



Study on Prescribing Pattern of Drugs in Patients with Alcoholic Liver Diseases in a Tertiary Care Hospital, Assam

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Abstract

Background: Alcoholic Liver Disease (ALD) encompasses a range of conditions such as cirrhosis, hepatocellular carcinoma, steatohepatitis and fatty liver that result from excessive alcohol consumption. A period of alcohol abstinence combined with nutritional supplements is beneficial for liver health. Indicators for WHO core prescription are a valuable resource for assessing the appropriate use of medications in patients with alcoholic liver disease.

Aim and Objective: To use WHO core prescription indicators to examine the medicine prescribing trend for alcoholic liver disease.

Methodology: During this five months study from May 2023 to September 2023, in the Tezpur Medical College and Hospital, medical records were examined of patients who were diagnosed with ALD.

Results: A total of 110 prescriptions are studied in which 776 number of drugs are prescribed, with an average of 7.05 medications per prescription. Out of 776, 553 number of drugs i.e. 71.2% are written under generic names and 69.1% are from national lists of essential medicines. The most often prescribed medications (28.3%) are hepato-protective therapy. Patients with alcohol-related liver illness may frequently exhibit a variety of supplementary co-morbidities, including edema, hepatic encephalopathy, and upper gastrointestinal bleeding. Numerous additional drugs are also prescribed for the same reason.

Conclusion: Periodic study of the drug prescription pattern of medications using WHO core prescribing indicators is necessary to enhance physician's prescribing practices, quality of health care and this study may further minimizes potential drug-drug and drug-alcohol interactions, and contribute to better health outcomes.

Keywords: Alcoholic Liver Disease; Hepato-Protective Drug; WHO Core Prescribing Indicators

Introduction

The outcome of excessive alcohol intake include fatty liver disease, alcoholic hepatitis, and persistent hepatitis with fibrosis or cirrhosis ¹. Alcoholic liver disease (ALD), also known as Alcohol Related liver disease (ARLD), is the result of alcohol overconsumption. The three distinct forms of alcoholic liver disease are fatty liver (steatosis), acute alcoholic hepatitis, and alcoholic cirrhosis [1]. The current study seeks to analyze the prescribing patterns of pharmaceuticals used in alcoholic liver disease using WHO core prescribing indicators, which are an essential tool for monitoring the appropriate use of prescription drugs in patients with alcoholic liver disease. Because alcoholic liver disease can be silent until difficulties become apparent, treating physicians must have a high index of suspicion when identifying patients who are overindulging in alcohol and developing liver disease. Theoretically, population-level strategies targeting the reduction of alcohol use per capita should also lower the death rate from alcohol-related illnesses. Individually, early disease detection, abstinence from consuming, and efficient treatment of nested complications are critical and beneficial in lowering mortality [2]. The recommended daily allowance of alcohol is 10 g, which is about equal to the amount of alcohol in a glass of beer, a wine glass, or a small shot of spirits. The most recent National Health and Medical Research Council guidelines suggest the following based on epidemiological statistics and life risk evaluations resulting from excessive alcohol consumption: Limiting daily alcohol consumption to two standard drinks for both men and women in good health reduces the lifetime risk of alcohol-related illness or injury. When concomitant risk factors such as iron overload, obesity, or viral hepatitis are present, cirrhosis eventually develops more commonly and at an earlier age. Furthermore, it is clear that the mortality curve associated with alcohol consumption is a J curve. Mortality is lowest in males with an intake of two units per day after that it begins to rise steeply [3]. The recommended daily allowance of alcohol is 10 g, which is about equal to the amount of alcohol in a glass of beer, a wine glass, or a small shot of spirits. Males who consume two units per day have the lowest based mortality; after that, it starts to grow sharply [3]. Prescription patterns are crucial for evaluating how doctors are currently using drugs in their practices. Studies of prescribing patterns also aim to track, evaluate, and recommend additional changes to doctors' practices in order to raise awareness of rational drug use among all parties and to make treatment more affordable for the patients who are impacted [4,5].

Medications that are prescribed in the right dosage, at the right intervals, and for the right amount of time are referred to as rational medication prescriptions. The issue of illogical drug prescriptions plagues several countries, including India, and puts doctors at danger of legal ramifications when they write prescriptions. Worldwide, alcoholic liver disease (ALD), which can begin as steatosis and progress to cirrhosis [6], is the leading cause of chronic liver disease.

The most common cause of death worldwide is widely acknowledged to be ALD and its aftermath. The number of individuals with ALD is approximately two million. Over sixty diseases and alcoholism have been linked; ALD is the primary cause of alcoholism-related mortality. Over the last ten years, India's alcohol consumption rate has been seen to have increased to 106.7%. According to studies by the World Health Organization, more than thirty percent of Indians consume alcohol, and about fifty percent of those are heavy users, with an average age between 17 and 28. Alcohol consumption is believed to be the cause of 2.5 million deaths globally each year, or 5.9% of all fatalities. Men who are between the ages of 35 years and 64 years exhibit a significant risk rate. Men who continue to use alcohol for over ten years (equivalent to 80 grams per day) have a virtually 100% chance of acquiring liver disease [7]. Alcohol intake may lead to premature death worldwide, accounting for 3.8% of all deaths and 4.6% of disability-adjusted life years (DALYs) [8]. Ethanol consumption of 12–24 grams per day increases the chance of death. The National Institute on Alcohol Abuse and Alcoholism defines a standard drink as 11–14 grams of alcohol, which is the same as one glass of wine, one drink of 40% spirit, or 0.33 liters (12 ounces) of beer. That means that a "safe" amount of alcohol consumption is two "drinks" each day. Approximately 100% of those who use 80 grams of alcohol or more every day for a ten-year period will go on to develop liver disease. Increased mortality is closely connected with both the rate and degree of malnutrition; in individuals with severe malnutrition, this death rate surpasses 80%. Abnormalities in micronutrients, such as low vitamin-A levels or hepatic vitamin E depletion, exacerbate pre-existing liver disorders [8-10].

Materials and Methods

- Study design- Retrospective and Observational study
- Study Centre- Tezpur Medical College and Hospital, Assam, Indi

- Study duration- 5 months (May-Sept, 2023)
- No. of prescriptions taken- 110
- Sample size- 110
- Ethical permission was obtained.
- Institutional Ethical Committee clearance no.- 097/2023/ TMC&H
- Study year- 2023
- Inclusion Criteria- Adult patients of either sex between 18 to 60 years diagnosed with ALD
- Exclusion Criteria- Pregnancy, lactating women are excluded.
- Study tool- The prescriptions of diagnosed ALD cases are collected from MRD section.
- Data analyzed using Microsoft excel and results represented in percentage.

INDICATORS	
Average no. of drugs prescribed per encounter	7.05 (total 776 drugs per 110 no. of prescriptions)
Drugs prescribed by generic name	71.2%
Encounters where antibiotics prescribed	18.8% (140 nos. of antibiotics out of 776 drugs)
Encounters where injections prescribed	10.9% (85 nos. of injections out of 776 drugs)
Drugs prescribed from National List of Essential Medicines	69.1%

Table 1: Drugs prescribed using who core prescribing indicators.

Results

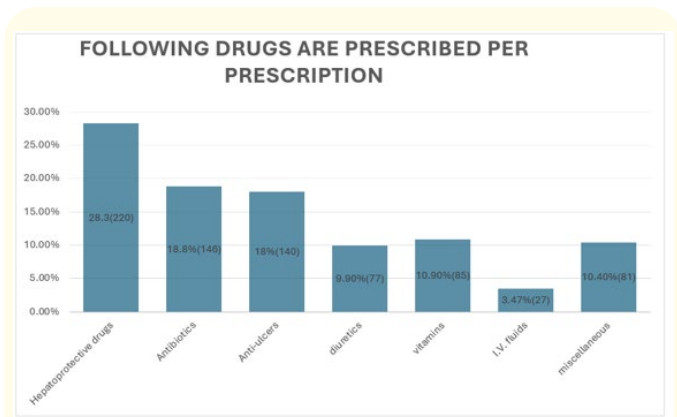
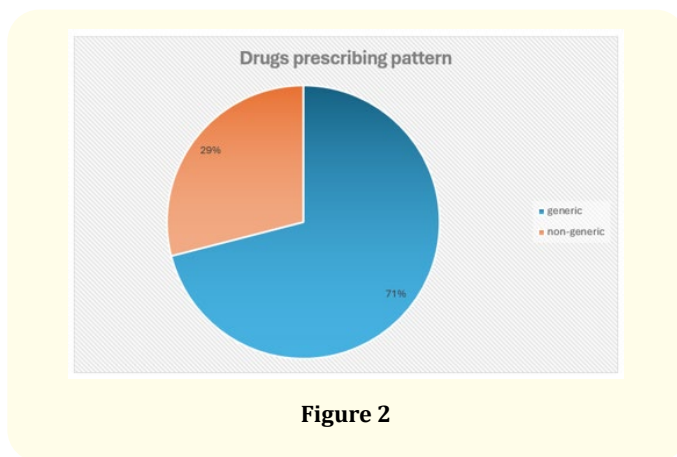
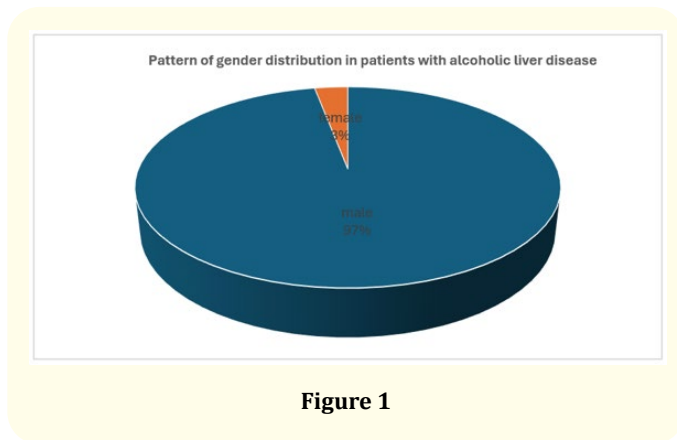


Figure 3

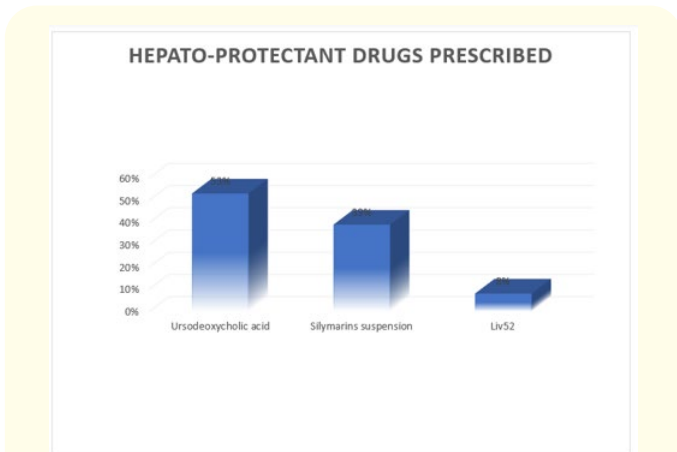


Figure 4

Vitamin K injections	66%
Thiamine injections	34%

Table 2: Vitamins Prescribed.

Ceftriaxone	50%
Piperacillin- Tazobactam	37%
Ceftriaxone- Sulbactam	13%

Table 3: Antibiotics prescribed are.

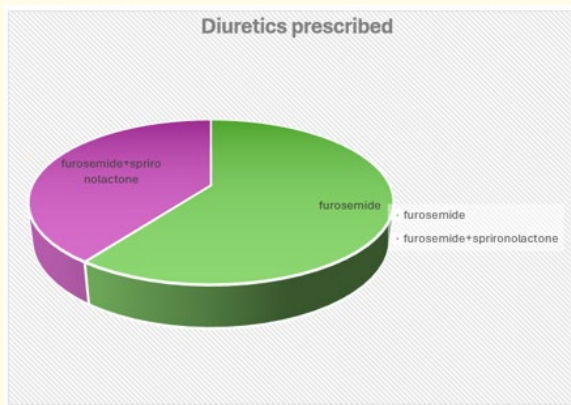


Figure 5

Omeprazole	73%
Ranitidine	12%
Pantoprazole	15%

Table 4: Antiulcer drugs prescribed are.

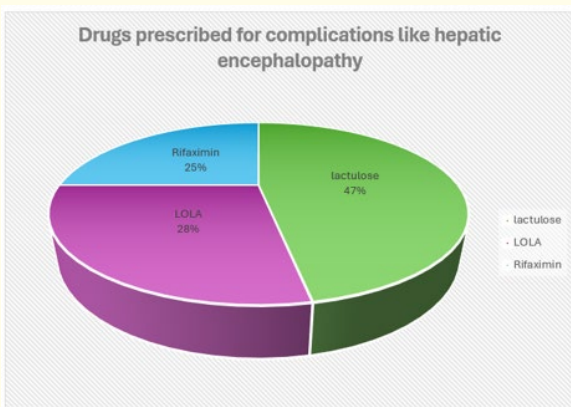


Figure 6

Discussion

Alcohol use is soaring all around the world. Alcohol abuse is the leading cause of liver damage in people. Alcohol consumption increases social and financial costs, as well as the rate of illness and mortality. A prescription written by a doctor could be read as an endorsement of the drug's effectiveness in treating the ailment and the doctor's viewpoint on the condition. Consequently, prescription practices vary among physicians. Since there is currently no proven treatment for ALD, medications will be a challenge for doctors to prescribe because side effects and symptoms play a major role in therapy decisions. The goal of the current study is to characterize the medication prescription pattern used by ALD patients.

This is an observational study carried out in a hospital. The study group consisted of 110 patients' prescriptions with Alcoholic Liver Disease (ALD) who were hospitalized in the Department of Medicine at Tezpur Medical College and Hospital between May 2023 and September 2023. Male : Female ratio is 97:03. This suggests that the population under study is mostly in males who are more vulnerable to ALD. This could be because of the reason that men drink alcohol at higher rates in comparison to females. These findings are at per with study by Vinayak S. Jamdade., *et al.* [4].

Of the 776 medications that were prescribed in total, 71% and 29% of the medications were prescribed under generic names and non-generic names, respectively. The WHO core prescribing indicators were used to analyze the prescription drugs. The results indicated that the average number of prescriptions prescribed per encounter was 7.05, that the percentage of prescriptions prescribed by generic name is 71.2%, that the percentage of prescriptions included antibiotics (146 nos. of antibiotics out of 776 drugs) is 18% , the percentage of encounters with injection prescriptions (85 nos. out of 776) is 10.9% and that the percentage of prescriptions from the National List of Essential Medicines (NLEM) is 69.1%.

Hepato-protectants were utilized to restore the liver's function as ALD damage the liver function to variable extents. The most prescribed medications include hepatoprotective medications (220 nos. out of total 776 drugs prescribed) is 28.3%, ursodeoxycholic acid (UDCA) (53%), silymarins (38%), and Liv-52 pills (8%) which is a herbal product.

Antibiotics (146 nos. out of total 776 drugs prescribed) is 18.8% are the next most prescribed medications, followed by anti-ulcer medications (18.0%) i.e. 140 nos. out of total 776. Vitamins are required to correct the nutritional deficiencies that people with alcoholism frequently suffers from. Since the liver plays a crucial role in the body's defense against microorganisms, injury to it raises the likelihood of bacteremia in individuals who need antibiotics for either preventative or therapeutic reasons.

Vitamin supplements i.e. 85 nos. out of total 776 (10.9%), vitamin K injections (66%) and thiamine injections (34%) respectively, are indicated for patients with alcoholic liver disease when PT INR is abnormal.

Cephalosporins, ceftriaxone (50%), piperacillin and tazobactam combinations (37%) are among the antibiotics mostly used for the lower respiratory tract infections. Ceftriaxone-Sulbactam combinations (13%) are also administered.

Diuretics as such total 77 drugs out of 776 drugs being prescribed where Furosemide (60%) is the diuretic that is prescribed the most frequently, followed by combinations of Furosemide and Spironolactone (40%), the latter of which is an FDC and has better acceptance. Omeprazole is the anti-ulcer medication that is prescribed the most (73%), followed by ranitidine (12%), and pantoprazole (15%). Lactulose (47%) is prescribed, followed by LOLA (L-Ornithine-L-Aspartate) (28%), and Rifaximin (25%) to protect the intestinal flora in patients experiencing problems such as hepatic encephalopathy. At this setup, benzodiazepines such as Lorazepam are also administered to treat cases of alcohol withdrawal.

Conclusion

A periodic analysis of the prescription pattern of drugs using WHO core prescribing indicators is essential for improving the prescribing practices, it also helps reducing the drug-drug interactions and the drug-alcohol interactions. Periodically analyzing the prescription pattern of pharmaceuticals using WHO core prescribing indicators is necessary to enhance prescribing practices and reduce drug-drug and drug-alcohol interactions.

In our prospective observational study, we examined the drug prescription patterns utilized in patients with ALD and observed that, among adult patients, men are more likely than women to

develop ALD. This might be mostly because of the increased alcohol use, which in the case of men in India is one of the major risk factors for cirrhosis. The only medications provided for treating alcohol withdrawal were benzodiazepines like Lorazepam; the use of these medications to reduce the symptoms of the patients and their care was entirely dependent on symptoms of the illness, hence preventing the morbidity and death linked to this illness.

The medications that were prescribed (82.11%) from NLEM-2015 exhibit a divergence from the standard guidelines. Furthermore, in order to obtain the most accurate results regarding ALD prescribing practices, multi-centered study should be conducted. Alcohol use should be reduced in addition to treatment to assist reduce complications and mortality in individuals with ALD. Currently no clear-cut pharmaceutical management guidelines for ALD is available that has proven to be effective. The quality of healthcare may be enhanced by having clinical pharmacists participate more in clinical rounds and by encouraging judicious medication usage and adherence. Physicians who emphasize drug use in ALD patients must adhere to ALD treatment guidelines and receive ongoing education on rational prescribing.

Patients can prevent disease-related morbidity and mortality by detecting ALD early and abstaining from alcohol. In ALD, the use of appropriate and controlled medications offers tremendous hope since they can lower the risk of hepatotoxicity by changing dosage, ensuring patient adherence to medication, and evaluating various comorbidities to better understand the pathophysiology of various subjects.

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Self.

Ethical Approval

The study was approved by the Institutional Ethics Committee Tezpur medical college and hospital.

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Conflict of Interest

There is no conflict of interest among the authors.

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