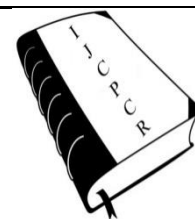




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**STUDY ON ASSESSMENT OF CLINICAL PROFILE AND
TREATMENT UTILIZATION REVIEW FOR LIVER DISEASE
PATIENTS IN A TERTIARY CARE TEACHING HOSPITAL AT
PALAKKAD**

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ABSTRACT

Background: The liver is the core of metabolic activity in the body. Around 50% of the classes of drugs are known to be hepatotoxic. Thus prescribing medications in patients with liver disease is indeed a challenging task. **Objective:** The objective of the study was to study the drug utilization pattern and complications in Liver disease patients. **Materials & Methods:** This prospective observational study was conducted at Karuna Medical College Hospital, Vilayodi, Chittur and the study period of six months. All the patients of either gender diagnosed with liver disease were enrolled in the study and patient consent was taken, the data related to the patients of various types of liver disease were documented in a structured patient data collection form and analysed carefully. **Results:** In this study 125 patients were enrolled, out of which male (74.4%) and female (25.6%) were analysed. The mean age of patients was 53.81 years. Overall, 505 drugs were prescribed for 125 patients, out of which GI drugs were most frequently prescribed drugs (19.4%) followed by diuretics (17.02%), multivitamins (14.8%), antibiotics (13.8%), anti-hypertensives (13.4%), hepato-protectants (9.9%), anti-inflammatory/analgesics (6.7%) and less commonly anti-emetics (4.7%). Portal hypertension (39.2%) was the most common complication shown by the patients followed by ascites (24.8%). Diuretics were the most commonly prescribed drug for complications of liver disease. Antibiotics has been categorised as monotherapy (81.45%) and combination therapy (18.54%), among which cephalosporins (44.55%) were the most commonly prescribed monotherapy of antibiotics and piperacillin + tazobactam (34.7%) were the most commonly prescribed combination therapy among study populations. **Conclusion:** The study enlightens the significance of early detection and diagnosis of liver diseases and its beneficial outcomes that prevent disease progression.

Key words: Liver disease, Drug utilization, Antibiotics, Prescribing Pattern.

INTRODUCTION

According to the world health organization (WHO), drug utilization is the process of prescription, distribution, and use of drugs in a country, regarding its outcomes, medical, social, and economic consequences. It is a system of ongoing and systematic criteria on the basis

of the assessment of drug use that helps to ensure drugs are used properly. By assessing drug utilization, it collects, analyses, and interprets drug usage patterns to improve the quality of drug use and patient outcomes

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The liver plays a major role in maintaining homeostatic, immunological, and synthetic processes. Hence, liver dysfunction and liver failure have significant consequences on overall health.^[1] Liver disease is the tenth most common cause of death in India as per the World Health Organization. Liver disease affects every one in five Indians. Liver diseases do not usually cause any obvious signs or symptoms until it's fairly advanced and the liver is damaged. Many liver function tests are available to test the proper function of the liver.

Liver Diseases explores a range of liver conditions, including cirrhosis, portal hypertension, alcoholic liver disease, viral hepatitis, autoimmune hepatitis, Wilson's disease, and acute liver failure, there are more than a hundred different kinds of liver disease.

Liver disease is gaining global recognition as an important chronic health disorder, due to the increasing prevalence of non-alcoholic fatty liver disease (NAFLD), hazardous alcohol intake, and viral hepatitis.

Liver Cirrhosis is the formation of fibrous tissue (fibrosis) in the place of liver cells that have died due to a variety of causes, including viral hepatitis, alcohol overconsumption, and other forms of liver toxicity.

Fatty liver disease (FLD), also known as hepatic steatosis, is a condition where excess fat builds up in the liver. Hereditary diseases that cause damage to the liver include hemochromatosis, involving accumulation of iron in the body, and Wilson's disease.

Numerous liver diseases are accompanied by jaundice caused by augmented levels of bilirubin in the body. Bilirubin is the result of degradation of haemoglobin of dead red blood cells which are normally removed by the liver and excreted via bile. In hepatitis, inflammation of the liver is caused by different viruses, but also some toxic substances, autoimmune diseases and inherited conditions.

The most common causes of advanced liver disease are chronic viral infections ([HCV] and [HBV]), alcohol abuse, autoimmune disease, drugs or toxins, metabolic disorders (e.g., alpha-1 antitrypsin deficiency, hemochromatosis, and Wilson disease), and biliary tract diseases.^(6 7)

The liver disease prognosis depends on how quickly the condition was diagnosed and treated. In the beginning stages, the liver disease usually responds to treatment, but in advanced liver disease, the damage was done by fibrosis, cirrhosis, and liver failure cannot be reversed. In the middle stages of the disease, treatment may work to help heal the damage, but as the disease progresses, treatments focus on managing the disease and prolonging the diagnosis.^[2]

Portal hypertension is the earliest and most important consequence of liver disease and underlies most of the clinical complications of the disease. Portal hypertension results from an increased intrahepatic

resistance combined with increased portal (and hepatic arterial) blood flow^[3]

METHODOLOGY:

A Prospective observational study was conducted in the Department of General Medicine and Department of Gastroenterology, Karuna Medical College Hospital, Chittur, Palakkad, Kerala, India. This study was conducted for a period of six months (January 2021–June 2021). We have collected 125 prescriptions in these six months study, after obtaining the consent from the patient. A specially designed proforma was used for collecting data which includes patient demographics, personal history, diagnosis and present medications prescribed for each patient. The data were obtained by direct patient interview and from patient case profiles. 125 cases were collected from general medicine wards, according to study criteria. Ethical clearance and approval of study was obtained from Karuna medical college ethical review board, institution of health before starting the actual data collection. Subsequent permission was granted from the college to assess data and interview patients. Each participant was asked to sign a informed consent before data collection. Patient's age >18 years, In-Patients & Out-patients, Patients with all types of liver disease and associated complications were included. Patients who are unconscious or in coma, Pregnant and lactating women, Unable to comply due to mental retardation, Concurrent chronic disease (renal failure, coronary heart disease) were excluded from this study. Data of patients matching inclusion criteria were recorded. Total 125cases were collected. The study was carried out for 6 months duration from January 2021 – June 2021. Data like name, age, sex, prescription drugs including antibiotics used were recorded in the prepared case record form

Study procedure:

All the patients of either gender diagnosed with Liver disease are confirmed by laboratory findings and patients willing to participate will be included in the study. Data extracted from the case files by using data collection form by either interviewing or by extraction of data from patient's case files or both of the above. All the patients admitted to general medicine with alcoholic liver disease and patients visiting General Medicine OPD with alcohol dependence syndrome were included in the study. Patients' social history, location, and demographic details; clinical data including duration of hospital stay, radiographic details, laboratory profile, diagnosis, symptoms, etc.; therapeutic data including the name, route, dose, and frequency of the drug; the duration of therapy; and other relevant details were recorded in a suitably-designed individual case record form by reviewing their prescriptions, medical records, and caretakers. Details

about the pharmacotherapy with respect to the use of drug utilization patterns of patients with alcoholic liver disease were collected. The data were expressed in simple mathematics and multiple responses were reported in terms of percentages. The graphs and tables were generated using the Microsoft excel sheet and Descriptive Statistics

RESULTS

A total of 125 consecutive patients with liver disease were enrolled in the study, out of them 93 were male (74.4%) and 32 were female (25.6%) admitted at the department of general medicine and gastroenterology (Fig :1). The mean age of patient’s was 53.81 years with a range of 50-59 years (Table:1)

Overall, a total of 505 drugs were prescribed for 125 patients. Among various classes of drugs prescribed GI drugs were most frequently prescribed drugs (19.4%) followed by diuretics (17.02%), multivitamins (14.8%), antibiotics (13.8%), anti-hypertensive’s (13.4%), hepato - protectants (9.9%),anti-inflammatory/analgesics (6.7%) and less commonly anti-emetics (4.7%). (Table: 3). The most predominant symptoms found in this study was gastrointestinal symptoms. These symptoms negatively affect patient’s quality of life.

Among the study population (n=125) portal hypertension was the most common complication constituting 49 patients (39.2%) while 24.8% have ascites followed by esophageal varices (12%). The least complications being hepatic encephalopathy and jaundice. (Table: 2)

A total of 188 drugs were prescribed for complication specific patients. In which, diuretics (45.74%) were the most commonly prescribed drug. Since these drugs primarily reduce ascites and edema which leads to progression of liver disease and also have an effect on portal hypertension. (Table :4)

Antibiotics have been categorized as monotherapy (81.45%) and combination therapy (18.54%). The monotherapy of antibiotics includes various classes of drugs, such as cephalosporins, penicillins, fluoroquinolones etc. out of 101 patients who were prescribed with antibiotics, the most commonly prescribed antibiotics were cephalosporins. (Fig :3)

Out of the 125, 23 patients were prescribed with combination therapy of antibiotics. Among which, Piperacillin-Tazobactam (34.7%) was the most commonly prescribed combination therapy (Fig :4)

Table 1: Age wise distribution among study population

AGE GROUP (YEARS)	NUMBER OF PATIENTS (125)	PERCENTAGE (%)
< 30	14	11.2
31 – 39	21	16.8
40 – 49	26	20.8
50 – 59	27	21.6
60 – 69	23	18.4
70 – 79	10	8
> 80	4	3.2

Table No.2. Distribution Based On Complications

Complications	Number of patients (n=125)	Percentage (%)
Portal hypertension	49	39.2
Esophageal varices	15	12
Hepatic encephalopathy	7	5.6
Jaundice	7	5.6
Ascites	31	24.8
None	16	12.8

Table 3: Different classes of drug therapy among study population

Drug class	Number of drugs (505)	Percentage (%)
Hepato protectants	50	9.9
Antibiotics	70	13.8
GI drugs	98	19.4

Multivitamins	75	14.8
Anti-emetics	24	4.7
Diuretics	86	17.02
Anti-hypertensives	68	13.04
Anti-inflammatory/ analgesics	34	6.7

Table No. 4. Complication specific drugs among study population

Drug class	Number of drugs (188)	Percentage (%)
Diuretics	86	45.74
Anti-hypertensive's	68	36.17
Anti-inflammatory / analgesics	34	18.08

Figure1:Gender wise distribution among study population

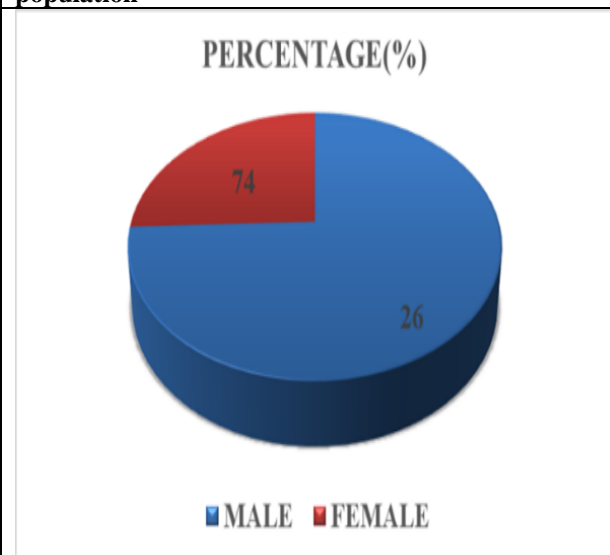


Figure 2: Distribution of antibiotics among study population

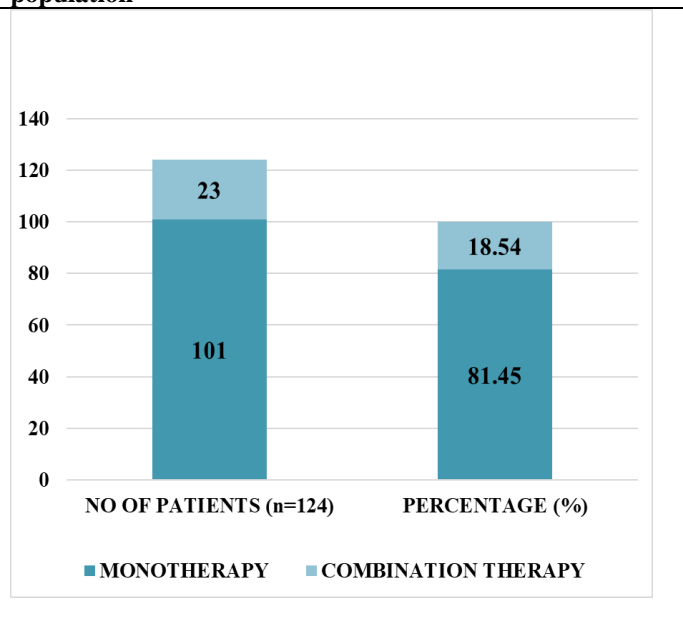


Figure 3: Distribution of monotherapy of antibiotics

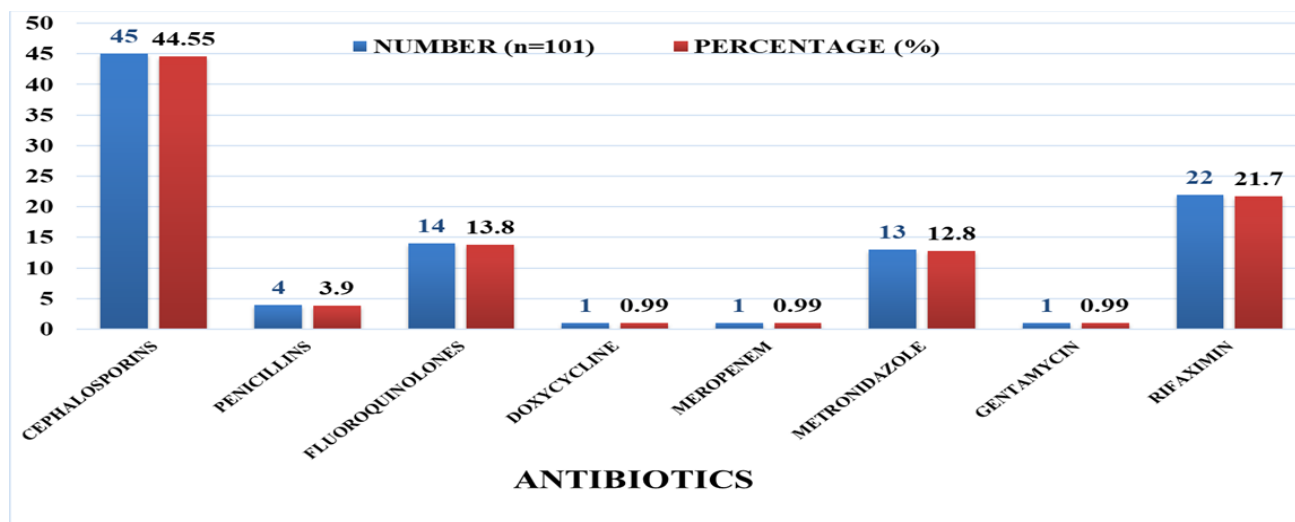
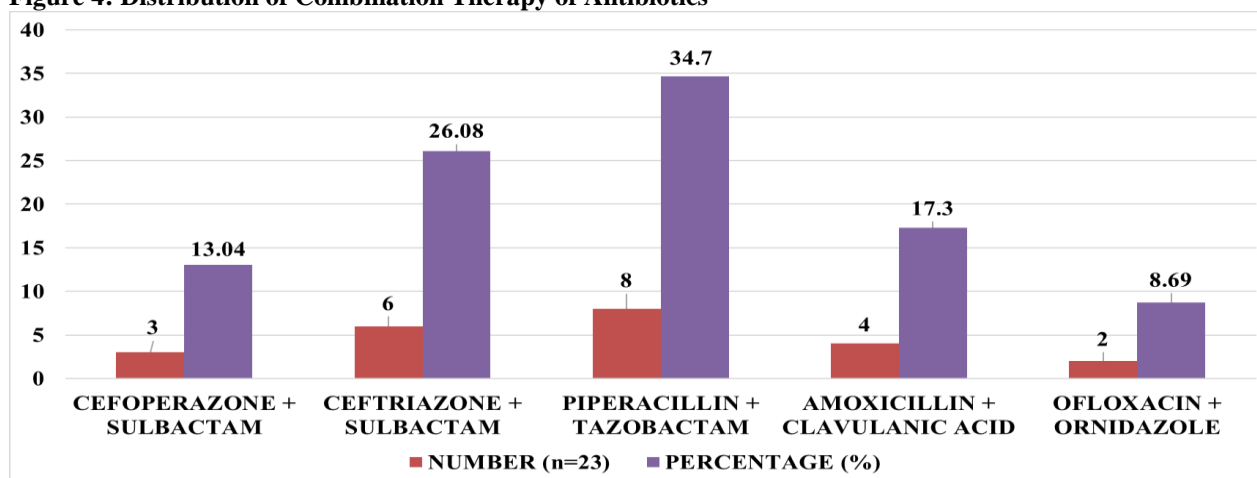


Figure 4: Distribution of Combination Therapy of Antibiotics



DISCUSSION

Liver diseases do not usually cause any obvious signs or symptoms until it's fairly advanced and the liver is damaged. The liver disease prognosis depends on how quickly the condition was diagnosed and treated. In this study 125 patients were enrolled, out of which male (74.4%) and female (25.6%) were analysed. Higher incidence of liver disease is found in the age group of 50-59 years. The mean age of patients was 53.81 years. the predominance of male patients in this study was mainly due to variation in smoking and alcohol consumption. Liver disease is more prevalent in male patients due to alcohol consumption and several lifestyle modifications. Overall, 505 drugs were prescribed, out of which GI drugs were most commonly prescribed drugs (19.4%) because the most predominant symptoms found in this study was gastrointestinal symptoms. A similar study conducted by Meenu Vijayan et al revealed that GI drugs are the most common drugs prescribed for the study population [4] Portal hypertension (39.2%) was the most common complication shown by the patients followed by ascites

(24.8%). Portal hypertension, a complication more prevalent in chronic liver disease. Patients with advanced liver disease primarily shows complications like ascites and portal hypertension, this is because the hepatic protein synthesis and portal circulation will be disrupted, leading to fluid build-up and narrowed hepatic portal veins. Among complication specific drugs, Diuretics were the most commonly prescribed drug. Since these drugs primarily reduce ascites and edema which leads to progression of liver disease and also have an effect on portal hypertension. Portal hypertension and ascites often progress as the disease advances and treatment involving Diuretics will prevent fluid build-up. Anti-hypertensives such as propranolol and carvedilol have significant effect in portal hypertension. These drugs also have hepatoprotective effect. Reducing portal blood pressure will prevent occurrence of other complications like esophageal varices and gastropathy. Anti-inflammatory/analgesic drugs are usually prescribed to treat pain and discomfort related to liver disease and its complications.

In our study, monotherapy of antibiotics is predominant than combination therapy. In monotherapy, Cephalosporins (44.55%) are the most commonly prescribed class of drugs. Piperacillin-Tazobactam (34.7%) was the most commonly prescribed combination therapy. A study conducted by Samreen Huma et al revealed that use of antibiotics as monotherapy has significant effects on preventing infections in study population [5]

CONCLUSION

This study demonstrates that appropriate usage of drugs in liver diseases can have a significant effect in treating symptoms and preventing complications. Drugs like hepato-protectives can delay the progression of liver disease. These drugs can often reverse the hepatic damage and arrest the advancement of the disease. Effective use of antibiotics can prevent infections that are more prone in a compensated hepatic system. Patient's quality of life can be ensured to an extent by the use of drugs to treat the symptoms. The early detection and management of liver disease will prevent its progression to a great extent.

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