Original Article

Glycemic Status and Lipid Profiles Changes among the Incidentally Diagnosed Fatty Liver Patients

Md. Atiqul Islam[1], Ashraf Uddin Khan[2], Md. Abdullah Yusuf[3], Shahana Nasrin[4], Mohammadunnabi[5], AHM Rowshon[6]

[1]Junior Consultant, Department of Medicine, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh; [2]Assistant Professor, Department of Radiology and Imaging, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh; [3]Assistant Professor, Department of Microbiology, National Institute of Neurosciences & Hospital, Dhaka, Bangladesh; [4]Medical Officer, Department of Paediatrics, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh; [5]Assistant Professor, Department of Medicine, Abdul Malek Ukil Medical College, Noakhali, Bangladesh; [6]Professor, Department of Gastroenterology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

Abstract

Background: Fatty liver disease is common condition. **Objective:** The purpose of the present study was to see the glycemic status and lipid profiles changes among the incidentally diagnosed fatty liver patients. **Methodology:** This was an observational descriptive study conducted in the Department of Gastroenterology at Shaheed Suhrawardy Medical College & Hospital, Dhaka, Bangladesh from the duration of January 2010 to July 2010 for a period of six (6) months. Seventy patients attending indoor or outdoor of Shaheed Suhrawardy Medical College & Hospital Dhaka, diagnosed ultrasonographically as fatty liver who were met the inclusion and exclusion criteria were recruited. Those subjects who were presented at the outdoor and/or indoor in the hospital for different health problems and were diagnosed as fatty liver on the basis of USG findings were included for this study. Patients of fatty liver diagnosed incidentally by ultrasound, performed for other purposes were planned for study. Blood samples were taken for analysis of risk factors after completing the physical examinations. **Result:** A total number of 70 patients were recruited for this study. Among the study population, 48 (68.57%) were between 20-50 years of age, 6 (8.57%) were less than 20 years and 16 (22.85%) were more than 50 years. Regarding Glycemic status, 15(21.42%) cases were Diabetic, 25(35.71%) cases had impaired glucose tolerance and 30(42.85%) cases had normal blood sugar. Regarding dyslipidaemia, 51(72.85%) cases had high triglyceride level (>150 mg/dl); 42(60%) cases had hypercholesterimea (>200 mg/dl); decreased HDL (<40 mg/dl) in 37 (52.85%) cases and increased LDL (>150 mg/dl) in 21(44.28%) cases. **Conclusion:** In conclusion the abnormal gycemic status and dyslipidemia is present in the incidentally diagnosed fatty liver patients. [Journal of National Institute of Neurosciences Bangladesh, 2016; 2(1): 26-29]

Keywords: Glycemic status; lipid profiles; fatty liver; incidentally diagnosed

Introduction

Fatty liver means the accumulation of excess fat >5-10% of the weight of the liver specifically in the liver cells[1-2]. It is also called steatosis. A verity of terms have been used to describe this entity, including fatty liver hepatitis, non-alcoholic laennec's disease, diabetic hepatitis, alcohol like liver disease. Non-alcoholic fatty liver disease (NAFLD), the preferred term & it refers a

wide spectrum of liver damage ranging from simple steatosis to steatohepatitits, advance fibrosis & cirrhosis[3].

It is now clearly decided that NAFLD is strongly associated with metabolic syndrome. Insulin resistance is the fundamental pathophysiology. Obesity & diabetes are two major risk factors[4]. Hypestriglyceridaemia & hypertension are frequently associated with NAFLD. For diagnosis of NAFLD requires the exclusion of alcohol abuse as the cause of liver disease. The precise diagnosis of NAFLD and the distinction between hepatic steatosis and steatohepatitits requires a liver biopsy[5].

For invasive nature of liver biopsy and the lack of effective treatment, patient and physician are off often reluctant to pursue diagnosis with vigor. To know the etiologies of faulty changes of liver will help in taking appropriate measure to treat those conditions in order to prevent complications in the form of fatty liver[6]. This may help in reduction of liver related morbidity & mortality. No study is so far done in Bangladesh so far in this regards. Therefore, this present study was undertaken to see the glycemic status and lipid profiles changes among the incidentally diagnosed fatty liver patients.

Methodology

This was an observational descriptive study which was conducted in the Departemtn of Gastroenterology at Shaheed Suhrawardy Medical College & Hospital, Dhaka, Bangladesh from the duration of January 2010 to July 2010 for a period of six (6) months. Seventy patient attending indoor or outdoor of Shaheed Suhrawardy Medical College & Hospital Dhaka, diagnosed ultrasonographically as fatty liver who were met the following inclusion and exclusion criteria were recruited. Those subjects who presented at the outdoor and or indoor in the hospital for different health problems and diagnosed as fatty liver on the basis of USG findings. Liver biopsy could be the best to diagnose fatty liver as it is the gold standard. But, as we are taking otherwise normal subjects for study, they may not agree to have these invasive procedures done on them. Subject who took Alcohol on the regular basis, subject who were unwilling to be include in this study or did not give consent, extreme of age and presence of co-morbid condition, such as stroke, unconscious, heart failure were excluded from this study. Patients of fatty liver diagnosed incidentally by ultrasound, performed for other purposes were planned for study. Seventy patients who meet the inclusion and

exclusion criteria and gave the informed written consent to be included in the study were finally selected. Data were collected by using a semi structured questionnaire by the researcher with face to face interview. Blood samples were taken for analysis of risk factors after completing the physical examinations. Results of physical examination and blood sample were entered in to a computer generated analysis program. Data were entered in a previously prepared computer program. The numerical data obtained from the study were analyzed by using computer based Statistical Programs for Social Science (SPSS) version 16. Data were expressed in number and percentage, and show in tabulated forms, pie charts and bar diagrams. The study was conducted with prior ethical clearance of Ethical Committee of Bangladesh Medical Research Council. Before data collection, informed written consent was taken from the respondent. Moreover confidentiality of collected data was maintained with highest priority. De-identified data were be preceded for analysis.

Results

A total number of 70 patients were recruited for this study. Among the study population, 48 (68.57%) were between 20-50 years of age, 6 (8.57%) were less than 20 years and 16 (22.85%) were more than 50 years (Figure I).
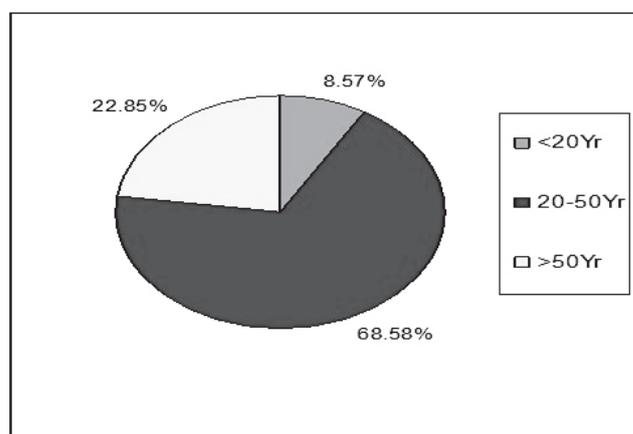

Figure 1: Distribution of study population according to age

Regarding Glycemic status, 15(21.42%) cases were Diabetic, 25(35.71%) cases had impaired glucose tolerance and 30(42.85%) cases had normal blood sugar (Figure II).
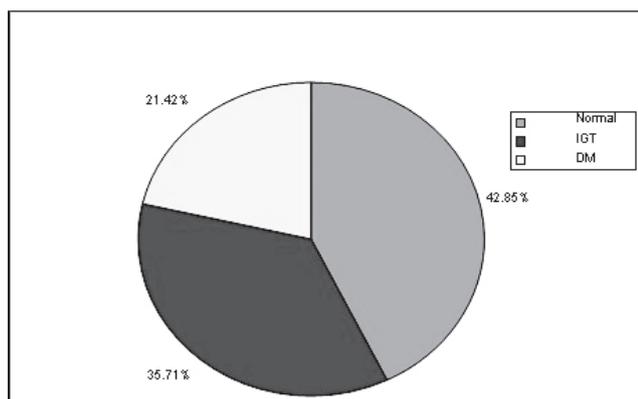
Figure II: Glycemic status of study population

Regarding dyslipidaemia, 51(72.85%) cases had high Triglyceride level (>150 mg/dl); 42(60%) cases had hypercholesterimea (>200 mg/dl); decreased HDL (<40 mg/dl) in 37 (52.85%) cases and increased LDL (>150 mg/dl) in 21(44.28%) cases (Table 1).

Table 1: Lipid profile status among study population

Lipid profile	Frequency	Percentage
Cholesterol(>200mg/dl)	42	60.0
Triglyceride(>150mg/dl)	51	72.85
HDL(<40mg/dl)	37	52.85
LDL(>150mg/dl)	21	44.28

Discussion

Non-alcoholic fatty liver disease is not an uncommon condition which represents a wide spectrum of disorders. The hallmark of which is hepatic steatosis. NAFLD was thought to be a benign condition but is now increasingly recognized as a major cause of liver related morbidity and mortality. The disease encompasses not only simple steatosis but also includes nonalcoholic steatohepatitis, advanced fibrosis and cirrhosis of liver. Total 70 cases were selected who incidentally diagnosed as fatty liver disease by USG, done for other purpose(s) and who are not unwilling to be a subject of the study.

Most of the cases are in the age group of 20 to 50 years (68.57%) followed by less than 20 years which was 8.57% cases. Schwimmer et al[7] have shown that the prevalence of fatty liver between the age of 2 to 19 years is 9.6% which is very close to this present study result. Another study by Li et al[8] have shown the prevalence of fatty liver increased with age in female and males of less than 50 years which also corresponds to the present study.

David et al[9] showed that a high glycaemic index diet to cause fatty liver and low glycaemic index diets to prevent fatty liver in human. An important risk factor for NAFLD is Insulin resistance. In this study it has been found that 21.42% of study population is of type 2 diabetes and 35.71% having impaired glucose tolerance. Haiso et al[10] showed that 7.6% of cases was diabetic and 39.5% of cases was IFG. The result of both studies is almost similar.

Dyslipidemia has a significant impact on NAFLD. In this study 72.85% patient had hypertriglyceridemia (>150mg/dl), decreased high density lipoprotein (<40mg/dl) in 52.85% patient, hypercholesterolemia (>200mg/dl) in 60% patient. Parekh et al[11] showed that the prevalence of hyperlipidemia associated with NAFLD varies from 20.0 to 92.0% where hypertriglyceridemia rather than hypercholesterolemia appears to be the major risk factors in this association.

There is several limitation of the study. This is a small scale study, done on only 70 patients on the basis of ultrasonographic findings. Ultrasonography can't distinguish simple steatosis from cirrhosis, as fatty filtration of liver produces a diffuse increase in echogenicity as compared with the kidney and cirrhosis has a similar appearance on USG. Ultrasonography has a sensitivity of 89% and a specificity of 93.0% in detecting steatosis and a sentivity and specificity of 77.0% and 89.0% respectively in detecting increased fibrosis. Liver biopsy is the gold standard for detecting fibrosis and cirrhosis. In our study we cannot perform liver biopsy for financial constraint and patients disagreement. Other important investigations such as HBV DNA, HBeAg, Prothrombin time which are also an important indicators of liver injury such as fibrosis and cirrhosis, can't be done for financial constraint.

Conclusion

In conclusion the abnormal gycemic status and dyslipidemia is present in the incidentally diagnosed fatty liver patients. A large study by including huge number of population from all sectors the community should be done.

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