



Prescription Pattern of Cholelithiasis at Surgery Ward in Tertiary Care Hospital

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ABSTRACT

Background: Cholelithiasis is a chronic recurrent disease of the hepatobiliary system. The impaired metabolism of cholesterol, bile acids and bilirubin are characterized by gallstone formation. The number of surgical procedures for cholelithiasis has risen markedly in developed countries since 1950. An estimated 90% of cholecystectomies are now performed by the laparoscopic approach worldwide.

Objectives: The aim of the study was to study prescription pattern of Cholelithiasis at surgery ward in B&C medical college teaching hospital and research Centre Pvt. Ltd.

Materials and Methods: A Retrospective study was conducted and data of Cholelithiasis cases admitted at Surgery ward from 2077/01/01 BS to 2077/12/31 BS were collected. Coding of data, result and interpretation of data were drawn using SPSS version 16 and MS Excel 2016.

Result: The present study included 137 patients. Among them, 80.3% were females and 19.7% were males. The high incidence of cholelithiasis was found in the age group 30-39 years (27%). 98.5% of total hospitalized patient were prescribed with antibiotics followed by Proton Pump inhibitors (93.4%) and NSAIDs (92%). Among antibiotics, Ceftriaxone (65.7%) were the most prescribed one. During discharge, antibiotics (98.5%) were the most prescribed group of medicine followed by Proton Pump Inhibitors (88.3%) and NSAIDs (67.9%). And among antibiotics, Cefixime (52.6%) were mostly prescribed. While analyzing prescription pattern of discharge medication it was found that percentage of drugs prescribed by generic name was 13.86% and percentage of drugs prescribed from essential drug list was 43.36%.

Conclusion: The present study revealed that there was greater incidence of Cholelithiasis in females (80.3%) than in males and in the age group 30-39 years (27%). The results obtained from this study showed that most commonly prescribed medicines were antibiotics. Prescription through generic name and essential drug list was low. Therefore, prioritization on prescribing drugs by generic name and from essential drug list needs to be encouraged.

KEYWORDS: Drug Prescription Pattern, Cholelithiasis, Laparoscopic Cholecystectomy, Medication, Surgery ward

1. INTRODUCTION

Cholelithiasis is a chronic recurrent disease of the hepatobiliary system. The impaired metabolism of cholesterol, bile acids and bilirubin are characterized by gallstone formation³.

The number of surgical procedures for cholelithiasis has risen markedly in developed countries since 1950. The introduction of laparoscopic cholecystectomy in 1989 further increased the cholecystectomy rate which represented a less invasive, more cosmetically acceptable operation while providing a lower surgical risk compared to the then conventional or "open" procedure⁴.

The causes of gallbladder disease are multifactorial. Factors that affect hepatic production of cholesterol, gallbladder function (stasis or inflammation), bile acid production, or intestinal absorption of cholesterol and bile acids are all possible contributors to the formation of gallstones⁷.

The pathogenesis of cholelithiasis includes genetic factors and Lith genes (Gallstones genes), hepatic hypersecretion of cholesterol facilitating rapid phase transition in bile (the transformation of micelles and vesicles to the formation of solid cholesterol monohydrate crystals), gallbladder hypomotility with immune-mediated gallbladder inflammation, hypersecretion of mucins and accumulation of mucin gel in the gallbladder lumen, and intestinal factors such as cholesterol absorption, intestinal transit time, intestinal neuroendocrine hormones and gut microbiota⁸.

Reports state an overall prevalence of 10-15% in USA, 18.5% in Europe and around or below 5% in most of the Asian and African countries^{10,11}. A study reports an overall prevalence of 4.78% in Nepal¹². On the one hand, Cholelithiasis can result to several



complications, including cholecystitis (inflammation of the gallbladder) and cholangitis (inflammation of the bile duct) ⁷. On the other hand, irrational prescribing pattern acts as a contributing factor towards ineffective, unsafe and costly treatment, increased evidence of adverse drug reaction, exacerbation of mortality & morbidity ¹³. Laparoscopic cholecystectomy which was introduced in the early 90s, which is considered a safe treatment for Gall bladder disease, but still unjustified increase in surgical procedures has been observed¹⁴.

There seems to be a significant number of hospital admissions in our country annually due to gallstones and its related complications⁹ but there are very few studies done in Nepal ⁵. This study will help to analyze the prescribing pattern of medicines among cholelithiasis in-patients of surgery ward which might help in further management of disease. Furthermore, it will also help medical & paramedical students and other people in knowing about different kinds of medications used during hospitalization and after discharge for its management strategy.

2. MATERIALS AND METHODS

2.1 RESEARCH METHOD: Retrospective study

2.2 STUDY SITE: B&C medical college teaching hospital and research Centre Pvt.Ltd, Jhapa, Nepal

2.3 STUDY VARIABLES

- Dependent variables: Prescribed drugs
- Independent variables: demographic (age, sex)

2.4 STUDY POPULATION: All Patients who were diagnosed with Cholelithiasis and admitted to surgery ward in B&C medical college teaching hospital and research Centre Pvt.Ltd. from 2077/01/01 to 2077/12/31.

2.5 SAMPLING TECHNIQUE: Purposive sampling

2.6 SAMPLE SIZE: Cholelithiasis Cases of one year (2077/01/01 to 2077/12/31) will be studied.

2.7 CRITERIA FOR STUDY UNIT SELECTION:

- Inclusion criteria: Patient diagnosed with cholelithiasis and admitted to surgery ward in B&C medical college teaching hospital and research Centre Pvt.Ltd. From 2077/01/01 to 2077/12/31 will be included.
- Exclusion criteria: Patients who were expired

2.8 DATA COLLECTION TOOLS AND TECHNIQUE:

The data collection form (Annex 1) was approved by the supervisor. Data collection form was filled from the cardex report. Required information was noted from the cardex report of patients in Annex such as name of the patient, age, sex, address, disease diagnosed and drugs used in the management.

2.9 DATA ANALYZING TOOLS: Microsoft Excel 2016 & SPSS 16 software

2.10 ETHICAL CONSIDERATION:

- Approval was taken from IRC of MMIHS
- Approval was taken from the director of B&C medical college teaching hospital and research Centre Pvt.Ltd

3. RESULT AND DISCUSSION

3.1 SEX-WISE DISTRIBUTION OF PATIENTS

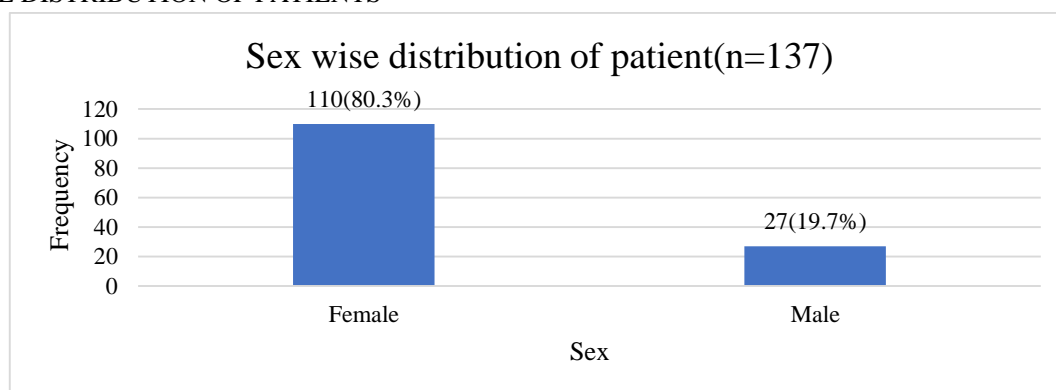


Figure 1 Sex-Wise Distribution Of Patients



The present study showed that 80.3% were females and 9.7% were males. Shih_Chang Hung et.al conducted a similar study in Taiwan and concluded that female were more affected than male i.e female(56.5%) and male(43.5%)¹⁸. The study conducted by Pradhan SB et.al in Kathmandu, Nepal showed the similar result where female were more affected than male i.e female(65%) and male(35%)³.

3.2 AGE-WISE DISTRIBUTION OF PATIENTS

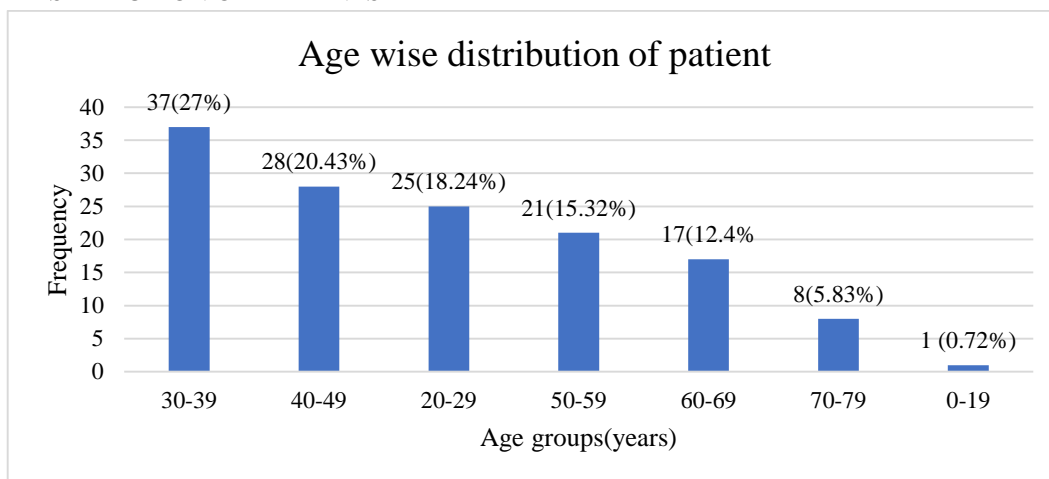


Figure 2 Age-wise distribution of patients

The present study showed that, there was high incidence of cholelithiasis in the age group 30-39. Among the study group, 27% were in the age group 30-39. The study conducted by Bansal Arpit et.al in Uttarpradesh, India showed the similar result where the most involved age group for Cholelithiasis was 31-40 years (28.85%)³. The study conducted by Pradhan SB et.al in Kathmandu, Nepal showed the similar result where the most commonly involved age group for cholelithiasis was found to be in age group 30-39 years (32.5%)¹⁹.

3.3 MEDICINES USED DURING HOSPITALIZATION

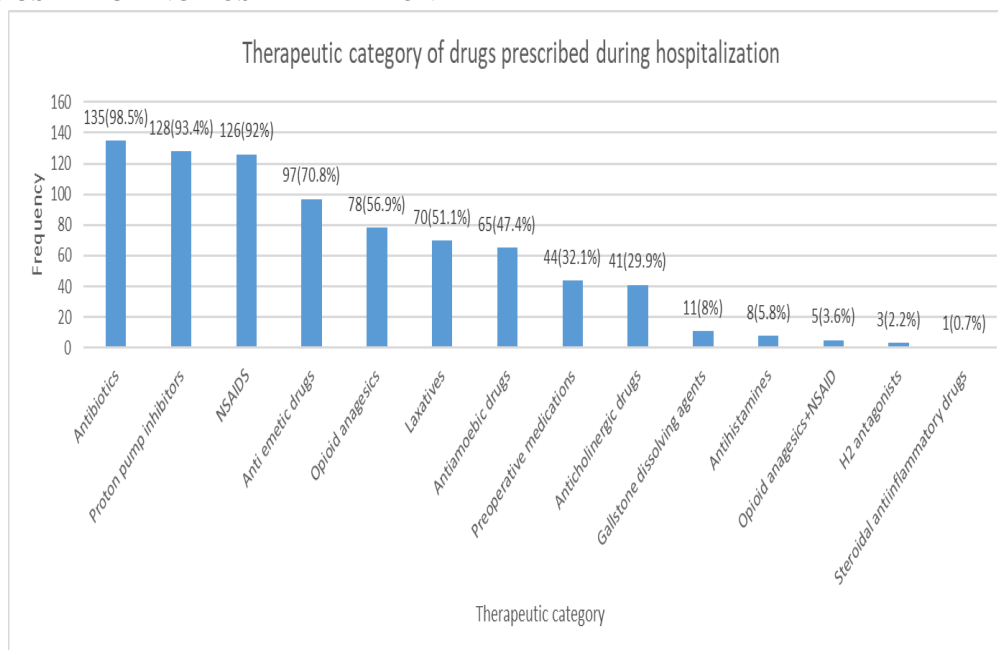


Figure 3 Medicines used during hospitalization



The present study showed that ,Antibiotics were the most commonly prescribed class of drugs ie,98.5% of total hospitalized patient were prescribed with antibiotics . A similar study by Kumar Raj et.al in Punjab ,India reported that the most commonly prescribed medication were Antimicrobial agents followed by Proton pump inhibitors(56.52%) , Opioids(32.35%) ,NSAIDS(14.14%) , Anti emetic (9.7%) and Anitispamodics(4.35%)² . In our study , it was found that only 8% of patients were prescribed with UDCA .Guarino et.al in Italy demonstrated that Gall stones dissolving agents (UDCA) can be used for only a small number of patients (< 10% of total)²⁰.

3.1.1 ANTIBIOTICS PRESCRIBED DURING HOSPITALIZATION

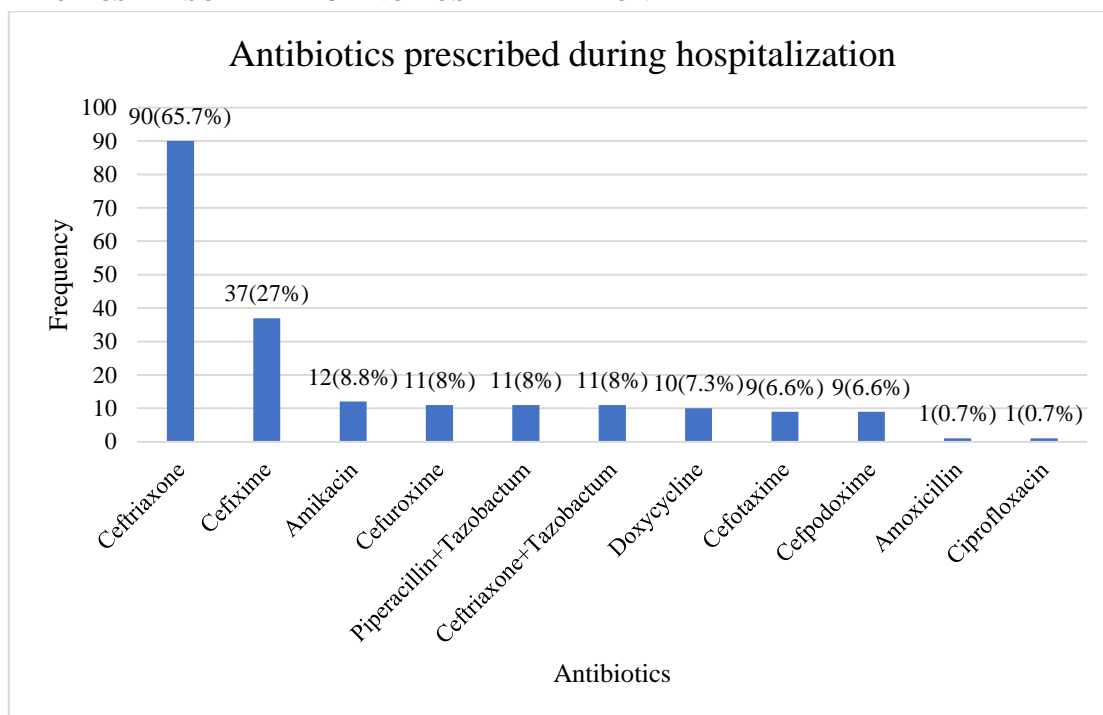


Figure 4 Antibiotics prescribed during hospitalization

In present study, Ceftriaxone was the most commonly prescribed antibiotics i.e. in 65.7% patients The study conducted by Faraz Ahmad et.al in Lucknow , India interpreted that Cefuroxime were the most commonly used groups (78.26%) followed by Ceftriaxone (75.36%) and Ciprofloxacin (43.47%) and they must be a part of empirical regimen as it will help in reducing the morbidity associated with Symptomatic Cholelithiasis ¹⁴ .

3.1.1.1 CEPHALOSPORINS PRESCRIBED DURING HOSPITALIZATION

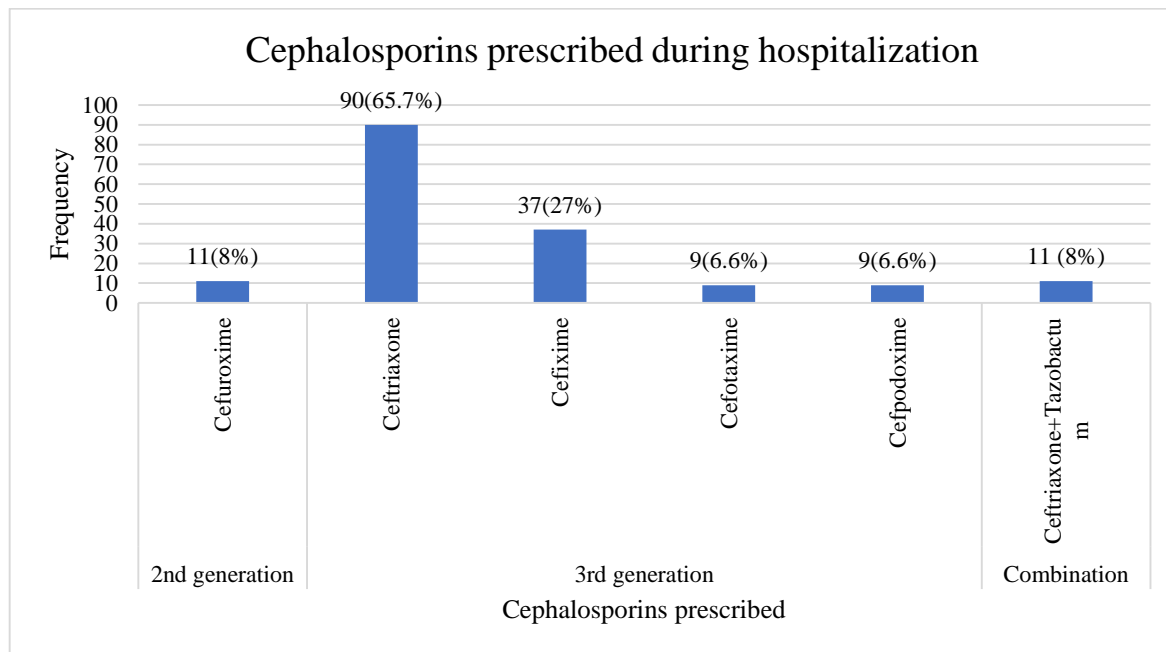


Figure 5 Cephalosporins prescribed during hospitalization

In this study, it is found that third generation Cephalosporins are the most prescribed cephalosporins (83.2%) In third generation Cephalosporins , Ceftriaxone is the most prescribed one (65.7%) Similar results were shown in the study conducted by Rayamajhi Bikash et.al at Kathmandu , Nepal where the most prescribed Cephalosporins were Ceftriaxone , Cefazolin ,Cefuroxime , Cefotaxime and Cefexime ¹.

3.1.2 ANTIEMETIC DRUGS PRESCRIBED DURING HOSPITALIZATION

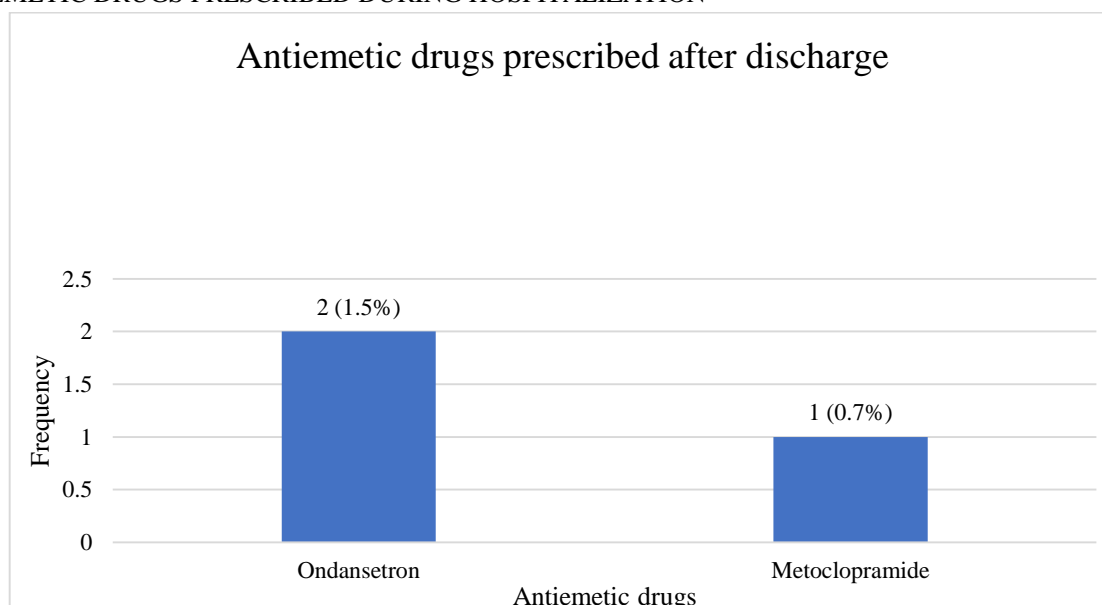


Figure 6 Antiemetic drugs prescribed during hospitalization



In our study , It is found that Ondansetron is the most prescribed Antiemetic drugs(70.8%) followed by Metoclopramide(0.7%). A similar study by Kumar Raj et.al in Punjab ,India reported the use of Antiemetic drugs like domperidone, ondansetron, metoclopramide ².

3.1.3 NSAIDS PRESCRIBED DURING HOSPITALIZATION

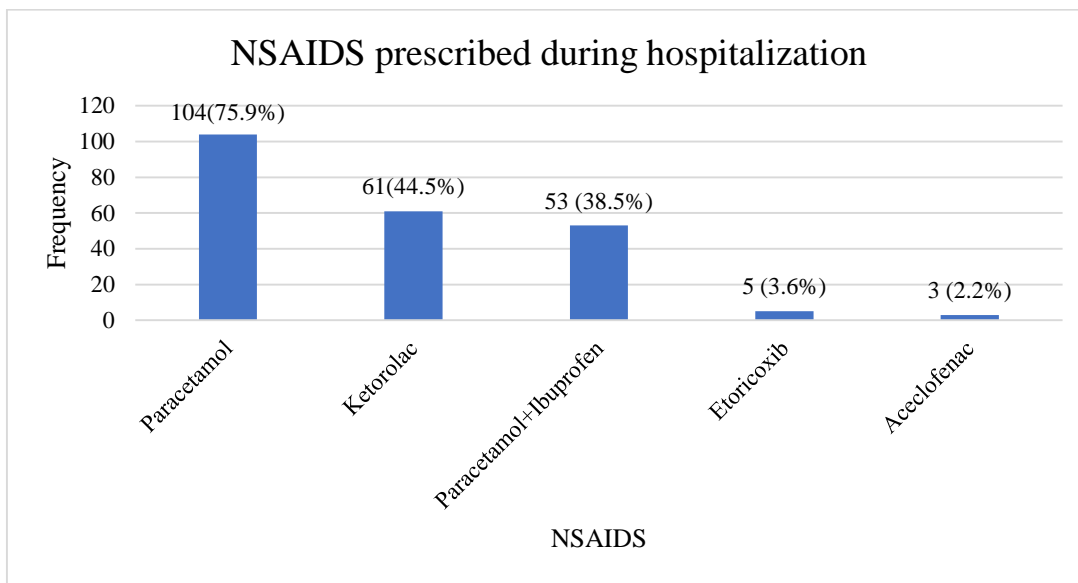


Figure 7 NSAIDS prescribed during hospitalization

In our study , it was found that Paracetamol is the most prescribed NSAIDS (75.9%) A similar study by Kumar Raj et.al in Punjab ,India reported the use of NSAIDS like Diclofenac (80%) , Paracetamol (5.61 %) , Diclofenac+Serratiopeptidase (12.36%) , Ibuprofen+Paracetamol (1.6%) ².

3.1.4 OPIOID ANALGESICS PRESCRIBED DURING HOSPITALIZATION

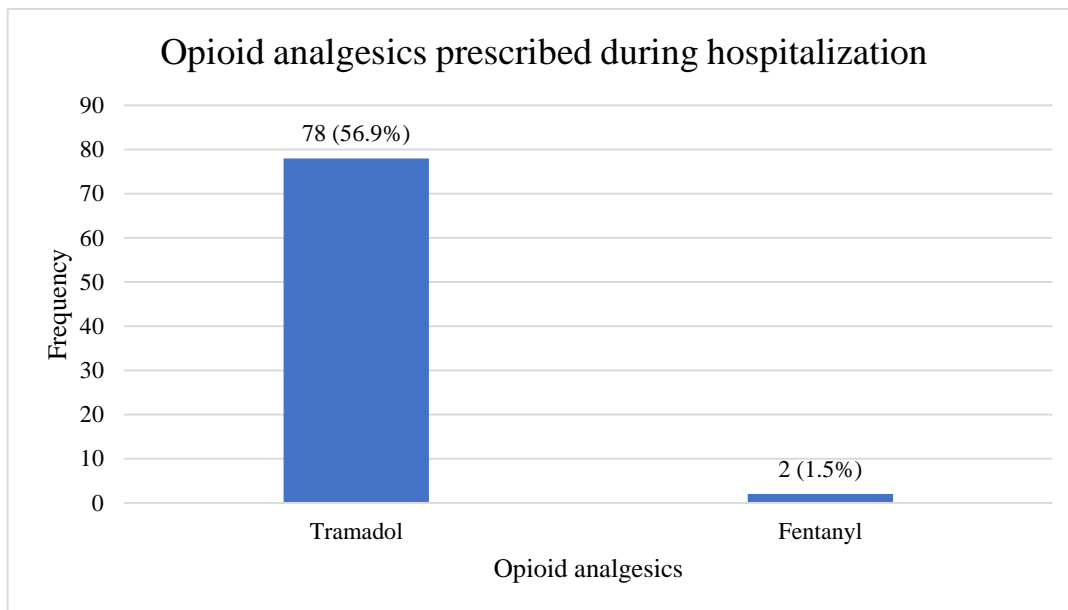


Figure 8 Opioid Analgesics prescribed during hospitalization



In our study it was found that, Tramadol is more common Opioid Analgesics prescribed (56.9%) A similar study by Kumar Raj et.al in Punjab ,India showed the similar result where the use of Tramadol(32.35%) was found to be more than Fentanyl(14.71%)².

3.1.5 COMBINATION OF NSAIDS AND OPIOID ANALGESICS PRESCRIBED

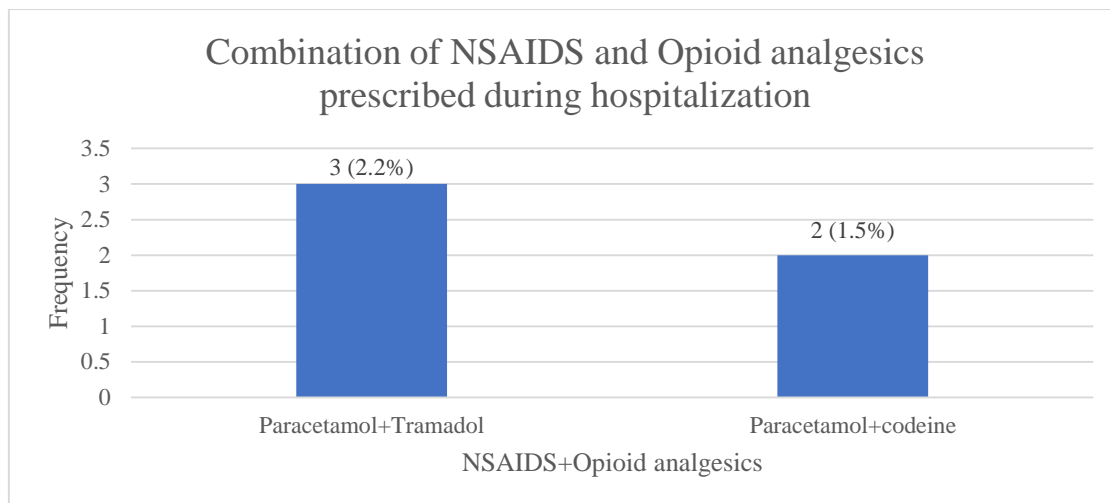


Figure 9 Combination of NSAIDS and Opioid analgesics prescribed

In our study , It is found that combination of Paracetamol and Tramadol (2.2%) is more commonly used than combination of Paracetamol and Codeine(1.5%).

3.1.6 PREOPERATIVE MEDICATIONS PRESCRIBED

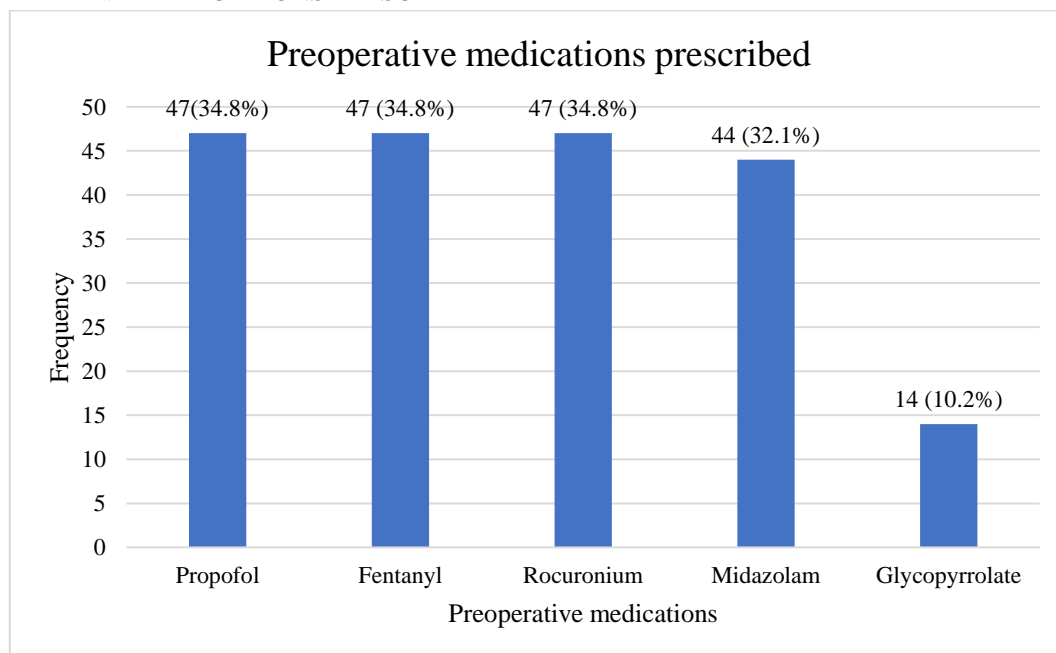


Figure 10 Preoperative medications prescribed

In our study, it was found that Propofol (34.8%), Fentanyl (34.8%) and Rocuronium (34.8%) were the most commonly prescribed preoperative medications followed by Midazolam (32.1%) and Glycopyrrolate (10.2%)

3.1.7 ANTIULCER DRUGS PRESCRIBED DURING HOSPITALIZATION

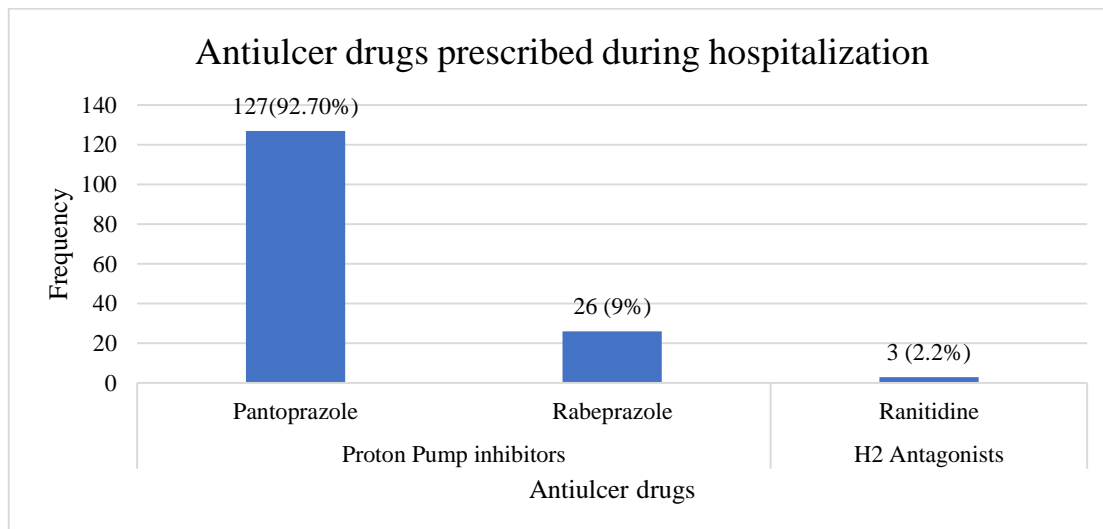


Figure 11 Antiulcer drugs prescribed during hospitalization

In our study it was found that, the most prescribed antiulcer drugs during hospitalization were Pantoprazole (92.7%). A similar study by Kumar Raj et.al in Punjab, India showed the similar result where the most prescribed antiulcer drug was Pantoprazole (56.52%) followed by Rabeprazole (2%) and Ranitidine (5.69%).² In the similar study conducted by Koyani H et.al in India, it was found that Pantoprazole was the most prescribed medication (100%)²¹

3.1.8. ANTIAMOEBIC DRUGS PRESCRIBED DURING HOSPITALIZATION

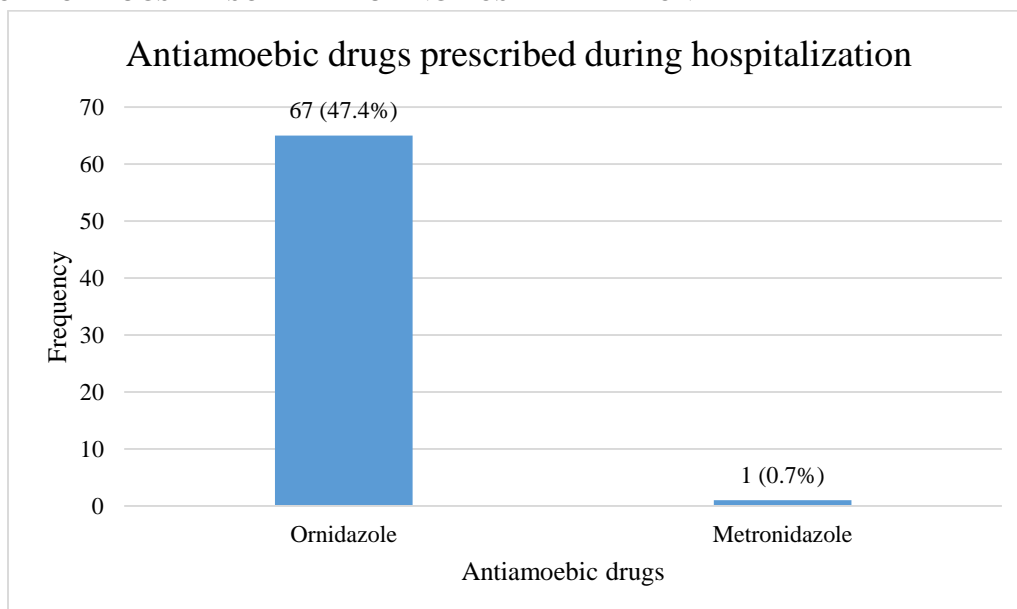


Figure 12 Antiamoebic drugs prescribed during hospitalization

In our study it was found that Ornidazole is the most prescribed Antiamoebic drug (47.4%) followed by Metronidazole (0.7%)



3.2 MEDICINES PRESCRIBED AFTER DISCHARGE

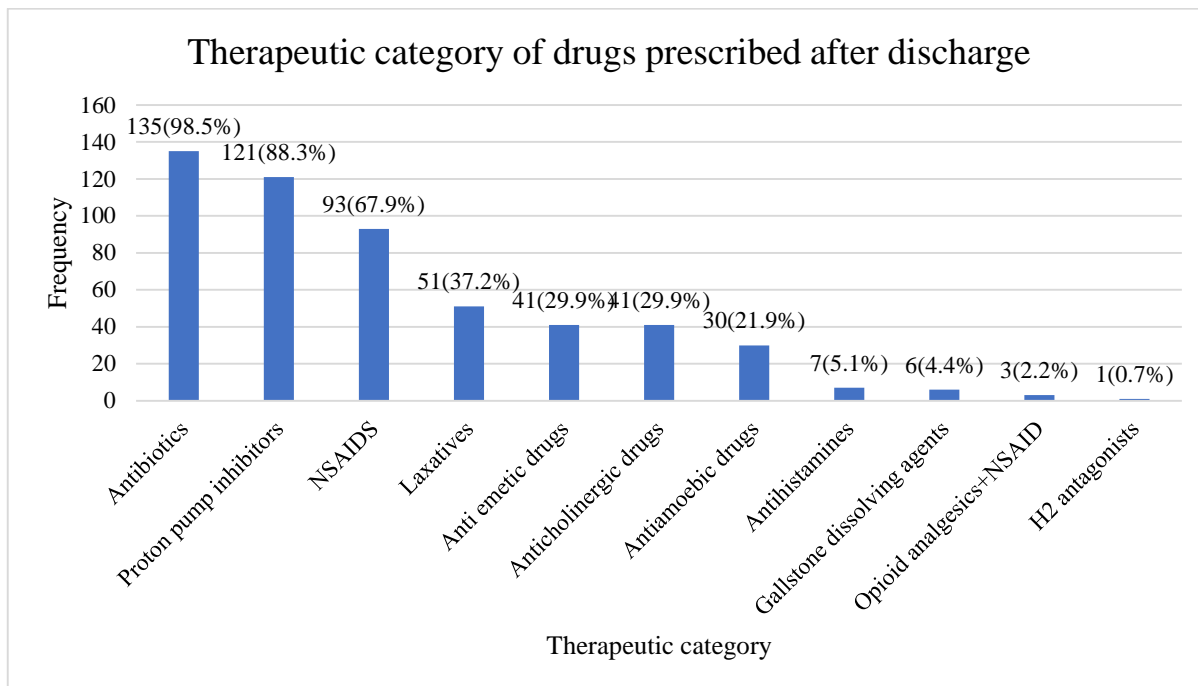


Figure 13 Medicines prescribed after discharge

In our study, we found out that Antibiotics were the most prescribed group of medicine (98.5%)

ANTIBIOTICS PRESCRIBED AFTER DISCHARGE

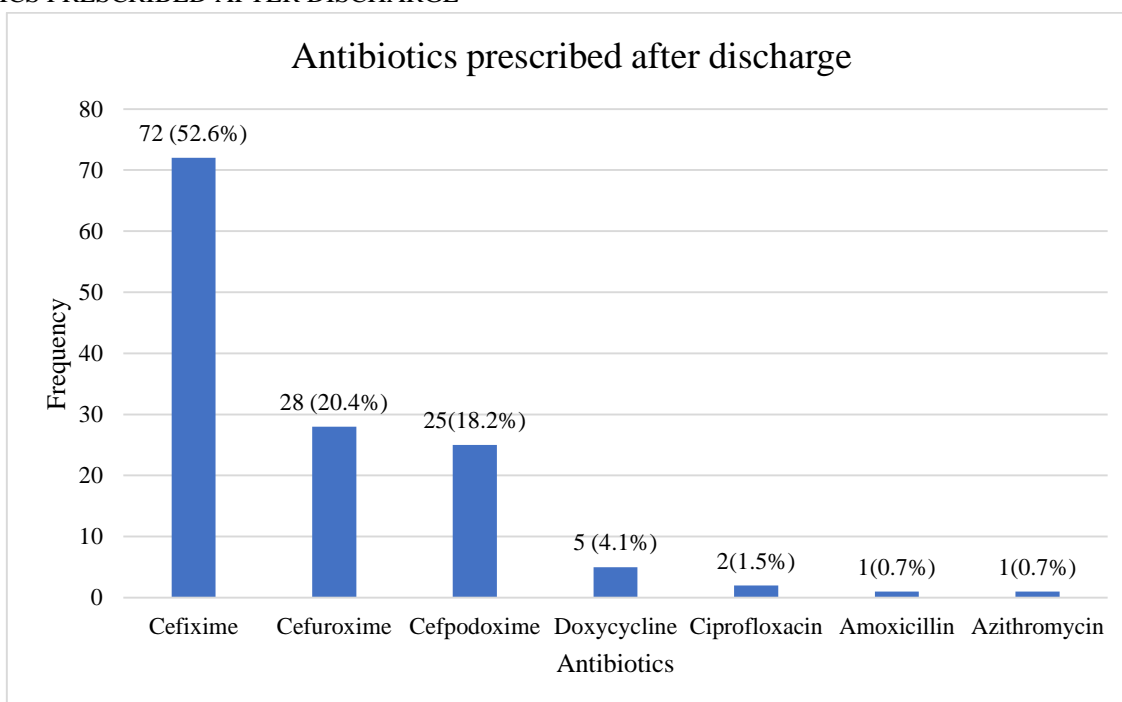


Figure 14 Antibiotics prescribed after discharge



In our study it was found that, Cefixime was the most prescribed antibiotics (52.6%) followed by Cefuroxime (20.4%), Cefpodoxime (18.2%), Doxycycline (4.1%), Ciprofloxacin (1.5%), Amoxicillin (0.7%) and Azithromycin (0.7%)

3.2.4.1 CEPHALOSPORINS PRESCRIBED AFTER DISCHARGE

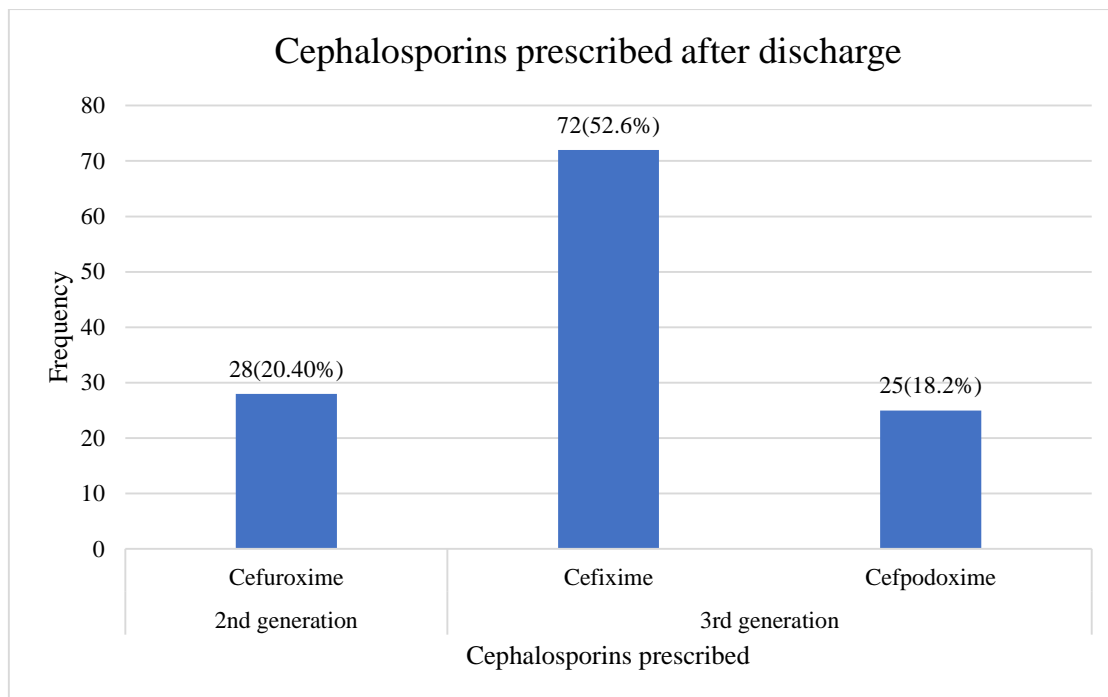


Figure 15 Cephalosporins prescribed after discharge

In our study, it was found that 79.6% of total cases were prescribed with Cephalosporins. Third generation cephalosporins were the most prescribed Cephalosporins (70.8%) In Third generation Cephalosporins, Cefixime were most prescribed (52.6%)

ANTIEMETIC DRUGS PRESCRIBED AFTER DISCHARGE

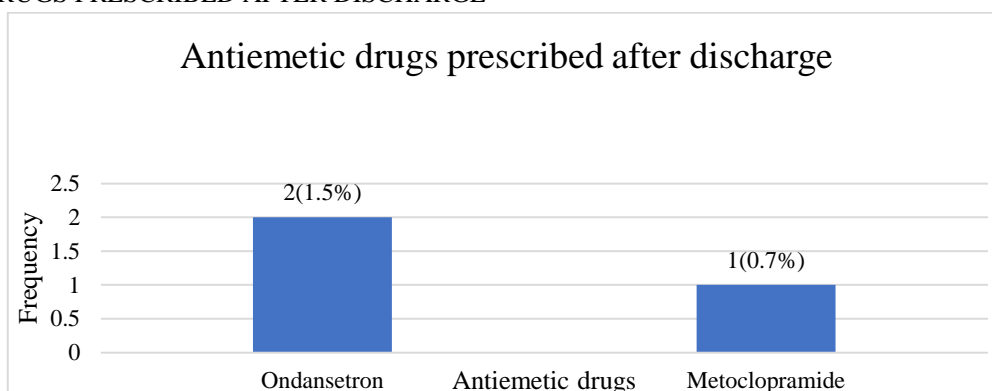


Figure 16 Antiemetic drugs prescribed after discharge

In our study, we found out that most common Antiemetic drugs prescribed was Ondansetron (1.5%)

NSAIDS PRESCRIBED AFTER DISCHARGE

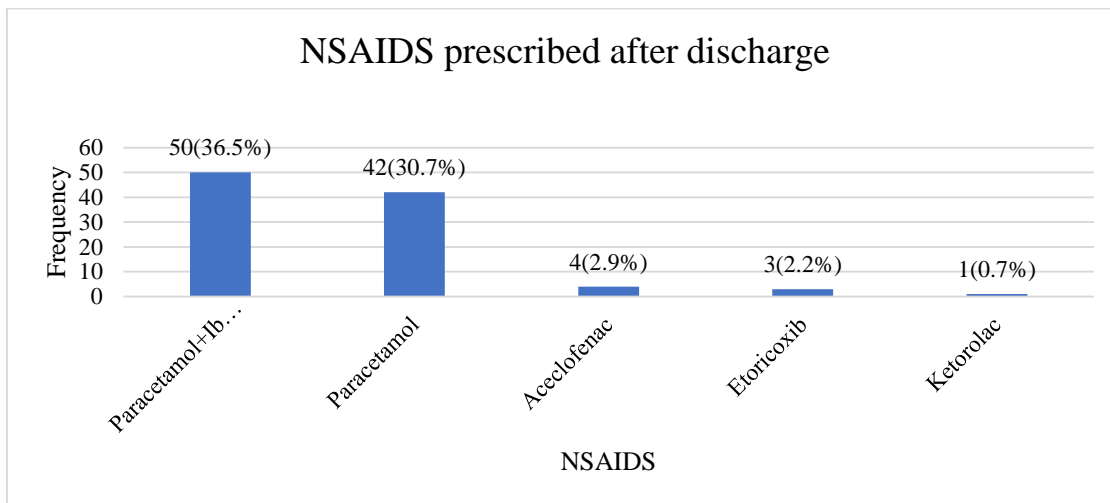


Figure 17 NSAIDS prescribed after discharge

In our study it was found that, the most commonly prescribed NSAIDS were Paracetamol+Ibuprofen(36.5%)

ANTIALLERGIC DRUGS PRESCRIBED AFTER DISCHARGE

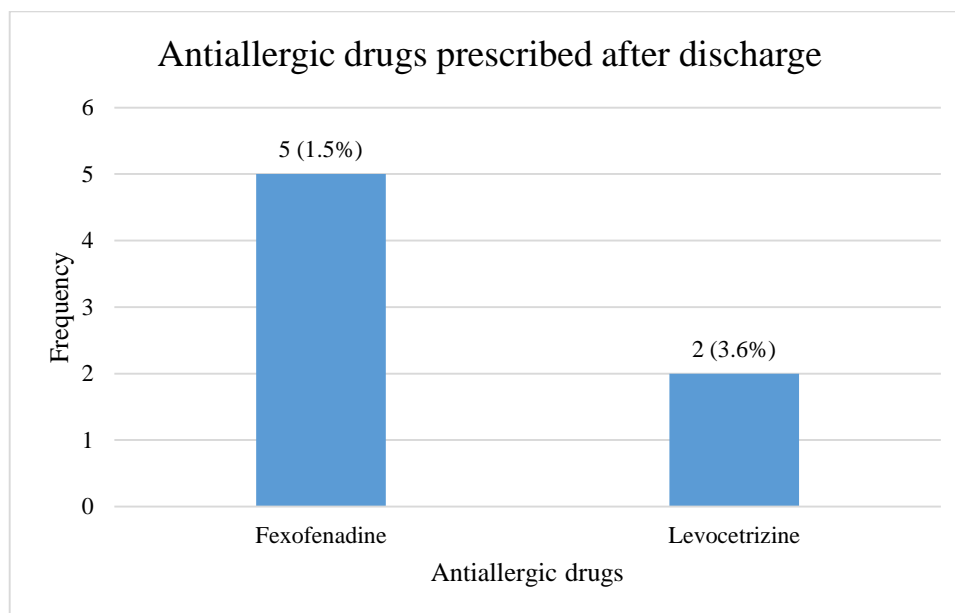


Figure 18 Antiallergic drugs prescribed after discharge

In our study it was found that, the more common antihistamine drugs prescribed were Fexofenadine(1.5%) followed by Levocetirizine(3.6%)

3.2.5 ANTIULCER DRUGS PRESCRIBED AFTER DISCHARGE

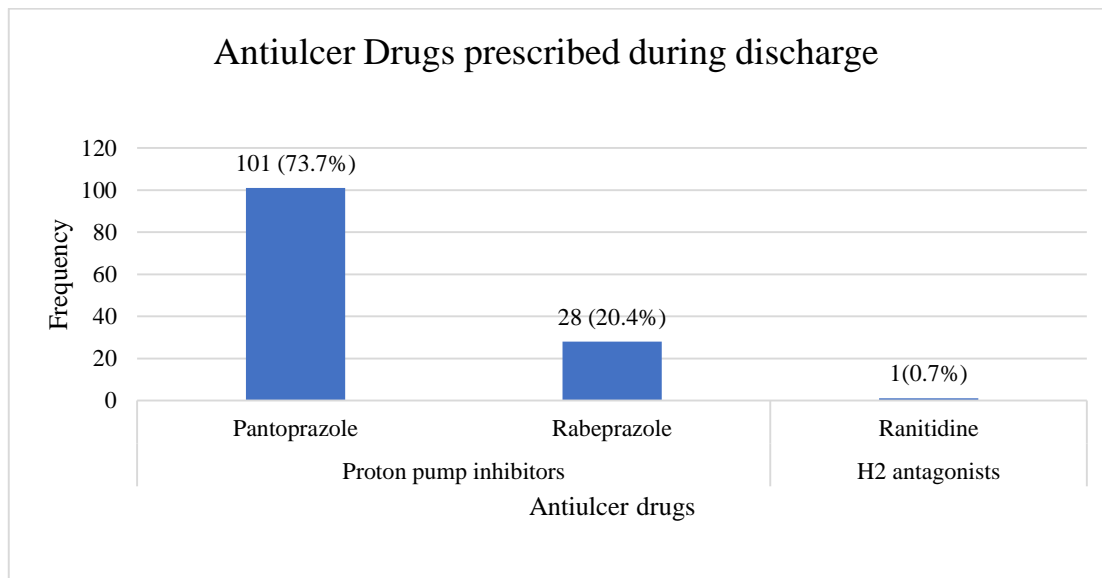


Figure 19 Antiulcer drugs prescribed after discharge

In our study it was found that, Pantoprazole is the most common prescribed antiulcer drugs i.e 73.7% followed by Rabeprazole(20.4%) and Ranitidine(0.7%)

3.3 WHO CORE DRUG PRESCRIBING INDICATORS

Table 1 WHO CORE DRUG PRESCRIBING INDICATORS

Prescribing Indicators	Total drugs/encounter	Average/%	WHO standard values
Average number of drugs per encounter	505	4.18	2
Percentage of encounters with an antibiotic	136	95.62%	20-26.8
Percentage of drugs prescribed by generic names	70	13.86%	100%
Percentage of drugs prescribed from essential drug list	219	43.36%	100%

The average number of medicines per prescription was found to be 4.18 which was also larger than the WHO standard values(2). In the study conducted by B. Shrestha & Dixit, et.al in KMC hospital Sinamangal, Kathmandu, Nepal it was found that average number of drugs per prescription was 5.85.¹⁷ which was also larger than the WHO standard values(<2)²²

In this study, it was found that 95.62% of patients received antibiotics. Out of 505 drugs prescribed, 136 were antibiotics (26.93%). In the study conducted by B. Shrestha & Dixit, et.al, it was found that 64.1% of all cases received antibiotics during their treatment that is, 18.1% of all the drugs prescribed were antibiotics. This sort of increasing use of antibiotics not only leads to increased cost of therapy, but also leads to the development of drug resistant bacterial strains¹⁷.

In our study, it was found that 13.86% of drugs were prescribed by generic names. In the study conducted by B. Shrestha & Dixit, et.al it was found that the percentage of drugs prescribed by generic name was 16.94 only which denotes that there is a trend in Nepal of prescribing in trade names rather than the generic names¹⁷

In our study, it was found that, 43.36% of drugs belonged to National list of essential medicines. In the study conducted by B. Shrestha & Dixit, et.al it was found that, 47.55% of drugs belonged to National list of essential medicines. Use of the medicines from NLEM should be promoted for the optimal use of limited resources. Selection of the essential drugs itself should be done based on the disease prevalence, proof of efficacy and safety and the current pharmacotherapy approaches¹⁷.



4. CONCLUSION

This study showed that there was greater incidence of Cholelithiasis in female than in males and in the age group 30-39 years. The results obtained from this study revealed that most commonly prescribed medicines were antibiotics. Among antibiotics, cephalosporins were mostly prescribed and among cephalosporins, ceftriaxone were most commonly prescribed during hospitalization and cefixime were most commonly prescribed during discharge. Prescription through generic name and essential drug list were less. Therefore, prioritization on prescribing drugs by generic name, from essential drug list and Standard Treatment guidelines needs to be encouraged.

5. ACKNOWLEDGEMENTS

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6. DECLARATION OF CONFLICT OF INTEREST

No conflict of interest to declare

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