Original Research Article

Etiology of fatty liver - Cause and effectiveness

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Abstract

Background: The incidence of fatty liver in India is estimated to be around 9-32% with higher incidence in diabetics, obese and dyslipidemic patients. The incidence is increasing with the non-invasive investigation of ultra-sound abdomen and greater awareness of patients opting for Master Health Checkups.

Aim of the study: The aim of the study was to analyze the causative factor of fatty liver and their relative incidence in the patients who reported to out-patient clinic with Master Health Checkup details.

Materials and Methods: The analysis was performed as an out-patient procedure by scrutinizing the master health checkup results. Interview technique was used to collect information on a predesigned protocol. The patients with ultrasound abdomen report revealing fatty liver were all taken up for the study which included both male and female patients.

Results: The main cause for alcoholic fatty liver was consumption of alcohol. There was a positive history of alcohol intake in 43 patients out of 122 patients studied (35%). The remaining percentage comes under Non Alcoholic Fatty Liver Disease (NAFLD) and the various causes include obesity (91%) Dydlipidemia (96%), Diabetes Mellitus (47.5%). Hypothyroidism was present in 3 patients and 5 patients had no other specific risk factors probably belonging to idiopathic group.

Conclusions: Males constitute 71% and females 29%, out of 122 patients studied with fatty liver. The causes are alcohol (35%), obesity (91%), dyslipidaemia (96%), diabetes mellitus (47.5%) were found in this study.

Key words

Fatty liver (Steatohepatitis), Non Alcoholic Fatty Liver Disease (NAFLD), Alcoholic fatty liver disease, Body Mass Index (BMI), Obesity, Dyslipidemia.

Introduction

The incidence of fatty liver in India is estimated to be around 9-32% with higher incidence in obesity, diabetes mellitus and dyslipidemia. Alcoholic fatty liver is produced by alcohol intake. There is a history of alcohol intake in 43 patients constituting 35% of alcoholic steatohepatitis [1, 2]. The other entity of non-alcoholic fatty liver disease (NAFLD) constitutes the balance with various etiologies like obesity (91%) dyslipidemia (96%), diabetes mellitus (47.5%). Hypothyroidism was seen in three patients and 5 patients had no specific cause belonging to idiopathic group. Fatty liver is defined as deposition of fat exceeding 5% of weight of liver. Sometimes NASH associated with effect of a drug or bariatric surgery [3]. Obesity, diabetes mellitus and dyslipidemia are the most common conditions associated with steatohepatitis. Diabetes mellitus and insulin resistance may aggravate the underlying fatty liver even in the absence of overt diabetes [4]. The metabolic syndrome also leads to progression of fatty liver [5, 6].

Materials and methods

The study was conducted entirely as an out-patient procedure. 122 patients who underwent master health checkup with ultra-sound evidence of fatty liver were taken up for the study. It was an observational type of study. Interview technique was used to collect information from a predesigned proforma and the data from master health checkup were taken up for analysis of other parameters. The patients with ultrasound abdomen report revealing fatty liver were taken up for the study which included both males and females.

Exclusion criteria: The patients without ultrasound findings of fatty liver were not taken up for this study and excluded.

Results and Discussion

In the study of 122 patients with ultrasound evidence of fatty liver 87 were males and 35 were female patients. There was a history of alcohol intake in 43 male patients which may account for alcoholic steatohepatitis with a relative incidence of 49% of total male patients. 64% of patients with fatty liver had non-alcoholic fatty liver disease (NAFLD) in which obesity constituted (91%) dyslipidemia (96%) and stands out as an independent risk factor [7]. The number of patients with increased TGL >150 mg% (90.3%) total cholesterol >200 mg% (64.5%). In one study severe steatosis was associated with 70% increase in LDL level. Almost all the patients except 5 showed elevated LDL cholesterol in the dyslipidemic group [7]. The prevalence of fatty liver was more in males with male: female ratio 87:35. Hyperuricemia was noted in the range of males having >6 mg% and females >5 mg accounting to 37% of incidence [8]. For assessing obesity Body Mass Index (BMI) the following criteria were used [9, 10].

25-29.9 - overweight (class 1)
30-34.9 - class 2 obesity
35-39.9 - class 3 obesity
>40 - morbid obesity

In this study 2 patients had morbid obesity and 7 patients belonged to class 3 obesity. 50% of patients belonged to overweight category which resemble to one previous study [11, 12] and 33% belonging to class 2 obesity. 7.4% of patients had BMI of less than 25 and 2 patients had BMI of less than 20. Most of the patients were asymptomatic and few had dyspeptic symptoms, reduced appetite and tiredness. Multiple lipomas were seen in 2 patients and 3 patients had non tender hepatosplenomegaly. In this study youngest patient was 27 years old and oldest was 84 years. The number of patients divided as per age groups and their relative incidences were as per **Table - 1**.

The increased incidence noted in the young and middle age may be due to the influence of fast foods containing high calorific values. Weight loss and diet control may be pivotal in preventing progression of further deposition of fats in hepatocytes and regression of fatty deposits.

Table – 1: Age distribution.

Age (Years)	No. of patients	%
27-40	45	36.8
41-50	33	27
51-60	27	22
>60	17	14

Conclusion

In this study, 122 patients with fatty liver was analyzed. History of alcohol intake was obtained in 43 patients making 35%. Male: female ratio 87:35 with a relative incidence of 71% and 29% respectively. The incidence of obesity contributes 91% dyslipidemia was seen almost in all patients except 5 patients accounting to 96%. Fatty liver is more seen in young and middle aged groups because of higher association of obesity and dyslipidemia.

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