

Original Research Article

PRESCRIBING PATTERN OF DRUGS IN PATIENTS WITH ALCOHOLIC LIVER DISEASE IN A TERTIARY CARE TEACHING HOSPITAL

Mohammad Arshad¹, Neelamma², Raghunandan³, Mohd Fayazuddin³

¹Professor & HOD, Department of Pharmacology, Raichur Institute of Medical Sciences, Raichur, Karnataka, India

²Assistant Professor, Department of Pharmacology, Karwar Institute of Medical Sciences, Karwar, Karnataka, India

³Associate Professor, Department of Pharmacology, Raichur Institute of Medical Sciences, Raichur, Karnataka, India

Received : 08/08/2025
Received in revised form : 29/09/2025
Accepted : 17/10/2025

Corresponding Author:

Dr. Mohd Fayazuddin,
Professor & HOD, Department of
Pharmacology, Raichur institute of
medical sciences, Raichur, Karnataka,
India.
Email: drmdfayazuddin1983@gmail.com

DOI: 10.70034/ijmedph.2025.4.113

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2025; 15 (4); 631-635

ABSTRACT

Background: Alcoholic liver disease (ALD) is the most common cause of mortality among alcoholics. Several drugs are being used in patients with ALD with varied success. The aim of this study is to evaluate the prescribing pattern of drugs used in patients with ALD using WHO Prescribing indicators.

Materials and Methods: A retrospective observational study was carried out in tertiary care hospital i.e. Raichur Institute of Medical Sciences- RIMS. The case record files of all in patients of medicine department with a diagnosis of ALD admitted between September 2019 to February 2020 were retrieved from medical records section & data was collected. The details of drugs prescribed was recorded and their rationality was evaluated using the WHO core drug prescribing indicators.

Results: A total 84 patients satisfied the inclusion criteria and were chosen as study participants. Majority of patients were males (81) with average age of 45 years. Average number of drugs per encounter was 8 in our study. Percentage of drugs prescribed by generic name was 46% & drugs prescribed from essential drug list was 95%. Percentage of encounters with antibiotics prescribed was 92% & injection prescribed was 100 %. Most commonly prescribed drugs were Ranitidine (87%), ceftriaxone (79%), thiamine (70%). In our study 15 different kinds of FDCs were prescribed with DNS, B Complex, Furosemide+ spironolactone being prescribed maximum.

Conclusion: Drugs prescribed by generic name was 46% which was less & drugs prescribed from NEDL was 95% which was good in our study.

Keywords: Alcoholic liver disease, Prescription pattern, WHO Prescribing indicators, drug utilization.

INTRODUCTION

Alcoholism, or liquor abuse, is described, according to the diagnostic and statistical manual of mental disorders, as a problematic pattern of alcohol use leading to clinically significant impairment or psychological distress.^[1] Alcohol use was the driving cause for inferable burden of disease among individuals aged 25 to 49 years, the 2nd driving hazard figure among ages 10 to 24 and the 9th driving hazard among all ages. In a year, alcohol use accounts for 2.07 million deaths of males and 374,000 deaths of females, globally.^[2]

In spite of the fact, that alcoholism is related with more than 60 diseases, most deaths occur from

alcoholic liver disease (ALD). ALD includes alcoholic steatosis, alcoholic hepatitis, and alcoholic cirrhosis in order of increased severity. ALD accounts for 40% of deaths from cirrhosis.^[3,4] Annual mortality for ALD is 4.4/1,00,000 within the common population. Development of ALD is dose-dependent and drinking ≥ 30 g/d of liquor increases the danger of developing ALD in both sexes.^[5,6] Women are more prone to develop ALD than men, due to differences in ethanol metabolism.

Many drugs are right now being utilized in the treatment of ALD, which incorporates pentoxifylline, ursodeoxycholic acid, metadoxine, corticosteroids and a few elective drugs like Liv 52 and silymarin but with varied success. Along with these, a few drugs

are also utilized to treat the complications of ALD like anti-microbials for infections; lactulose, rifaximin and L-ornithine L-aspartate for encephalopathy; diuretics for ascites, octreotide, propranolol, ethamsylate for variceal bleeding; disulfiram and naltrexone for alcohol dependence & chlordiazepoxide for treating withdrawal symptoms.^[7,8]

Chronic liver disease (CLD) is a progressive deterioration of liver functions for more than six months. The range of etiologies is wide for chronic liver disease, which involves toxins, alcohol abuse for a prolonged time, infection, autoimmune diseases, genetic and metabolic disorders.^[9] Alcohol is a well-known psychoactive substance with addicting properties and has been broadly used in numerous societies for centuries.^[10] Alcohol has been depicted as a major cause for more than 200 illnesses and harmful conditions. Cancer, liver cirrhosis and injury are the three most common conditions that leads to death caused by alcohol. In addition to the health effects, alcohol also poses significant economic burden on society.^[11]

The study of prescribing patterns seeks to monitor, evaluate and suggest modifications in practitioners prescribing habits so as to make medical care rational and cost-effective. A medline search of prescribing pattern of drugs in ALD has not shown any positive results. Hence, we planned this study to evaluate the prescribing pattern of drugs used in patients with ALD.

MATERIALS AND METHODS

Study Design: This was a retrospective observational study that was carried out at a tertiary care teaching hospital i.e. Raichur Institute of Medical Sciences- RIMS teaching hospital Raichur, India. Prior permission of the Institutional Ethics Committee was obtained for conducting the study.

Source of data: Data like name, age, sex, diagnosis, ongoing treatment was recorded from ALD patient's case file of medicine department obtained from medical record section of the hospital i.e. Raichur

Institute of Medical Sciences- RIMS teaching hospital Raichur.

Study period: Data of patients matching inclusion criteria over a period of 06 months from September 2019 to february 2020 was recorded and analysed.

Sample size: 84 patients with ALD

Method of collection of data: Data was collected in a already prepared data collection form. Data of patients matching inclusion criteria was recorded. For studying the drug utilization pattern, following data was collected-(i) Age (ii) Gender (iii) Diagnosis of the patient, (iv) Ongoing treatment (v) Detailed information on drugs used including name of the drug, dosage schedule (form, route, and frequency) and duration of treatment was recorded from the patient medical records.

Rationality of prescriptions was analysed using the WHO core drug prescribing indicators, i.e. (a) average number of drugs per encounter (b) percentage of encounters with an antibiotic prescribed (c) percentage of encounters with an injection prescribed (d) percentage of drugs prescribed from the essential drugs list or formulary and (e) percentage of drugs prescribed by generic names. National List of Essential Medicines, 2015 was used for essential drug evaluation.

Inclusion criteria

Patients of either sex above 18 years of age and diagnosed to have ALD based on clinical and biochemical evidence during the above-mentioned period were included in the study.

Exclusion criteria

Pregnant, lactating and those with malignancy were excluded from the study.

Data analysis: Data was entered and analysed using Microsoft Excel. Results were expressed in terms of descriptive statistics. Different parameters were given as percentage.

RESULTS

The age distribution of the sample population of our study is as shown in [Table 1].

Table 1: Age distribution

Age Group(years)	No.	Percentage
18-30	21	25
31-40	18	21
41-50	21	25
51-60	7	8
>60	17	20
Total	84	

The gender distribution of the sample population of our study is as shown in [Table 2].

Table 2: Gender distribution

Sex	No of patients	Average age
M	81	45
F	03	57

Morbidity Pattern: In our study 43 patients were suffering from alcoholic liver disease and around 41 patients were suffering from alcoholic liver disease

with comorbidities like anemia, hepatitis, cirrhosis, hepatic encephalopathy, pancreatitis, portal

hypertension, pleural effusion, hypertension, kidney diseases.

The average number of drugs per encounter is 8 in our study. Total number of drugs per encounter

ranges from a minimum of 4 drugs to 13 drugs, Majority of patients were prescribed 6 to 10 different drugs as shown in the [Table 3].

Table 3: Total number of drugs per encounter

No. of drugs	No. of encounters	Percentage (%)
4	7	8
5	4	5
6	11	13
7	15	18
8	13	15
9	19	23
10	10	12
11	02	2
12	02	2
13	01	1

Table 4- Most frequently prescribed drugs

Sl. No.	Name of Drug	No. of Encounters	%
1	Ranitidine	73	87
2	Ceftriaxone	66	79
3	Thiamine	59	70
4	Normal saline	40	48
5	Vitamin K	39	46
6	Metronidazole	37	44
7	Ringer lactate	30	36
8	Furosemide	28	33
9	Dextrose normal saline	23	27
10	Ondansetron	22	26
11	Lactulose	20	24
12	Diclofenac	17	20
13	Tranexamic acid	13	15
14	Tramadol	13	15
15	Lorazepam	11	13
16	B complex	10	12
17	Furosemide + Spironolactone	9	11
18	Ursodeoxycholic acid	9	11
19	Salbutamol	9	11
20	Iron sucrose	7	8
21	Spironolactone	7	8
22	Iron folic acid, Rifaximin, Multivitamin injection	6 each	7
23	Albendazole, Amlodipine	5 each	6
24	Piperacillin + Tazobactam, Silymarin + Antioxidants + Vitamins, Dextrose, Dexamethasone	4 each	5
25	Vitcofol (Folic acid + Methylcobalamin + Nicotinamide), Hydrocortisone	3 each	4
26	Sodium bicarbonate, PRBC, Heparin, Levofloxacin, Pan MPS (Aluminium hydroxide + Magnesium hydroxide + Simethicone), Propranolol, Diazepam, Haloperidol, Azithromycin, Cefotaxime, Optineuron	2 each	2
27	Methylcobalamin + Alpha Lipoic Acid + Folic Acid + Pyridoxine, Loperamide, Amikacin, Torsemide, Meropenem, Cefixime, ORS, Torsemide + Spironolactone, Reheptin (Metadoxine + Pyridoxine + Folic Acid + L-Ornithine L-Aspartate + Silymarin), Ciprofloxacin, Calcium gluconate, Sodium chloride, Noradrenaline, Losartan, L-ornithine L-aspartate, Potassium chloride, Blood, Niacinamide, Clarithromycin, Aspirin, Moxifloxacin, Octreotide, Oxygen, Metoclopramide, Ambroxol, Pulmoclear	1 each	1

In our study, total encounters with an antibiotic prescribed were 77 and percentage of encounters with an antibiotic prescribed is 92%. Most of the

encounters contain a minimum of nil antibiotic to a maximum of 4 antibiotics. Number of antibiotics prescribed in an encounter is shown in the [Table 5].

Table 5: Number of Antibiotics in a prescription

No of antibiotics prescribed	No of encounters
0	07
1	37
2	34
3	05
4	01

Fixed drug combinations (FDC)-In our study 15 different kinds of FDCs were prescribed as shown in table 5

Table 6: Fixed dose combinations

Sl no	Drugs	Number	(%)
1	Dextrose normal saline	23	27
2	B complex	10	12
3	Furosemide + Spironolactone	9	11
4	Iron folic acid	6	7
5	Multivitamin injection	6	7
6	Piperacillin + Tazobactam	4	5
7	Liveril forte (Silymarin + antioxidants + vitamins)	4	5
8	Vitcofol (Folic acid + Methylcobalamin + nicotinamide),	3	4
9	Pan mps (Aluminium hydroxide + magnesium hydroxide + simethicone),	2	2
10	Optineuron (B complex + Vit B12)	2	2
11	Mecofol plus (Methylcobalamin+ Alpha Lipoic Acid+ Folic Acid + Pyridoxine)	1	1
12	ORS	1	1
13	Torsemide + Spironolactone	1	1
14	Reheptin (Metadoxine + Pyridoxine + Folic Acid + L-Ornithine L-Aspartate + silymarin),	1	1
15	Pulmoclear (Acebrophylline + Acetylcysteine)	1	1

WHO Prescribing Indicators

Total no of encounters= 84

Total no of drugs prescribed=653

Number of drugs prescribed by generic name= 300

Number of the drugs prescribed from essential drug list= 621

Number of patients to whom an antibiotic is prescribed= 77

Number of patients to whom an injection is prescribed= 84

Table 7: WHO prescribing indicators

WHO Prescribing indicators	Result
Average no of drugs per encounter =total no of drugs prescribed//total no of encounters i.e. 653/84=8	8
Percentage of drugs prescribed by generic name =no of drugs prescribed by generic name/// total no of drugs prescribed *100 i.e. 300/653*100=46%	46%
Percentage of encounters with an antibiotic prescribed =no of patients to whom an antibiotic is prescribed /// total no of encounters*100 i.e. 77/84*100=92%	92%
Percentage of encounters with an injection prescribed = no of patients to whom an injection is prescribed // total no of encounters*100 i.e. 84/84*100=100%	100%
Percentage of drugs prescribed from essential drugs list =no of the drugs prescribed from essential drug list//total no of drugs prescribed *100 i.e. 621/653*100=95%	95%

DISCUSSION

There are only limited studies which evaluated the prescribing pattern of drugs used in ALD patients worldwide. In our study only 3 were females & majority 81 were males, out of 84 patients. This may be due to sociocultural aspects of this country, where almost exclusively males are involved in alcohol intake. These findings are comparable to a study conducted by Kolasani BP et al.^[12] Majority of patients belong to 41-60 yrs. This can be explained by the habit of consuming the alcohol from a very early age in this region.

Most frequently prescribed drugs in our study were Ranitidine (87), Ceftriaxone (79), Thiamine (70), NS (40), Vitamin k (39), Metronidazole (39), Silymarin, B complex, diuretics. Nutritional deficiencies, electrolyte abnormalities, infections, liver damage are often encountered in ALD patients.^[13]

In our study polypharmacy was encountered as the average number of drugs per encounter was 8 as ALD patients suffer from multiple diseases and hence are prescribed multiple drugs. This finding is similar to a study done by Ravikumar D et al.^[14]

Drugs prescribed by generic name was only 46% in our study which is found to be much lesser than the standard 100 %. This finding is similar to a study done by Zeebaish S et al.^[15] Prescribing drugs by

brand name can have several disadvantages like higher costs, limited availability of generic alternatives and potential for patients to receive brand-name drugs when a generic would be equally effective.

In our study antibiotics prescribed was 92% with ceftriaxone being most prescribed antibiotic, injections prescribed was 100% as majority of them were ipd patients with infections due to alcoholic liver damage & drugs prescribed from essential drug list was 95% which is good in our study as it will result in better quality of health care, better management of medicines and more cost-effective use of health resources. These findings are different when compared to a study done by Jamdadea VS et al.^[16]

CONCLUSION

Prescription pattern analysis studies help to assess drug prescribing and drug usage in a scientific and formal manner, which will indirectly facilitate rational prescribing of drugs by exclusive use of generic drugs, minimizing poly-pharmacy, encouraging prescription of essential drugs and reducing the use of antibiotics. Irrational prescribing leads to ineffective, prolonged & costly treatment. The study will suggest overuse, under-use or misuse

of drugs prescribed with overall improvement in the quality of health care.

Acknowledgments: The authors are thankful to the Director and Medical superintendent - RIMS-teaching hospital Raichur, for their unlimited help and support to carry out this work.

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