

Prevalence of Non Alcoholic Fatty Liver Disease in Systemic Hypertension

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Abstract: *Non alcoholic fatty liver disease (NAFLD) is the most common liver disease. It is now increasingly recognized as a major cause of liver-related morbidity and mortality. NAFLD results from insulin resistance and it is considered as part of the metabolic syndrome. Essential hypertension is also considered an insulin resistant state. Studies on non-obese and non-diabetic patients with primary hypertension has shown that hypertension increases the risk of NAFLD. It is important in evaluating for NAFLD in hypertensive patients by ultrasonography and liver function tests.*

1. Introduction

Non-alcoholic fatty liver disease (NAFLD) represents a spectrum starting from fatty liver, fatty liver and inflammation to evidence of damage to hepatocytes and can progress to cirrhosis or in the most extreme form of NAFLD can progress to hepatocellular carcinoma or liver failure. Non-alcoholic fatty liver disease is considered the most common liver disease affecting 15–25% of the general population. Primary NAFLD results from insulin resistance and NAFLD is considered as part of the metabolic syndrome. Essential hypertension is considered an insulin resistant state and through the basis of insulin resistance mechanisms, recent studies consider NAFLD as an early mediator of atherosclerosis and an increased cardiovascular risk factor.

2. Objective

The aim of the present study is to investigate the prevalence of NAFLD in essential hypertensive patients

3. Materials and Methods

Study Population

A prospective study was conducted for a period of 6 months. The study included adult hypertensive patients attending to the Department of Internal Medicine at Sreebalaji medical college and hospital, Tamilnadu

The study included patients of either sex with essential hypertension.

Hypertension is defined as a systolic blood pressure (SBP) of 140 mm Hg or more, or a diastolic blood pressure (DBP) of 90 mm Hg or more, or taking antihypertensive medication. Based on recommendations of the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7), the classification of BP for adults aged 18 years or older has been as follows :

- Normal: Systolic lower than 120 mm Hg, diastolic lower than 80 mm Hg

- Prehypertension: Systolic 120-139 mm Hg, diastolic 80-89 mm Hg
- Stage 1: Systolic 140-159 mm Hg, diastolic 90-99 mm Hg
- Stage 2: Systolic 160 mm Hg or greater, diastolic 100 mm Hg or greater

Exclusion Criteria

Patients with suspected secondary hypertension were excluded. Patients with chronic alcoholism, diabetic mellitus, evidence of cardiovascular, pulmonary, renal, hepatic disease, and Patients with previous drug-induced fatty liver treatment (corticoids, chronic salicylates, tricyclic antidepressants, tamoxifen, tetracyclines, synthetic oestrogens and amiodarone).

Study Design

Hundred hypertensive patients gave their informed consent for participating in the study. They completed the inclusion criteria and were therefore enrolled in the study.

All hypertensive patients underwent BP evaluation (for systolic and diastolic BP), blood tests and abdominal ultrasonography.

BP was measured with a mercury sphygmomanometer, with the patient seated for at least 10 minutes. All the measurements were performed by the same investigator, using the same equipment and at the same time.

Hypertensive patients were divided into four groups according to the grade of hypertension.

The diagnosis of fatty liver, was established using the noninvasive method of abdominal ultrasound. The presence of liver steatosis was graded semi-quantitatively according to a previously reported scale: 0 - absent, 1 - mild, 2 - moderate and 3 - severe steatosis.

In all hypertensive patients who fasted overnight for biochemical and metabolic profile, blood samples were evaluated by standardised routine laboratory techniques.

4. Results

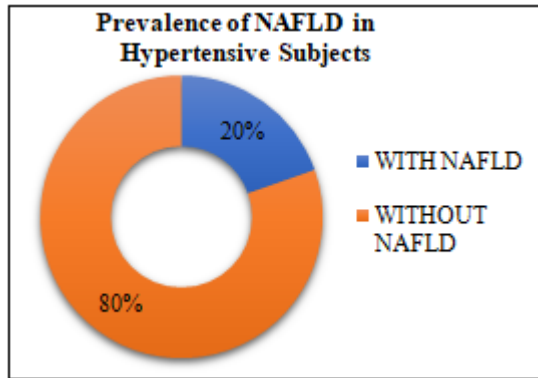


Figure 1: Shows the prevalence of NAFLD in the hypertensive patients. NAFLD was present in 20% of patients

Table 1 shows mean and standard deviation of variables by comparing patients with NAFLD and patients without NAFLD.

S.No	Variable	With NAFLD (n=20)		Without NAFLD (n=87)	
		Mean	STDEV	Mean	STDEV
1	AGE	51.4	11.1	59	12.9
2	SYSTOLIC	148.4	16.3	88.4	13.3
3	DIASTOLIC	88.4	14.96	149.4	18.6
4	FBS	79.2	52.6	95.5	94.1
5	PPBS	84.5	5.9	89.1	55.6
6	TB	0.8	0.64	0.85	1.42
7	DB	0.3	0.21	0.27	0.25
8	SGOT	26	15.2	32.8	32.2
9	SGPT	26.2	12.7	27	17
10	ALP	90.3	35.4	79	37
11	TP	6.03	0.6	5.72	1.02

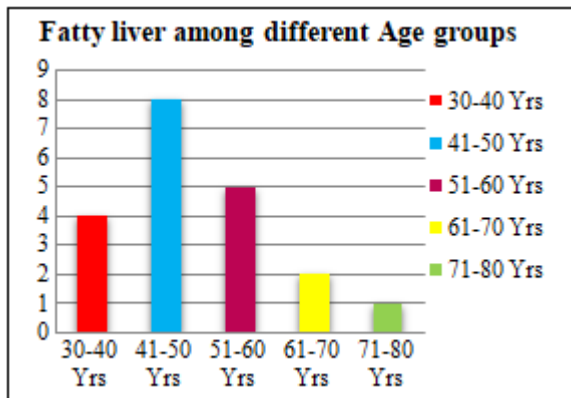


Figure 2: shows prevalence of NAFLD among different age groups

The prevalence of NAFLD was higher in age group of (41-50) years followed by patients among the age group of(51-60) years , which was followed by patients among the age group of 31-40 years.

5. Discussion

In this study, NAFLD was present in 20% of the hypertensive patients. The mean systolic value was 148.4 in patients with NAFLD and 88.4 in patients without NAFLD.

The mean diastolic value was 88.4 in patients with NAFLD and 149.4 in patients without NAFLD. The FBS and PPBS values were increased in patients without NAFLD than in patients with NAFLD.. The interaction of hypertension, fatty liver and the metabolic syndrome is complex. The clinical significance of fatty liver remains poorly understood, although there is clear evidence of potential progression to NASH, hepatic fibrosis and cirrhosis in high-risk groups. our hypertensive group showed many features of the metabolic syndrome—namely, higher insulin, glucose, and insulin resistance, in addition to the greater prevalence of fatty liver.

6. Conclusion

The association of NAFLD in hypertensive population with CVD is important. Studies on non-obese and non-diabetic patients with primary hypertension has shown that hypertension increases the risk of NAFLD .Thus it is important to identify NAFLD and assess the initial risks of cardiovascular diseases. Recently it has been recognized that NAFLD represents an important burden of disease for patients with hypertension and is gaining importance

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