cardiovascular disease and T2DM. The most common liver diseases include fatty liver disease, such as alcoholic and NAFLD, infection with HAV, HBV and HCV, hemochromatosis and advanced disease states such as NASH, cirrhosis, liver failure and HCC. Autoimmune hepatitis and drug induced liver disease also have an important impact on the liver[2].With the increase in the elderly population, the prevalence of various chronic diseases including type 2 diabetes mellitus (T2D) and chronic liver disease (CLD) are also rising. CLD consists of various liver diseases with recurring damage and recovery of hepatic parenchyma, resulting in fibrosis of liver and eventually leading to liver cancer[3]. Causes of CLD include toxins, viral infections, alcohol and nonalcoholic fatty liver that increase with obesity. Cirrhosis of liver exemplifies end-stage chronic liver disease and its prevalence is rising worldwide[4]. In China, major known causes for cirrhosis of liver include hepatitis B virus (HBV) or hepatitis C virus (HCV) infection and excessive alcohol consumption. In particular, HCV infection is a significant health problem and differs from other hepatitis viruses in that it is a systemic disease, rather than just a liver disorder[5].

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Recently, numerous extrahepatic manifestations of HCV infection have been reported; these include cardiovascular, central nervous system, renal and metabolic diseases. Studies that have assessed the association between DM or insulin resistance (IR) and HCV infection clearly demonstrated a significantly higher incidence of DM in patients with chronic HCV than in the general population and showed that HCV is significantly more common in patients with DM. The prevalence of diabetes is increasing worldwide and it is expected to affect around 300 million adults all over the world and around 57 million in India by the year 2025[6]. Chronic liver diseases (CLDs) are arising in a diabetic patient as a cause or effect of diabetes[7]. Association between diabetes mellitus (DM) and liver cirrhosis was first described by Bohan and named as hepatogenous diabetes by Megyesi et al in which 57% of cirrhotic patients showed increased insulin resistance. Up to 80% of patients with cirrhosis may be glucose intolerant and between 10% and 20% may be clinically diabetic[8].

Objectives:

1. To determine the prevalence of type 2 diabetes mellitus among the adult population.
2. To correlate the presence of diabetes with clinical features of selected demographic variables.

Method

Research Approach: Non-experimental research approach was used.

Research Design: Aretrospective research design was used.

Research Setting: The study was conducted at a selected Hospital, Kanchipuram District.

Data collection procedure: Data was collected over one week.

Statistical Method: Descriptive statistics like frequency distribution, percentage and inferential statistics chi-square test was used to analyze the data.

Result

The study revealed that from this year 2017, 50 patients suffered from chronic liver disease from those 24 patients had type 2 diabetes mellitus.

Table 1: Demographic distribution N=50

Si.No.	Characteristics	Category	Sample	
			Frequency	Percentage
1	Age	30-60	39	78%
		60 Above	11	22%
2	Gender	Male	35	70%
		Female	15	30%
3	Glycemic Status	FBS	29	58%
		PPBS	12	24%
		RBS	15	18%
4	HbA1C	Normal	20	40%
		Abnormal	30	60%
5	Albumin	Normal	38	76%
		Abnormal	12	24%
6	Globulin	Normal	21	42%
		Abnormal	29	58%
7	Bilirubin	Normal	11	22%
		Abnormal	39	78%

Majority (78%) of the samples belonged to age group of 30-60 years, whereas only (22%) were in age group of above 60 years. (70%) of the samples belonged to male gender and (30%) of the samples belonged to female gender. The large proportion of laboratory findings of fasting blood glucose is of (58%) among

the sample (24%) has laboratory value of post prandial blood glucose. Among the sample laboratory value of random blood glucose is of (18%)having laboratory value of HBA1C normal (40%) and abnormal (60%). globulin is of normal(48%) abnormal (52%) albumin is of normal (76%) abnormal (24%). Bilirubin is of normal (22%) abnormal (78%).

It shows the frequency and percentage distribution of prevalence ofof type 2 diabetes mellitus among chronic liver disease, 44%of sample were occur type 2 diabtes mellitus among chronic liver disease, 56% of sample were not occur type 2 diabetes mellitus among chronic liver disease.

Table 2: Occurrence of type 2 diabetic mellitus among chronic liver disease

Si.No.	Occurrence of type 2 diabetic mellitus among chronic liver disease	Frequency	Percentage
1.	Present	22	44%
2.	Absent	28	56%

Table 3 : Association withtype 2 diabetes mellitus and demographic variables

Characteristics	Category	Yes	No	CHI Square Value P Value
Age	30-60	26	13	X^2 =0.938 P=0.3328 (The result is not significant)
	Above 60	9	2	
Gender	Male	24	11	X^2 =0.344 P = 0.5577 (The result is not significant)
	Female	9	6	

It shows that in 2017,50 patients suffered from chronic liver disease from those 24 patients had type 2 diabetes mellitus. There is no significant association between type 2 diabetes mellitus with the selected demographic variables of patients with chronic liver disease like age, gender, albumin and globulin. There is a significant association between type 2 diabetes mellitus with the selected demographic variables of the patients with chronic liver disease like blood glucose test (fasting blood glucose, post prandial glucose, random blood glucose) HBA1C, bilirubin.

Conclusion

The findings of the study revealed that there shows that in 2017,50 patients suffered from chronic liver disease from those 24 patients had type 2 diabetes mellitus. There is a significant association between type 2 diabetes mellitus with the selected demographic variables of patients with chronic liver disease like age, gender, albumin and globulin. There is a significant association between type 2 diabetes mellitus with the selected demographic variables of the patients with chronic liver disease like blood glucose test (fasting blood glucose, post prandial glucose, random blood glucose) HBA1C, bilirubin.

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