

Risk Factors and Frequency of Non-Alcoholic Fatty Liver Disease Amongst Non-Obese Individuals

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ABSTRACT

Introduction: NAFLD (Non-alcoholic fatty liver disease) is a clinically diverse pathological disease described by a histological spectrum varies from modest steatosis to steatohepatitis (NASH), hepatocellular carcinoma (HCC) and cirrhosis.

Aim: To know the pervasiveness of NAFLD and risk factors in non-obese patients.

Methods: This is a cross-sectional examination held in the Gastroenterology, Radiology and Pathology department of Aziz Fatima Medical and Dental College and Aziz Fatima Hospital, Faisalabad for one-year duration from May 2019 to May 2020. An aggregate of 200 patients took part in the examination.

Results: According to the results, 45 patients have fatty liver and 155 patients didn't have fatty liver. While 148 men and 52 females, the mean age is 48.19 ± 9.10 . Of an aggregate, 19.30% of 200 patients had diabetes. 27.90% dyslipidemia, 23.60% hypertension. Hb in patients with fatty liver and without fatty liver (11.56 ± 1.90 versus 12.50 ± 1.09 , $p < 0.001$). Absolute serum cholesterol was fundamentally higher in patients with fatty liver versus non fatty liver 233.11 ± 20.141 versus 180.81 ± 23.39 ($p < 0.001$), SGPT 83.24 ± 11.10 in fatty liver versus 49.12 ± 6.51 in non-fatty liver, SGOT 47.99 ± 4.70 in fatty liver versus 40.12 ± 4.30 in non-fatty liver in patients with steatosis. We tracked down that 6.24% of patients were HBsAg positive and not any patient was HCV positive.

Conclusion: Metabolic condition, Inactive lifestyle, DM, dyslipidemia are hazard factors for NAFLD in normal individuals. High liver enzymes are the consequence of NAFLD. However, this examination has a few constraints, it will give data about diseases of the liver that happens without hepatitis.

Keywords: dyslipidemia, NAFLD, steatohepatitis and diabetes mellitus.

INTRODUCTION

NAFLD is basic in Western states. It is normally related with weight and the incidence of the metabolic condition (MS)¹. NAFLD is a diverse clinicopathological element with a histological range going from basic steatosis to steatohepatitis (NASH), hepatocellular carcinoma (HCC) and cirrhosis². The rate of NAFLD has expanded in the previous twenty years with the approach of the Western lifestyle and the expanding predominance of weight in the Asia-Pacific area³⁻⁴. NAFLD was viewed as an indication of the firmly related metabolic disorder for obesity⁵.

At the chronic stage, nonalcoholic steatohepatitis can advance to hepatocellular carcinoma, cirrhosis and fibrosis. Non-alcoholic fatty liver disease is the utmost well-known reason for cryptogenic cirrhosis⁶. At times, NAFLD can advance to HCC^{capering} cirrhosis span⁷. Non-alcoholic fatty liver disease was first announced by Ludwig et al in 1980 who portrayed histological discoveries in twenty individuals, for the most obese, with NAFLD⁸. Obesity has been verifiably connected with NAFLD, in any case, not all obese patients result in NAFLD. It is more pronounced in non-obese populace. Non-alcoholic fatty liver disease is a significant reason for hepatic mortality and morbidity⁹⁻¹⁰. The pervasiveness of non-obese NAFLD utilizing a cutoff weight record (BMI) of 25 kg/m² goes from 4.1% to 27.4%¹¹. Utilizing the public wellbeing and nourishment assessment study information gathered from 2014-2019,

the predominance of non-fatty hepatic steatosis in individuals with body mass index under 25 kg/m², was 22%. Locally based examination in Pakistan in 2015 by Umer et al. the pervasiveness of NAFLD was 18.1% and 61.05% in non-obese patients and many patients individually, utilizing body mass index of 25 kg/m²¹². This is equivalent to the commonness of obese related NAFLD which, in many examinations, ranges between 6.3%-30%¹³.

MATERIALS AND METHODS

This is a cross-sectional examination held in the Gastroenterology, Radiology and Pathology department of Aziz Fatima Medical and Dental College and Aziz Fatima Hospital, Faisalabad for one-year duration from May 2019 to May 2020. An aggregate of 200 patients took part in the examination. Patients coming to inpatient and outpatient gastroenterology wards were included and are prepared to begin their examinations. Patients were roughly 18 years of age, were not obese [BMI (weight file) <25] and consented to take an interest in the investigation. Notwithstanding, large patients who devoured any measure of liquor were excluded. Individuals meeting the above measures were alluded to the NAFLD risk factor study utilizing a data collection form. The investigation was affirmed by the Ethics Review Committee. The investigation information was examined by the SPSS (variant 20).

RESULTS

A total of 45 patients has Fatty liver and 155 have non-fatty liver. 19.30% of 200 patients had diabetes. 27.90%

dyslipidemia, 23.60% hypertension. Numerous components vary fundamentally between the two gatherings.

Demographic features of 200 patients with or without fatty liver given in Table-I

N=200		Fatty liver N=45	Without Fatty Liver, N=155	
Variable	Mean ± SD	Mean ± SD	Mean ± SD	P – value
Address(N)	122	27	75	0.236
Rural				
Urban	78	18	80	
Age(Year)	48.19± 9.10	43.20± 9.21	49.51± 8.59	<0.001*
Sex		29	119	0.352
Male	148			
Female	52	16	36	
Life style		26	29	<0.001*
Sedentary156				
Active44		19	126	

The comparisons of clinical features between fatty liver disease and normal individuals is given in Table-II

N=200			Fatty liver N=45	Without FattyLiver N=155	
Variable	Mean±SD		Mean±SD	Mean±SD	P – value
Diabetes Mellitus	19.30%		41.80%	21%	<0.001*
Dyslipidemia	27.90%	98%	11.12%	<0.001*	
Hypertension	23.60%	25%	24.30%	0.736	
Smoking	37%	19.30%	41.18%	<0.011*	
Change of Wt.	15.10%	41%	7.82%	<0.001*	

Anthropometric features of without and with fatty liver patients given in Table-III

	All, N=200	Fatty liver, N=45	WithoutFatty Liver, N=155	
Variable	Mean ± SD	Mean ± SD	Mean ± SD	P – value
Systolic blood pressure	126.40± 5.70	124.90± 5.80	123.55± 5.30	0.141
Diastolic blood pressure	80.99± 3.89	82.17±4.13	82.10±3.81	0.96
Waist perimeter	74.55± 7.51	73.30± 7.45	72.66± 8.22	0.050
Circumference of the Hip	85.69± 8.19	86.11± 8.21	80.95± 8.50	0.020*
Height	1.59± 0.07	1.61± 0.05	1.60± 0.98	0.054
Weight	54.25± 5.70	56.21± 5.11	54.20± 7.29	0.04

Table IV compares% Hb in patients with and without fatty liver (11.56±1.90 versus 12.50± 1.09, p <0.001). Absolute serum cholesterol was fundamentally higher in patients with fatty liver versus non fatty liver 233.11± 20.141 versus 180.81± 23.39(p <0.001), SGPT 83.24 ± 11.10 in fatty liver versus 49.12± 6.51 in non-fatty liver, SGOT 47.99± 4.70 in fatty liver versus 40.12± 4.30 in non-fatty liver in patients with steatosis.

Laboratory features in with or without fatty liver patients given in Table-IV

All N=190		Fatty liver N=38	Without Fatty Liver N=152	
Variable	Mean ± SD	Mean ± SD	Mean ± SD	P – value
Hemoglobin%	13.20± 1.31	11.56±1.90	12.50± 1.09	<0.001*
ESR	12.10± 6.09	11.60± 4.45	11.01± 6.41	0.51
Urine R/E- Sugar	9.40%	25.1%	4.9%	<0.001*
Fasting blood glucose	5.28± 0.40	5.43± 0.51	5.24± 0.34	0.101
2HABF	7.19± 1.21	7.71± 1.72	7.10± 0.94	0.042*
Serum Cholesterol	193.30± 30.12	233.11± 20.141	180.81± 23.39	<0.001*
LDL	131.21± 31.81	173.00 ± 24.60	120.70± 24.80	<0.001*
HDL	35.80±2.14	35.10± 1.35	35.55± 2.20	0.001*
TG	174.95± 58.26	160.46 ± 68.22	158.80± 32.80	<0.001*
S.Bilirubin	1.011± 0.14	1.02± 0.08	1.03± 0.77	0.85
SGPT	55.22± 16.10	83.24 ± 11.10	49.12± 6.51	<0.001*
SGOT	40.98± 5.85	47.99± 4.70	40.12± 4.30	<0.001*
AP	98.42± 18.64	107.50± 11.54	98.88± 20.11	0.002*
PT	10.12± 0.49	11.40± 0.48	11.20± 0.51	0.133
HbsAg	6.24%	0	7.8%	0.073

DISCUSSION

This investigation showed that 45(22.5%) of 200 patients conceded to the gastroenterology department had NAFLD. There are a few investigations on NAFLD among healthy individuals in Pakistan which shows NAFLD varies from 9 to 18%¹⁴. Nonetheless, Margaritiet al in Greece discovered NAFLD around 12.6%. In Korea; Kim HJet al observed that 22.9% of healthy individuals have NAFLD. In Bangladesh, Alamet et al tracked down that 25.6% of non-obese patients had NAFLD¹⁵⁻¹⁶. The contrast between this examination and different investigations might be because of explicit dietary patterns, way of life and nationality; No liver biopsy was acted in this examination¹⁷. In this examination, stationary individuals had a huge NAFLD contrasted with working people. In a populace concentrate by Kumary R et al from country India, 53% of patients with Non-alcoholic fatty liver disease were underweight (BMI <18.1 kg/m²¹⁸⁻¹⁹. The occurrence of dyslipidemia and multiple sclerosis was altogether higher with NAFLD. Abdominal obesity and BMI associated with each other²⁰. In nonobese NAFLD patients previously; low Waist circumference was also reported to be the cause. In NAFLD; Visceral adipose tissues are metabolically more active causing metabolic risks resulting in Non-alcoholic fatty liver disease²¹. Together SGOT and SGPT are significant statistically in nonobese individuals. Bangladeshi unapproved non-obese NAFLD connection with SGPT and SGOT²²⁻²³. Total serum cholesterol, serum fatty oils, HDL and LDL cholesterol are significant transformed in fatty liver. Serum profile level shows the comparable outcome of Kumar R et al al but contrasts from the Alam S. et.al study²⁴.

CONCLUSION

This is a limited scale analysis dependent on patients appearing in the tertiary care hospital. NAFLD is a metabolic issue that was at first idea to be bound to individuals in the rich, industrialized western world. Specifically, there is rise in obesity associated metabolic disorder in the Asian countries. In this examination, 22.5% of individuals had Non-alcoholic fatty liver disease on ultrasound findings, which is fundamentally the same as the investigations from Southeast Asia, India and surprisingly some Western nations. Stationary way of life, metabolic disorder, DM, dyslipidemia are risk factors for NAFLD in healthy individuals. High liver enzymes are the consequence of NAFLD. Albeit this investigation has a few impediments, it provides data regarding liver disease that happens deprived of hepatitis. As the quantity of NAFLDs in healthy individuals is expanding step by step, more investigations should be possible to find out additional.

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