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Drug Use Evaluation of Anti Ulcer Medication in General Medicine Department of A Tertiary Care Teaching Hospital

Binu K M[1*], Muhammed Thanveer S[1], H Doddayya[1], Mudgal Shankarappa M[2]

[1]Department of Pharmacy Practice, N.E.T Pharmacy College, Raichur. India.

[2]Department of General Medicine, Navodaya Medical College Hospital & Research Center, Raichur. India.

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ABSTRACT

Background: Gastric problems are the most common diseases for which the majority of the population prefers proton pump inhibitors (PPI) and histamine (H2) blockers. They are prescribed most commonly for gastroesophageal reflux disease (GERD), dyspepsia, and peptic ulcer disease, along with medications like non-steroidal anti-inflammatory drugs (NSAIDs) and other drugs. The prescribing pattern should be evaluated periodically to promote rational use of medicines.**Objective:** To assess the utilization pattern of anti-ulcer medications.**Materials and Methods:** A Prospective Observational Study was conducted for a period of 6 months at a tertiary care teaching hospital in South India with a sample size of 60. Inpatients of both genders in the medicine department who were prescribed anti-ulcer medications were considered as the inclusion criteria, and outpatients and patients with psychiatric conditions, lactating and pregnant women who were excluded from the study were excluded from the study.**Results:** Out of 60 participants, 27 (45%) were male and 33 (55%) were female. The prominent age group prescribed anti-ulcers was 20–30 years (40%). The majority of the patients had nausea and vomiting (36.60%) followed by abdominal pain (6.60%) as their chief complaints. The majority of the patients had hypertension (42.10%) as their prime co-morbidity. Pantoprazole was prescribed to most of the patients (61.60%).**Conclusion:** Anti-ulcer drug is critical to implement significant steps targeted at optimizing anti-ulcer medication utilization, which can mitigate possible drug interactions, side effects, and preventable financial expenses.

Keywords: anti-ulcer, evaluation, gastric, prescription, utilization

INTRODUCTION

Drug utilization review (DUR) is defined as an approved, organized, continuous review of prescribing, administering, and utilization of medication. DUR envelops a drug review against predetermined criteria that results in changes to drug therapy when these criteria are not met. It includes an extensive review of patients' prescription and medication data previously, during, and in the wake of administering to guarantee appropriate medication dynamic and positive patient results. As a quality confirmation measure, DUR programs give restorative activity, prescriber input, and further assessments.[1]

An ulcer is an open sore. The word peptic means that the cause of the problem is due to acid. Peptic ulceration commonly involves the stomach, duodenum, and lower oesophagus. The most important symptoms that ulcers cause is related to bleeding. The two most important causes of ulcers are infection with Helicobacter pylori and a group of medications known as NSAIDs. Nearly all peptic ulcers will be treated with a proton pump inhibitor (PPI). PPIs are powerful acid blocking drugs that can be taken as a pill or given in an IV. Sometimes duodenal ulcers (not gastric ulcers) will be treated with H2 blockers. H2 blockers are another type of acid reducing medication.[2]

Proton pump inhibitors (PPIs) are a tried-and-true medication used to effectively reduce stomach acid and are recommended for a number of upper gastrointestinal conditions. These medications decrease basal and induced gastric acid output and irreversibly inhibit the gastric H+, K+ ATPase pump. They have been demonstrated to be successful in treating dyspepsia, peptic ulcers, and gastro-esophageal reflux disease (GERD). PPIs are less harmful and more safe than other medications, but they still have adverse effects that should not be disregarded. Long-term PPI use is linked to an increased risk of hip fractures, osteoporosis, and community-acquired pneumonia. The well-known side effects of prolonged use include pseudomembranous colitis and acute interstitial nephritis.[3]

Since H. pylori is considered to be an important factor in the causation of PUD, the most common treatment strategy involves the eradication of this organism from the gut. Different antimicrobial agents have been used to treat H. pylori infection. The most successful regimen consists of two or three antimicrobial agents and an anti-secretory agent preferably a proton pump inhibitor (PPI). Some of the antibiotics used as a part of anti H. pylori medication in India are Amoxicillin, Bismuth compounds, Clarithromycin, Fluoro-quinolones, Furazolidone, Metronidazole/ Tinidazole, Nitazoxanide, Rifabutin, Secnidazole and Tetracycline. The different regimens that are used vary in different parts of the world and are dependent on several factors such as prevalence of H. pylori infection, anti-microbial efficacy and resistance, along with genetic factors. The antibiotics need to be individualized based on these factors. However, the literature available regarding the pattern of drug usage in treatment of PUD in Indian population is lacking.[4]

Globally, the annual incidence of PUD was estimated to be about 4 million. The annual incidence of PUD ranges from 0.10% to 0.19% for physician-diagnosed PUD and from 0.03% to 0.17% for PUD diagnosed during hospitalization. The physician-based PUD and hospitalized based PUD over 1-year prevalence was 0.12 to1.5% and 0.10 to 0.19% respectively. Mortality from peptic ulcer bleeding shows 7% to 8% for four decades. These complications not only increase mortality but also increases the health care cost. In Indian scenario, the frequency of both duodenal and gastric ulcer has declined from 12% to 2.9% and 4.5% to 2.7 % respectively for the time being 1988 to 2008. Although PUD affects both males and females alike in the West, the scenario in India dictates men are 18 times more prone to PUD than women.[5]

Failure to get proper and prompt medical care, low socioeconomic situations (prevalence of H- Pylori), usage of NSAIDs, alcohol misuse, and smoking all contribute to these consequences. Currently, up to 90% of all ulcer procedures are for complications such as bleeding, perforation, and blockage of the stomach outlet. Peptic ulcer disease complications that need operational intervention have remained common. No potentially life-threatening effects have been reported with antiulcer agents. Main adverse effects involve the gastrointestinal tract and include abdominal pain or discomfort, constipation, indigestion, diarrhea, flatulence, nausea, and vomiting.[6]

MATERIALS AND METHODS:

A Prospective Observational study was carried out for a period of 6 months in a Tertiary care teaching hospital. Inpatients of both genders in medicine department who were prescribed with anti-ulcer medications were included. Outpatients, with psychiatric conditions, lactating and pregnant women were excluded from the study. Project term visited General medicine department and reviewed the treatment chart which contain anti-ulcer medications. Items monitored were number of anti-ulcer medications, categories of anti- ulcers, medication dose, dosage duration of therapy, concurrent drug prescribed. The data were collected from the patient's medical record. This study was approved by the Institutional Human Ethics Committee of study hospital.

Sample size:

Prevalence (p) = 95% = 0.95

Error of margin (e) = 0.05

Z = 1.96 2

$N = (1.96)^2 \times 0.95\ (1 - 0.95) \div (0.05)^2$

N = 60

Sample size: Sample size was calculated and found to be 60.

RESULTS:

A total of 60 patients who met the inclusion criteria were enrolled in the study. It was found that 27 (45%) were male and 33 (55%) were to the female population. During the study period, a total of 60 anti-ulcer medications were prescribed, and patients were interviewed. All of them were between 20 and 80 years old. Among the 60 anti-ulcer medication users, 27 were male and 33 were female. Mean age of the patients is 39 ± 1.9208 **(Table 1).**

Table: 1 Distribution based on Age group (n=60)

Age Group (in years)	Number of Participants	Percentage (%)
20-30	24	40
30-40	8	13.33
40-50	16	26.66
50-60	6	10
60-70	4	6.66
70-80	2	3.33
Mean age of the patients		39 ± 1.9208

The majority of the participants, i.e., 36.66%, had nausea and vomiting followed by abdominal pain, whereas only a few of them, i.e., around 6.66%, had abdominal pain with vomiting.

(Table 2).

Table: 2 Reason for admission (n=60)

Presenting Complaints	Number of patients	Percentage (%)
Nausea and vomiting	22	36.66
Abdominal Pain	16	26.66
Loose stools	9	15
Abdominal Pain with vomiting	4	6.66
Miscellaneous	9	15

When the co-morbidities of patients were assessed, the majority of the patients had hypertension (42.10%), followed by 21.05% of anemia. Around 10.52% of the patients had pneumonia. Whereas 5.26% of the participants separately had alcoholism, seizures, septic shock, SLE, and dehydration **(Table 3)**.

Table: 3 Co-morbidities (n=60)

Co-morbidities	Number of Patients	Percentage (%)
Anaemia	4	21.05
Hypertension	8	42.10
Alcoholism	1	5.26
Seizures	1	5.26
Septic shock	1	5.26
Pneumonia	2	10.52
SLE	1	5.26
Dehydration	1	5.26

Antibiotics (63.33%) were most prescribed concurrent drugs when compared to anti-hypertensive and Anti-anaemic **(Table 4).**

Table 4: Concurrent Drugs prescribed (n=60)

Type of Concurrent drugs	Number of times prescribed	Percentage (%)
Anti-hypertensive	8	13.33
Anti-anemic	4	6.66
Antibiotics	38	63.33
Others	10	16.66

Among the various anti-ulcer medications prescribed, Pantoprazole was prescribed in most of the patients (61.60%); 30% were prescribed Ranitidine, and 8.30% were prescribed Omeprazole, respectively **(Table 5)**.

Table 5: Anti-ulcer Drugs prescribed (n=60)

Type of Antiulcer drug	Number of times prescribed	Percentage (%)
Pantoprazole	37	61.60
Ranitidine	18	30
Omeprazole	5	8.30

PPI (73.33%) were prescribed more when compare to H2 receptor blockers and antacids **(Table 6).**

Table 6: Category of Anti-ulcer Drugs (n=60)

Categories of Antiulcer drugs	Number of times prescribed	Percentage (%)
PPI	44	73.33
H2 receptor blockers	10	16.66
Antacids	6	10

Many of the patients were administered in the form of injections rather than in the form of tablets **(Table 7)**.

Table 7: Dosage forms for anti-ulcer drugs (n=60)

Dosage form of Antiulcer drug	Number of times prescribed	Percentage (%)
Parenteral route	46	76.66
Oral route	14	26.66

Anti-ulcer drugs were prominently prescribed for the treatment of Acute Gastroenteritis (61.66%) followed by Acute Gastritis and GERD **(Table 8).**

Table 8: Indications for anti-ulcer (n=60)

Indications	Number of Patients	Percentage (%)
Acute Gastritis	13	21.66
Acute Gastroenteritis	37	61.66
GERD	10	16.66

Discussion

The present study was conducted to evaluate prescribing pattern of anti-ulcer drugs in the general medicine department of tertiary care teaching hospital, Study was conducted for a period of six months.

Drug use evaluation studies are important for obtaining data about the pattern and quality of use, the determinants of drug use, and the outcomes of use. Drug use evaluation studies are important for obtaining data about the pattern and quality of use, the determinants of drug use, and the outcomes of use.

Among 60 patients, female patients were more prevalent (55%) than male patients (45%). Women might be more susceptible to certain types of ulcers, especially during menstruation and pregnancy. In this study, individuals belonging to the 41–50 age group were the most frequent users of anti-ulcer agents **(Table 1)**. This age being the most regular use of such medications that individuals in their middle years might be more prone to conditions that require the use of anti-ulcer drugs, like peptic ulcers or gastroesophageal reflux disease (GERD).

Most patients presented with complaints of nausea and vomiting (36.60%) because nausea and vomiting are common symptoms for the PUD, and the other complaints were abdominal pain, loose stools, abdominal pain with vomiting, and miscellaneous **(Table2).**

When the co-morbidities of patients were assessed, the majority of the patients had hypertension (42.10%), followed by 21.05% of anemia. Around 10.52% of the patients had pneumonia. Whereas 5.26% of the participants separately had alcoholism, seizures, septic shock, SLE, and dehydration **(Table 3).** It may be due to various factors like sedentary lifestyle, emotional factors, heredity, etc. Hypertension was the most common concurrent illness and was seen in (42.10%) while (21.05%) with anaemia (10.52%) was seen in pneumonia. A similar findings were also obtained from a study conducted by **Sonail Jain H et al**[4].

Antibiotics (63.33%) were most prescribed concurrent drugs when compared to anti-hypertensive and Anti-anemic **(Table 4).** Most of the patients had infective diseases, in order to avoid the chances of serious complications, antibiotics were prescribed.

Among the various anti-ulcer medications prescribed, pantoprazole was prescribed in most of the patients (61.60%); followed by ranitidine (30%), and 8.30% were prescribed omeprazole, respectively **(Table 5).** In a study by **Singh VK et al.**[7]**,** similar findings majority of the drugs prescribed were under the class proton pump inhibitors (73.33%) followed by H2 receptor blockers **(Table 6).** PPIs work by inhibiting the proton pumps in the stomach, which reduces the production of stomach acid. They are widely used in the treatment of conditions like peptic ulcers, GERD, and gastritis.

Most of the anti-ulcer were administered in the form of injections (76.66%) rather than in the form of tablets **(Table 7)**. Injectable anti-ulcer medications are typically used in more severe cases or when the patient is unable to take oral medications. Since, many of them where inpatients injections were more preferred than other oral forms.

Acute gastroenteritis was the most common diagnosis (61.66%), followed by acute gastritis (21.66%) and GERD (16.66%) and anti-ulcer medications were prescribed for above conditions.

Conclusion

We found that over half of the participants in our study were taking pantoprazole. Promoting ethical prescribing practices requires taking proactive steps to increase anti-ulcer consumption while adhering to approved and recognized indications and routinely reevaluating the necessity of these drugs. Consequently, it is critical to implement significant steps targeted at optimizing anti-ulcer utilization, which can mitigate possible drug interactions, side effects, and preventable financial expenses.

CONFLICT OF INTEREST

The author declares no conflict of interest.

REFERENCE

1. Ghorbani S F, Nagaraju K. Drug utilization evaluation of pantoprazole in Kempegowda institutie of medical sciences hospital and research centre, India. Ijfmpc.2022;11(6):3138-42.
2. Kakariqi L, Vito S. Prescription patterns of drugs used for peptic ulcer disease in primary health care in Albania. Alban Med J. 2016(3)96-102.

3. Hoque M, Rafi I K, Ripon A I. How Hospital Patients use Anti-ulcer Drug in General Bangladesh. GSC biol. pharm. sci. 2023, 25(02): 387–393.
4. Jain S, M Umesh, Nandeep HP. A study on prescription pattern of drug used in the treatment of peptic ulcer disease in a tertiary care hospital. Int J Pharm Sci Res.2019; 10 (6):166-174.
5. Jayaram V, Aiyappa C, Jallihal U, Shivamurthy M.C. Prescription patter of drugs used in the treatment of peptic ulcer disease department of gastroenterology in a tertiary care hospital. Int J Pharm Sci Res.2014; 5(6): 2418-22.
6. K Prasad, C S Niranjan, B P Suresh. A clinical study of complications and surgical management of peptic ulcer diseases patients in a tertiary care center in Shivamoga, Karnataka. Medpulse.in. 2022; 21(2):40-44.
7. Singh V, Trikha B, Nain CK, Singh K, Vaiphei K. Epidemiology of Helicobacter pylori and peptic ulcer in India. J Gastroenterol Hepatol. 2002; 17(6): 659-65.
8. Biswas S, Sufian AA, Sarkar PK, Chowdhury MK, Chowdhury JA, Bala CS, et al. Over prescription of proton pump inhibitors on discharge of medical inpatients. J Med. 2017, 18(1):27–29.
9. Kaplan GG, Bates D, McDonald D, Panaccione R, Romagnuolo J. Inappropriate use of intravenous pantoprazole: Extent of the problem and successful solutions. Clin Gastroenterol Hepatol 2005;3(12):1207-14.
10. Batuwitage BT, Kingham JGC, Morgan NE, Bartlett RL. Inappropriate prescribing of proton pump inhibitors in primary care. Postgrad Med J. 2007, 83(975):66–68.
11. Craig DGN, Thimappa R, Anand V, Sebastian S. Inappropriate utilization of intravenous proton pump inhibitors in hospital practice--a prospective study of the extent of the problem and predictive factors. QJM. 2010;103(5):327-35.

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