

Non Alcoholic Fatty Liver Disease: Association with Maternal Diabetes

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ABSTRACT

Objective: To seek relationship of ultrasonic fatty liver appearance with the maternal history of diabetes.

Study design: Convenience sampling.

Settings: This study was conducted in Radiology Department of Shalamar Hospital in collaboration with Jinnah Hospital, Lahore which is a tertiary care hospital.

Duration of study: It was completed in three months from 20th August to 20th November 2008.

Subjects and methods: First 100 consecutive patients in each hospital with ultrasonic finding of fatty liver were evaluated for its cause, excluding history of alcohol intake, particularly for maternal history of diabetes.

Results: Out of 200 patients, 70% of the fatty liver patients have positive maternal history of diabetes at some stage of their lives. Among that 70%, 85% mothers were suffering Type II diabetes and 10% were gestational diabetes and 5% were having Type I diabetes. The remaining 30% having other causes including high fat intake, easy life style etc.

Conclusion: Fatty liver appearance is strongly related with maternal history of diabetes particularly Type II.

Keywords: Ultrasonography, type 2 diabetes, non-alcoholic fatty liver, NAFLD

INTRODUCTION

Nonalcoholic fatty liver disease (NAFLD) is the most common liver disease observed in the clinical practice of hepatology affecting approximately 20% of the general population. Fatty liver disease is the most common chronic liver disease in developed nations. It is associated with surrogate markers of cardiovascular morbidity.

NAFLD (Nonalcoholic fatty liver disease) affects approximately 15-30% of the general population and its prevalence increases steadily to 70-90% in people with obesity or type 2 diabetes mellitus. The mitochondrial DNA A to G mutation at nucleotide 3243 (mt3243) is associated with a subtype of diabetes characterized by maternal transmission.

Fatty liver is usually a benign condition but requires investigation in all to identify individuals "at risk" for the development of scarring or cirrhosis of the liver. In the past, NAFLD has been primarily recognized in those presenting with abnormal liver tests. It is likely that this bias will continue because physicians are alerted by abnormal pathology results. However, it is now recognized that the full spectrum of NAFLD from steatosis to steatohepatitis, cirrhosis and liver-related morbidity can also occur in those with entirely 'normal' liver enzymes by conventional

criteria. This raises an important semantic and practical issue of 'normal' versus 'reference ranges' for liver biochemistry.

Patients with the earlier stages of NAFLD may present with non-specific symptoms including fatigue and right upper quadrant pain. The latter is usually a dull discomfort, sometimes compared to a toothache, and often associated with hepatic tenderness so that the person does not feel comfortable lying on the right side. Rarely, more severe pain may be a clue to hepatic pathology. While fatigue is very common, a thorough psychosocial and medical history, as well as a complete physical examination,

Abnormal imaging, typically a hyperechoic liver on an ultrasound performed for another indication, is often the first clue to the presence of NAFLD. Conversely, a 'bright' liver on ultrasound may bring useful confirmatory information in a person with suspected NAFLD. However, it should be emphasized that the presence of fat, fibrosis or elevated hepatic iron stores can have an identical sonographical appearance. The sensitivity of sonography for the detection of hepatic fatty infiltration in a recent study was specificity is 90% to 95% and sensitivity 80% to 90%. However, ultrasound had 100% sensitivity for the detection of more extensive hepatic steatosis, as defined by 33% of cells showing steatosis.

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MATERIAL AND METHODS

Cohort study carried out on 100 cases each in Radiology Department of Shalamar and Jinnah Hospital, Lahore from 20th August to 20th November 2008. All young adult patients (18-35 years) with ultrasound finding of fatty Liver were investigated through personal and family history. Males and females both were included in this study. Chronic Liver parenchymal disease persons (having Hepatitis B and Hepatitis C) were not included in this study. Patients of alcohol intake history were also not included in this study.

RESULTS

Out of 200 patients, 70% (140 persons) of the fatty liver patients have positive maternal history of diabetes at some stage of their lives. Among 70%, 85% (119 persons) said that their mothers were suffering Type II diabetes and 10% (14 persons) patients mother were suffering from gestational diabetes and 5% (7 persons) were having mother history of Type I diabetes. The remaining 30% (60 persons) having other causes including high fat intake, easy life style etc.

DISCUSSION

Nonalcoholic fatty liver disease (NAFLD) is the most common cause of abnormal liver function tests among adults in Western countries. The spectrum of NAFLD ranges from simple steatosis to nonalcoholic steatohepatitis (NASH), which can progress to end-stage liver disease. NAFLD is commonly associated with obesity, type 2 diabetes, dyslipidemia, and insulin resistance, all of which are components of the metabolic syndrome, strongly supporting the notion that NAFLD is the hepatic manifestation of the syndrome¹⁻⁴.

In the present study, the diagnosis of NAFLD was based on the exclusion of the known etiologic factors responsible for liver disease and ultrasound examination results, but the diagnosis was not confirmed by liver biopsy results. A liver biopsy is the gold standard for ascertaining fatty liver disease, but it is invasive and can cause complications. Ultrasound, however, with sensitivity of 80% to 95% and specificity of 90% to 95%, is widely available and relatively accurate for the diagnosis of fatty liver disease⁵⁻¹¹.

Although USG has some limitations in distinguishing a fatty liver from other liver diseases,

the present study used USG as a non-invasive method of examining subjects in sufficient Numbers. In summary, the findings of this study illustrate for the first time the NAFLD in patients with their maternal Type II DM. Our findings highlight the need for further studies to provide a more complete picture of the situation and to identify gaps or deficiencies that may need to be addressed. The results of this study will be evaluated in large epidemiologic studies that interface with the ability to conduct familial genetic assessment of candidate genes for NAFLD in patients with T2DM.

CONCLUSION

Fatty Liver appearance is strongly related with maternal history of diabetes particularly Type II

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