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Original Paper

Dietary and Clinical Profile of Patients with Non-alcoholic Steatohepatitis (NASH)

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Abstract
Introduction: *The term NASH was coined by Ludwig et al. NASH stands for non-alcoholic steatohepatitis which is included in the spectrum of NAFLD which ranges from steatosis, steatohepatitis, fibrosis, cirrhosis and complications.*
Aim: *The objective is to study the dietary, clinical and other risk factors associated with NASH.*
Materials and Methods: *The present study was carried out on 60 patients of NASH over a period of six months in 2010 at Department of Medicine GMC, Jammu. All patients with NASH were screened for various risk factors associated with NASH. Detailed history was taken and thorough clinical examination was done.*
Results: *out of 60 patients, 28(46.66%) were males and 32(53.32%) were females. 85% of the patients were in the age group of 31-70 years.*
Conclusion: *In our study 73.33% (44/60) of patients were found to be non-vegetarian and 26.6% (16/60) of patients were found to be asymptomatic. Right subcostal discomfort was the most common reported symptom (69.33%).*
Keywords: *alanine transaminase, alkaline phosphatase, non-alcoholic steatohepatitis, right subcostal discomfort.*

Introduction

Non-alcoholic fatty liver disease (NAFLD) is an increasingly recognised condition that may progress to end stage liver disease. Non-alcoholic fatty liver disease refers to wide spectrum of liver damage ranging from simple steatosis to steatohepatitis, advanced fibrosis and cirrhosis. Steatohepatitis represents only a stage within the spectrum of non-alcoholic fatty liver disease[1]. Ludwig et al introduced term nonalcoholic steatohepatititis to describe liver disease that is histologically indistinguishable from alcoholic hepatitis but occurs in persons who do not consume excess alcohol[2]. NAFLD is defined as fat accumulation in liver exceeding 5% to 10% by weight. Inherent to defining NAFLD and NASH

is threshold at which steatohepatitis become alcohol related. Many centers accepts upper limit of 20-40 gm/day in men and 20gm/day in women[3]. NAFLD is found in 70% of obese and 35% of lean patients. NASH is found in 18.5% of obese and 2.7% of lean patients. There is even distribution of NASH among men and women.

Materials and Methods

The present work is a hospital based cross-sectional study that included 60 patients of NASH registered with GMC, Jammu for a period of six months. All patients with NASH were screened for various risk factors associated with NASH. Detailed history was taken and thorough clinical examination was done. Required investigations were done such as HB, TLC, DLC, Blood sugar, Renal function tests, Complete liver tests, Serum lipid profile, Viral markers (HBs Ag and Anti HCV) and ANA were done. Ultrasound abdomen for hepatobiliary system was done to diagnose the patients of NASH.

Inclusion Criteria

1. Ultrasonographically proved fatty liver
2. Deranged liver function tests
3. No significant alcohol intake i.e. <20gm/day
4. Absence of other relevant liver disease.

Exclusion Criteria

1. Daily alcohol intake i.e. >20gm/day
2. Use of amiodarone, steroids, tamoxifen, methotrexate or high dose estrogen
3. Jejunal bypass or extensive small bowel resection
4. Other known liver disease
5. Malignancy.

Results

The present in hospital study entiled “Dietary and Clinical profile with non-alcoholic steatohepatitis (NASH)” was undertaken in GMC Jammu, in 60 patients who satisfied the inclusion criteria. Various findings were recorded and parameters calculated as per need and these were further correlated with each other as well.

Table 1: Age and Sex distribution

Age group in years	Males		Females		Total	
	No.	Percentage	No.	Percentage	No .	Percentage
10-30	5	8.33	2	3.33	7	11.66
31-50	17	28.33	16	26.66	33	55.0
51-70	6	10.0	12	20.0	18	30.0
>70	0	0.0	2	3.33	2	3.33
Total	28	46.66	32	53.32	60	100

Out of 60 patients, 28 were males and 32 were females. Majority of patients were in the group of 31-50 years (55%) followed by that in 51-70 years (30%). Thus, 85% of the patients were in the age of 31-70 years.

Table 2: Dietary profile

	No. of Patients	
	Male	Female
Vegetarian	5 (17.85%)	11 (34.37%)
Non-vegetarian	23 (82.15%)	21 (65.63%)
	28 (100%)	32 (100%)

Table 3: (a) Clinical Profile

Symptoms	No. of Patients	
	Male	Female
Asymptomatic	10	6
Right subcostal discomfort	16	22
Fatique	13	19
Others	8	16
Total *		

The numbers don't add upto 60 since more than one signs and symptoms were present in single patient.

Table 3 (b): No. Of patients

Clinical Sign	**Males**	**Females**
Hepatomegaly	28	32
Lipodystrophy	4	6
Acanthosis nigricans	3	4
Palmar Erythema	1	2
Spleenomegaly	2	1
Ascitis	1	0
Pedal edema	4	1
Total*		

*The numbers don't add upto 60 since more than one signs and symptoms were present in single patient.

Discussion

Present study was undertaken in 60 patients to assess the dietary and clinical profile of patients with non-alcoholic steatohepatitis. Out of which 28 (46.66%) were males and 32 (53.32%) were females. Maximum patients were in the age group of 31-50 years (55%) followed by that in 51-70 years (30%). Thus 85% of the patients in the age group of 31-70 years.

In our study 73.33% (44/60) of patients were found to be non-vegetarian. Mustafa et al. (2004) also concluded that non vegetarian diet and meat consumption were significantly associated with NAFLD.

In the present study 26.6% patients (16/60) were found to be asymptomatic. Right subcostal discomfort was the most common reported symptom. It was present in 69.33% (38/60) patients. Fatigue was the next more common symptom which was reported of 53.33% (32/60) patients. Chitturi et al (2000) in their study found that more of patients were asymptomatic or had minor symptoms (fatigue, epigastric discomfort, etc.)[4]. Powell et al (1990) in his study found that 18/42 had right upper quadrant pain[5].

NASH (n=60)

Variables	**Mean**	**Range**
1. Age (y)	44	22-75
2. Sex female(%)	32%	
3. Anthropometric Data		
Obesity (%)	46%	
Overweight (%)	39%	
Lean (%)	15%	
4. Body weight	75.3 kg	56-110 kg
5. BMI	29.18	20.0-39.9
6. Waist circumference		
Men > 102 cm	10/28 (35%)	
Women > 88 cm	25/32 (78%)	
7. S.Bilirubin	1.4	0.5-8.2
8. AST	73.21	28-285

9.ALT	102.35	33-240
10.Alk Po4.	97.75	59-176
11.Glucose tolerance		
Diabetes Mellitus Impaired Glucose Fasting	23/60 (38.3%) 14/60 (23.3%)	
12.Hyperlipidemia	30/60 (50%)	

In the present study, it was found that obesity, hyperlipidemia and diabetes mellitus were significantly associated with the NASH.

In our study 46.6% (28/60) patients were found to be obese and 38.3% (23/60) were found to be overweight. Thus total of 84.9% (51/60) patients had BMI > 25.9 (15%) patients were found to have BMI <25.[6] Ludwig et al (1980) in his study found that 90% of patients with NASH were obese whereas[7] Lee in (1989) demonstrated in his study that 69% patients with NASH were obese. [8] Bacon et al (1994) in their study that 39% patients of NASH were obese.[9] Angulo et al (1999) found in their study that 60% of patients with NASH were obese.

Conclusion

In our study it was found that NASH was more frequent among non-vegetarians and the patients who were vegetarian and suffering from NASH it was found that they consumed excess fats. Clinical profile was consistent with other studies and many patients were asymptomatic. Most common symptom was right subcostal discomfort followed by fatique.

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