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Clinical profile of Non Alcoholic Fatty Liver Disease in Type 2 Diabetes Mellitus

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Abstract **Original Research Article**

NAFLD is also potentially contributing to an important burden of extra-hepatic chronic complications. For reasons that are not completely clear, NAFLD is more common in men than women and although precise estimates of incidence rates for NAFLD are uncertain (because of difficulties with establishing a precise diagnosis during sequential follow up), current incidence rates are approximately 20/10,000 person years, peaking in the sixth decade of life. ***Aim*****:** To study the clinical profile of non alcoholic fatty liver disease in type 2 Diabetes Mellitus. ***Material and methods*****:** A cross sectional study was carried out among 50 cases having type 2 DM were further evaluated for non alcoholic fatty liver disease under Medicine Department of tertiary health care center. Detailed clinical profile of the participants were studied. All data was collected and complied in Microsoft excel. All statistical analyses were performed by using IBM SPSS statistics Version 21.0 (SPSS Inc., Chicago, IL, USA) and openepi version 2.3.1. ***Results*****:** Majority 79% were in age group >40 years. Mean age in years was 65.8 ±11.26, male preponderance was seen. Mean HbA1C was 7.5±0.73, ranging from 5.1 to 12.5. majority 70% had HbA1C >6, 20% had between 5.7- 6 and 10% had <5.7. Mean SGOT was 66.3± 76.6, mean SGPT was 44.6±46.8, mean ALP was 98.1±40.3.On USG finding majority 60% had grade 1, 30% had grade 2 and 10% had grade 3. ***Conclusion*****:** Physician treating the type II DM cases having raised lipid and LFT should have a high suspicion of NAFLD. Early diagnosis and treatment of NAFLD will help in minimizing further complications and will have a good prognosis for the disease.

Keywords: Clinical profile, non alcoholic fatty liver disease (NAFLD), Diabetes Mellitus (DM).

INTRODUCTION

Over the last decade, it has been shown that the clinical burden of non-alcoholic fatty liver disease (NAFLD) is not only confined to liver-related morbidity and mortality, but there is now growing evidence that NAFLD is a multisystem disease, affecting several extra-hepatic organs and regulatory pathways [1]. Since NAFLD has become the predominant cause of chronic liver disease in many parts of the world [2], NAFLD is also potentially contributing to an important burden of extra-hepatic chronic complications. For reasons that are not completely clear, NAFLD is more common in men than women and although precise estimates of incidence rates for NAFLD are uncertain (because of difficulties with establishing a precise diagnosis during sequential follow up), current incidence rates are approximately 20/10,000 person years, peaking in the sixth decade of life [3]. Current population based prevalence of NAFLD is approximately 30–40% in men and 15–20% in women [4] and is even higher in people with type 2 diabetes mellitus (T2DM), occurring in up to 70% of this group of patients [5].

Aim: to study the clinical profile of non alcoholic fatty liver disease in type 2 Diabetes Mellitus.

MATERIAL AND METHODS

A cross sectional study was carried out under Medicine Department of tertiary health care center. All patients coming to OPD and having type 2 DM were further evaluated for non alcoholic fatty liver disease. Thus such 50 cases were selected and studied. Detailed clinical profile of the participants were studied. All data

was collected and complied in Microsoft excel. All statistical analyses were performed by using IBM SPSS statistics Version 21.0 (SPSS Inc., Chicago, IL, USA) and openepi version 2.3.1.

RESULTS

Majority 79% were in age group >40 years. Mean age in years was 65.8 +11.26, ranging from 30 to 75.

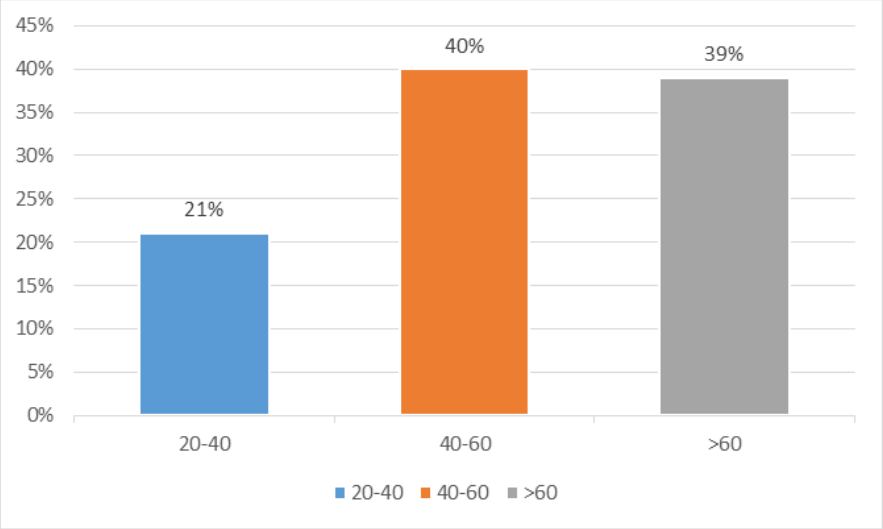

Figure 1: Age distribution

Table 1: Gender distribution

Gender distribution	Frequency	Percentage
Male	30	60%
Female	20	40%
Total	50	100%

Majority 60% were males and 40% were females.

Table 2: HbA1C

HbA1C	Frequency	Percentage
<5.7	5	10%
5.7-6	10	20%
>6	35	70%
Total	50	100%

Mean HbA1C was 7.5+0.73, ranging from 5.1 to 12.5. majority 70% had HbA1C >6, 20% had between 5.7- 6 and 10% had <5.7.

Table 3: Lipid profile

Lipid profile	Frequency	Percentage
Cholesterol		
<140	20	40%
140-200	22	44%
>200	8	16%
Triglyceride		
35-135	20	40%
>135	30	60%
HDL		
<40	40	80%
40-80	10	20%

Mean cholesterol was 164.87+36.44. mean triglyceride was 162.56+72.07 and mean HDL was 25.44+2.57. 20 cases had <140 cholesterol, 22 had 140-200 and 8 had >200. 30 cases had triglyceride >135 and40cases had HDL <40.

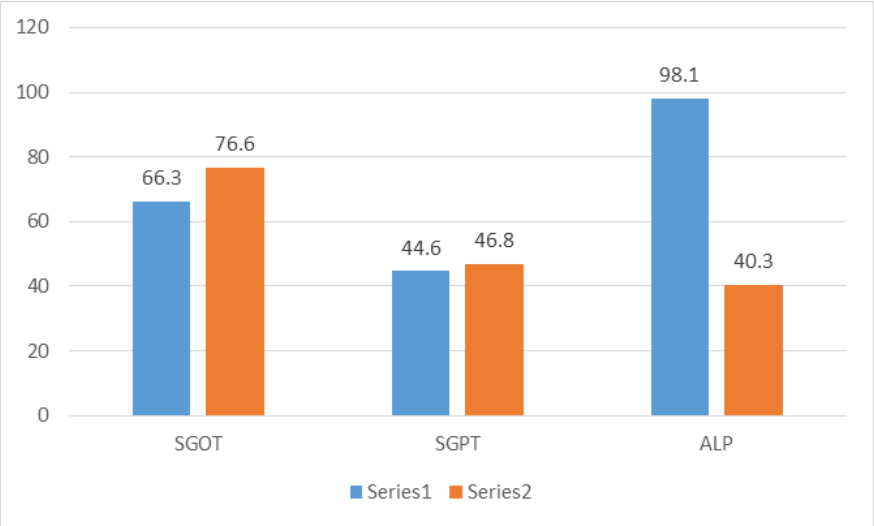

Figure 2: Liver Function test

Mean SGOT was 66.3+ 76.6, mean SGPT was 44.6+46.8, mean ALP was 98.1+40.3.

Table 4: USG finding

USG grading	Frequency	Percentage
1	30	60%
2	15	30%
3	5	10%
Total	50	100%

On USG finding majority 60% had grade 1, 30% had grade 2 and 10% had grade 3.

DISCUSSION

Present study showed that majority 79% were in age group >40 years. Mean age in years was 65.8 +11.26, ranging from 30 to 75. male preponderance was seen 60% were males and 40% were females. Mean HbA1C was 7.5+0.73, ranging from 5.1 to 12.5. majority 70% had HbA1C >6, 20% had between 5.7- 6 and 10% had <5.7.

Mean cholesterol was 164.87+36.44. mean triglyceride was 162.56+72.07 and mean HDL was 25.44+2.57. 20 cases had <140 cholesterol, 22 had 140-200 and 8 had >200. 30 cases had triglyceride >135 and40cases had HDL <40. Mean SGOT was 66.3+ 76.6, mean SGPT was 44.6+46.8, mean ALP was 98.1+40.3.On USG finding majority 60% had grade 1, 30% had grade 2 and 10% had grade 3.

Study by Mauricio Montemezzo *et al*., [6] showed that out of 139 patients, of whom 83 (59.7%) were male, with a mean age of 59.7 years. Ichikawa, K *et al*., [7] conducted a prospective pilot study among 529 patients (61% men, mean age 65 years). Study by Nimer Assy *et al*., [8] showed that 86% were males & mean age was 53+7. In other Indian studies mean age was reported to be 42.90±10.54 years by Roli Agarwal *et al*., [11], 40.9±11.1Years by Bajaj *et al*., [12] 37.84±10.71 by Ajay duseja *et al*., [13].

Choi DH *et al*., [9] also had similar results, mean total cholesterol was 195.6+39.1, mean HDL was 38.4+12.1, mean triglyceride was 177.4+94.4, mean HbA1c was 6.3+1.2. Roli Agrawal ***et*** *al*., [11] reported elevated ALT and AST in 97.6% and 98.4% 69 respectively. Other studies have also reported a high incidence of raised AST/ALT levels in patients ranging from 85-88%.

Mauricio Montemezzo *et al*., [6] showed that the intensity of NAFLD detected by ultrasonography is strongly associated with DM. Study by Pande A *et al*., [10] showed 49%, 38% and 13% of cases had grade I, II, and III fatty liver respectively. Mohan *et al*., [14] reported the occurance of NAFLD in diabetics to be 54.5%. Roli Agrawal *et al*., [11] reported that 48.1%, 40.3% and 11.3% had grade I, II and III fatty liver respectively.

CONCLUSION

From the study it was seen that the lipid profile and liver function test findings were on a raised side. So the physician treating the type II DM cases having raised lipid and LFT should have a high suspicion of NAFLD. Early diagnosis and treatment of NAFLD will help in minimizing further complications and will have a good prognosis for the disease.

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