WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 13, Issue 1, 1066-1074. Research Article ISSN 2277–7105

TREATMENT OF NON ALCOHOLIC FATTY LIVER DISEASE

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Article Received on
02 November 2023,

Revised on 23 Nov. 2023,
Accepted on 13 Dec. 2023

DOI: 10.20959/wjpr20241-30423

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ABSTRACT

Introduction: Non-alcoholic fatty liver disease (NAFLD) is a very common disorder and refers to a group of conditions where excess fat accumulates in the liver of a person who drinks little or no alcohol. NAFLD is part of a metabolic syndrome characterized by diabetes, or pre- diabetes (insulin resistance), being overweight or obese, elevated blood lipids such as cholesterol and triglycerides, as well as high blood pressure. **Methods:** This was a prospective and longitudinal study in which 163 subjects were enrolled based on the inclusion and exclusion criteria from Sagar Hospitals. This study was assessed and evaluated by suitable statistical method. **Results:** In this study, the laboratory parameters of the subjects such as SGPT, SGOT, Fibroscan and USG were assessed to identify the underlying conditions and accordingly the treatment was initiated. From the obtained data, ursodeoxycholic acid was prescribed most frequently for treating NAFLD. By comparing the values of SGOT, SGPT and Weight, the effectiveness of treatment was determined. **Conclusion:** This study demonstrates that as people become older, their living patterns alter and more liver related problems develop. Additionally, comorbid disorders like HTN and DM are more common in males than in females. Thus, NAFLD is more common in males than in females. Pharmacotherapy and non-pharmacotherapy are used to improve the patient's state and avert further problems in the majority of NAFLD patients.

KEYWORDS: Fatty liver, Fibroscan, SGOT, SGPT, USG.

INTRODUCTION

Non-alcoholic fatty liver disease (NAFLD) is a very common disorder. It is a condition in whch there is accumulation of excess fat in the liver who drink little or no alcohol. Fatty liver

is the most common form of NAFLD. People suffering from NAFLD may also develop NASH (non-alcoholic steatohepatitis). NASH is a more serious condition which may result in excess fat accumulation which may further lead to hepatocellular inflammation and scarring. Scarring may lead to a serious condition called liver cirrhosis. Cirrhosis is a very serious condition which indicates severe liver damage.

Some patients with cirrhosis may require a liver transplant. NAFLD is a part of metabolic syndrome that is characterized by diabetes or prediabetes (insulin resistance), being overweight or obese, high blood lipids such as cholesterol, triglycerides and high blood pressure. NASH can be developed due to several factors, the researches are trying to focus and find out the exact factors thatt contribute to the development of NASH.

The factors that contribute to the development of NASH are oxidative stress, production and release of toxic inflammatory proteins by the liver cells, inflammatory cells, the proteins over hepatocytes or fat cells, necrotic or dead hepatocytes, so called programmed cell death, inflammation of adipose tissue and leukocyte infiltration, coli the gut microbiota may play a role in the hepatitis process.

When we see in modern times NAFLD is rapidly becoming the most common liver disease in the world. Talking about the prevalence of NAFLD in western countries is 20-30%. 2-3%of the general population has NASH which further leads to cirrhosis and hepatocellular carcinoma. NAFLD mostly affects men and increases with age. The prevalence of NAFLD is 80-90% in obese adults, 30-40% in diabetic patients and up to 90% in hyperlipidaemia patients.

The prevalence of NAFLD in children is 3-10% reaching 40-70% in obese children. In addition, paediatrics NAFLD has grown from about 3 years to 5% today, 3 with a 2:11 male to female ratio. The features of NAFLD seen in children would be distinct than the features seen in adults.

In conclusion, NAFLD is a common condition that can lead to serious liver damage if left untreated. Lifestyle changes, such as maintaining a healthy weight, exercising regularly, and following a healthy diet, can help prevent and treat NAFLD.

METHODOLOGY

Study Site

The research was conducted at Sagar Hospitals' Intensive Care Unit in Bengaluru.

Study Design

This was a prospective and longitudinal study.

Sample Size

A total of 163 patients from Sagar Hospitals' Intensive Care Unit who met the study's eligibility criteria and provided informed consent were enrolled in the study.

Study Period

The study spanned a six-month period from January 2022 to July 2022.

Ethical Approval

Ethical clearance was granted by the Institutional Ethical Committee (IEC) of Sagar Hospital.

Study Criteria

Inclusion criteria

- Patients with fatty liver as determined by ultrasound (USG) with elevated ALT/SGPT levels.
- Patients aged 21 years or older.

Exclusion criteria

- Patients who tested positive for hepatitis B or hepatitis C.
- Patients with a history of alcoholism.
- Patients with a history of complementary and alternative medicine usage.

Study Material

Data was collected using a Data Collection Form and Patient Consent Form.

Source of Data

Data sources included patient case notes, treatment charts, laboratory reports, and patient interactions.

Study Procedure

1. Patient Enrolment

Patients diagnosed with non-alcoholic fatty liver disease (NAFLD) were admitted to Sagar Hospital's Department of Gastroenterology. Eligible patients who provided informed consent were enrolled based on predefined criteria.

2. Data Collection Methods

A prospective and longitudinal study was conducted in the Department of Medicine and Gastroenterology. Enrolled patients' demographic information, including age, sex, weight, BMI, impaired glucose levels, and elevated cholesterol levels, was recorded. Past medical history, medication history, and current treatment plans were collected to assess comorbidities. Pre- and post-therapy data on SGOT, SGPT, and Fibroscan score levels were recorded to evaluate the impact of medication on NAFLD. Laboratory profiles, including lipid profiles, BMI, waist circumference, bilirubin, platelets, HbA1C, hemoglobin, WBC count, and fibroscan score levels, were obtained from laboratory reports to assess therapy efficacy. These data were meticulously documented in a standardized data collection form. We referred to reputable references, such as Micromedex Software, Textbook of Pharmacotherapy by Joseph T. Dipiro, Herfindal's Textbook of Pharmacotherapy, and Applied Therapeutics by Koda Kimble. Data analysis was performed using appropriate statistical tools.

3. Statistical Methods

Descriptive statistical analysis was employed for data representation, including the calculation of frequency and percentages, with data presented in charts. Microsoft Word and Excel were utilized to generate tables and graphs.

4. Statistical Software

IBM SPSS version 28 was used for data analysis and chart creation.

RESULTS AND DISCUSSION

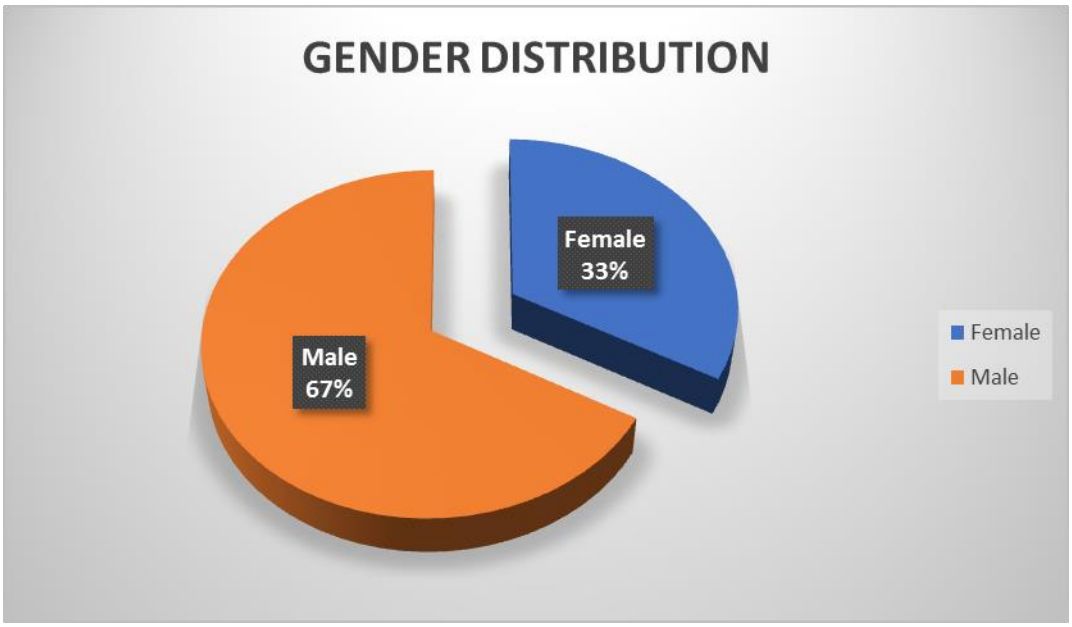

Fig. 01: Subjects are distributed based on gender.

Fig. 01 illustrate that out of the 163 patients included in the study, 54 were female (representing 33%), and 109 were male (representing 67%). This data highlights a male predominance in NAFLD, which aligns with the general trend of higher NAFLD prevalence in men up to the age of 60. However, beyond menopause, the prevalence of fatty liver tends to rise in women.

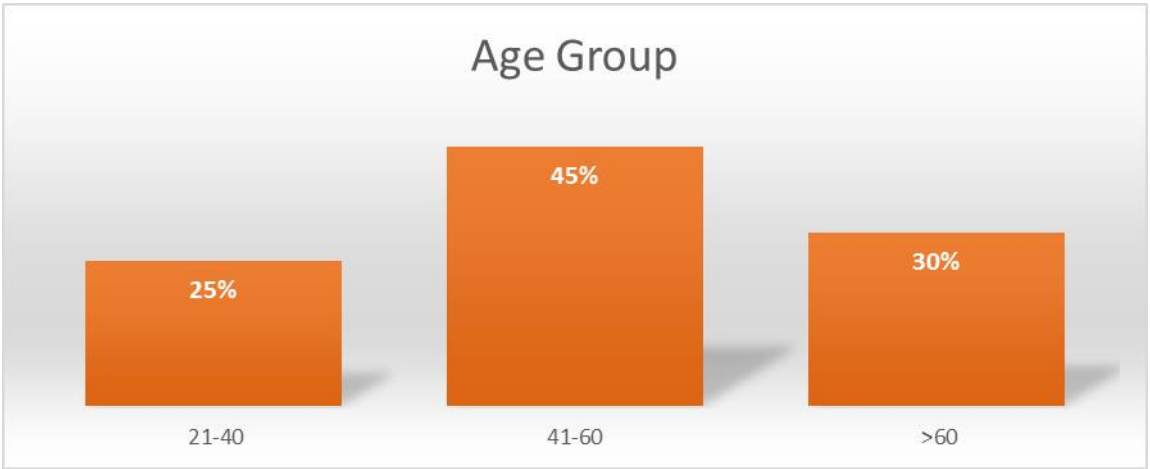

Fig. 02 Subjects are distributed based on age group.

Fig. 02 display the age distribution of the study's population, with 25% in the 21-40 years age group, 45% in the 41-60 years age group, and 30% in the above 60 years age group. This

suggests a higher incidence of NAFLD in the 41-60 years age group, which is often associated with certain conditions such as obesity, diabetes (DM), and hypertension (HTN).

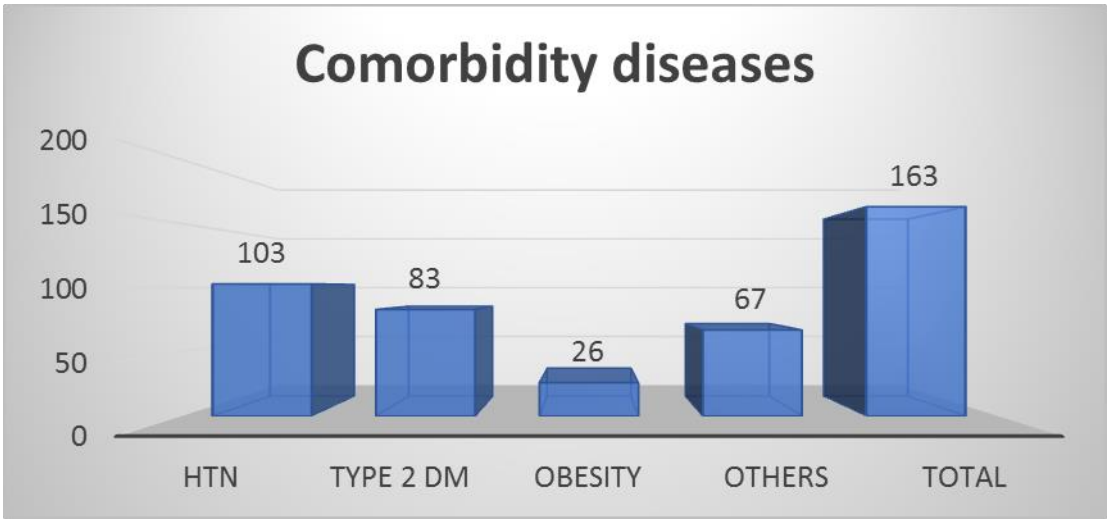

Fig. 03: Subjects are distributed based on their comorbidity diseases.

Fig. 03 outline the prevalence of comorbid diseases among the study participants. A significant number of patients had hypertension (103), followed by diabetes mellitus (83), and a smaller group had obesity (26). Most patients had multiple comorbid conditions. NAFLD is closely linked to systemic diseases like cardiovascular disease (CVD), type 2 diabetes, obesity, and metabolic syndrome.

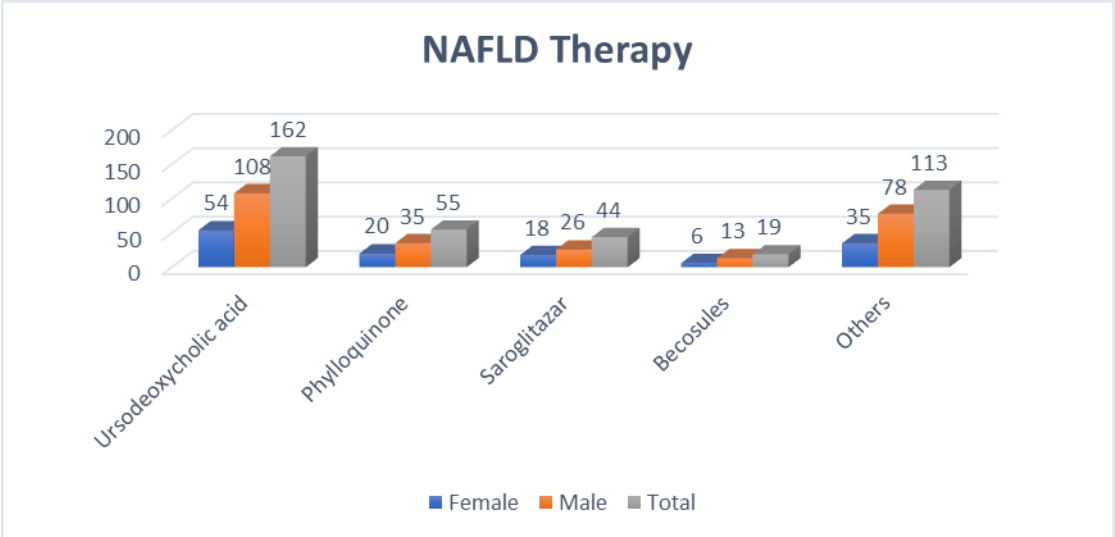

Fig. 04 Subjects were distributed based on the treatment provided for NAFLD.

Fig. No. 04 shows the distribution of subjects based on their NAFLD therapy. The majority of subjects received ursodeoxycholic acid (162), while the fewest were prescribed

becosules.[19] Among males, ursodeoxycholic acid was the most common treatment (108), with becosules being the least frequent.[13] Among females, ursodeoxycholic acid was also the primary therapy (54), and becosules were the least prescribed.[6] Ursodeoxycholic acid is administered due to its potential to alleviate NAFLD by inhibiting apoptosis and enhancing autophagy through AMPK activation.

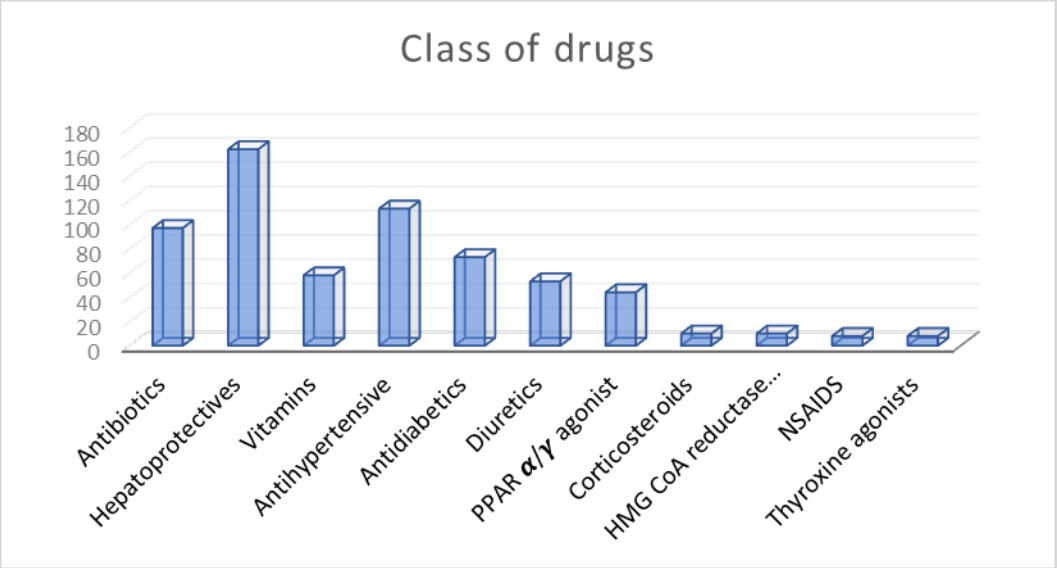

Fig. 05: Subjects Were Distributed Based on The Class of Drugs Used In Treatment.

Fig. No. 10 displays the allocation of subjects according to the classes of drugs used in treatment. The majority of patients were administered hepatoprotectives (162), while the fewest received NSAIDs (08) and thyroxine agonists (08). It's noteworthy that many patients were prescribed multiple classes of drugs.

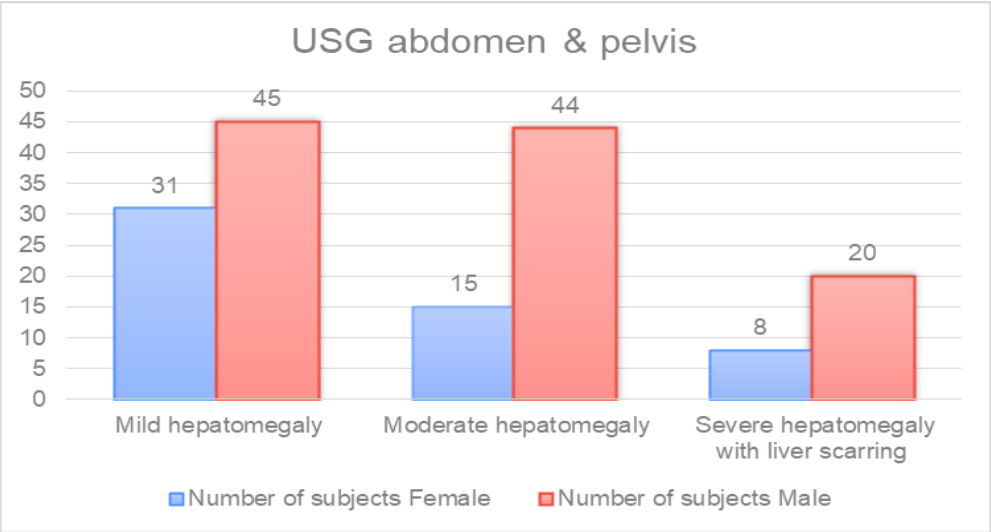

Fig. 06 Subjects were distributed based on USG abdomen and pelvis.

Fig. No. 13 illustrates the breakdown of subjects based on their USG abdomen and pelvis reports. Among male subjects, mild hepatomegaly was observed in 45 cases, while severe hepatomegaly was the least common, occurring in 20 cases. For female subjects, mild hepatomegaly was more prevalent (31 cases), and severe hepatomegaly was less frequent, recorded in 8 cases.

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