10.37021/ijper.v3i2.5

RESEARCH ARTICLE

Epidemiological Evaluation and Drug Utilization Pattern of the Drugs Used in Peptic Ulcer

Seema Gupta*, Md. Niyaz Alam, Azhar Danish Khan, Neetu Chauhan, Vasundhara Saxena

ABSTRACT

Introduction: Peptic ulcer disease is a clinical syndrome of the gastrointestinal tract that occurs due to gastric acid and pepsin's erosion of the gastric or duodenal mucosa. This study aims to determine the evaluation and utilization pattern of drugs in peptic ulcer patients. The present study needs to carry out, taking into consideration of gender which is most prone to disease. The actual time duration for treatment depends on many factors such as age, type of therapy, nature of medicines.

Materials and Methods: It was a concurrent study carried out online through google form randomly. Total 100 Questionnaire forms were evaluated. The study was carried out during April-May 2020.

Result and Discussion: In the present study drug utilization pattern of drugs used in peptic ulcer patients was evaluated. The evaluation was done through online survey which was conducted in month of April-May 2020. The data of 100 patients were evaluated. It was concluded that the occurrence of peptic ulcer can take place at any age. It was also observed that allopathic drugs were more preferred than herbal drugs. The prevalence of disease is more in males as compared to females. The study concluded that 25.4% of people take 5–7 days to recover from peptic ulcer. Patients taking this medicine suffer from other diseases like cancer, infertility, respiratory diseases, malaria, etc. Nearly 55% of people prefer combination therapy as compared to monotherapy.

Keywords: Allopathic, Monotherapy, Prevalence, Questionnaire, Syndrome Concurrent.

How to cite this article: Gupta S, Alam MN, Khan AD, Chauhan N, Saxena V. Epidemiological Evaluation and Drug Utilization Pattern of the Drugs Used in Peptic Ulcer. Int. J. Pharm. Edu. Res. 2021;3(2):59-62.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Peptic ulcer disease refers to painful sores or ulcers in the parietal lining of the stomach or the first part of the small intestine, called the duodenum. It is characterized by a break in the stomach lining, duodenum, or occasionally the lower esophagus. Most commonly, there are three types of ulcers, namely Gastric ulcer, Esophageal ulcer, and Duodenal ulcer.[1] Peptic ulcer disease is a clinical syndrome of the gastrointestinal tract that occurs due to gastric acid and pepsin's erosion of the gastric or duodenal mucosa. Mucosal erosion could be equal to or greater than 0.5 cm, differentiating from ordinary mucosal erosions, which are superficial.[2,3]

Gunzberg (1852) proposed the first theory, which attributes peptic ulcers to excessive acidity of gastric juices due to some disturbances in vagal control. Lester Dragstedt, in 1935, demonstrated that gastric stasis with secondary hypergastrinemia is responsible for lesions in the gastric ulcer.[4]

Drugs used to treat peptic ulcer disease include proton pump inhibitors, H2-receptor antagonists, antacids, synthetic prostaglandins, and cytoprotective agents. These drugs are widely used for the prevention and treatment of peptic ulcers. Different herbal plants are used in traditional medicine, and they are known to possess anti-ulcer properties. These plants may show improved anti-ulcer activity after some modification. Many natural products with potential therapeutic applications because of their high efficacy and low toxicity are widely used. Natural substances like Flavonoids, aescin, aloe gel etc., possess anti-ulcer activity are of particular therapeutic importance as most of the anti-inflammatory drugs used in modern medicine are ulcerogenic.

Many etiological factors have been responsible for the cause of peptic ulcer disease, including NSAID's and Helicobacter pylori as major causes. Different studies have shown that male gender and elder age groups are independent risk factors for peptic ulcer disease. There are also studies where prevalence is different according to race or geographical variations.[5,6]

Many other factors are also responsible for the cause of peptic ulcers like Tumor Necrosis Factor-α (TNF α), Reactive Oxygen Species (ROS), the release of histamine, and the incidence of apoptosis and bile acids secretion. Several drugs are available to treat peptic ulcers, but clinical evaluation shows high relapse rates, side effects, and drug interactions.[7]

More than 90% of patients with peptic ulcer disease are infected with H. pylori, and eradication of this infection heals most simple ulcers and significantly

Department of Pharmacology, Ram-Eesh Institute of Vocational and Technical Education, Greater Noida, Gautam Budh Nagar, Uttar Pradesh, India

***Corresponding Author:** Seema Gupta, Department of Pharmacology, Ram-Eesh Institute of Vocational and Technical Education, Greater Noida, Gautam Budh Nagar, Uttar Pradesh, India, Phone: 9911964055, E-mail: seemaguptaggg@gmail.com

decreases the recurrence of the disease. This infection is more generality in lower socioeconomic groups with poor living standards, crowded living conditions, and lower education and poor hygiene levels.[8,9]

Duration of therapy for peptic ulcer disease may vary. Some patient may stop the medication in between while other may take for long duration. A literature search revealed very few studies that compared the duration of treatment for peptic ulcer. In various studies, literature has either focused on utilization of a single group of acid suppressants in patients or prescribing trends of these agents in specialty clinics like gastroenterology, critical care, cancer, etc.[10]

This study aims to determine the evaluation and utilization pattern of drugs in peptic ulcer patients. The evaluation pattern provides us a clear view of the rationality of prescribing. Irrational use of peptic ulcer drugs may produce harmful effects in the body; therefore, the present study needs to consider gender, which is most prone to disease. Besides this, various other factors leading to disease complications were studied so that disease prevalence may be prevented, ultimately inhibiting the occurrence of disease by using alternate therapy.

MATERIALS AND METHODS

The Institutional Review Board duly approved the present concurrent study in February 2020. The study was carried during April–May, 2020 through an online Google form. The participant was selected based on Inclusion and exclusion criteria. Inclusion Criteria included people from age group above 12 years who were mostly suffering from Peptic ulcer disease of any other gastric disorder. All gender people were involved. The exclusion criteria were that children below 12 were excluded. The data were collected from a sample size of 100, either males or females suffering from peptic ulcer disease of more than 12 years of age from different regions of Greater Noida and other parts.

The participated patient agrees to informed Consent. The data was obtained by individual interviews through google form using the Structured Questionnaire, as per the World health organization guidelines.[11]

RESULT AND DISCUSSION

Out of 100 people in the study, the most common risk factor was food habits (43%), followed by other diseases (27%) and smoking (15%). Serious risk factors for peptic ulcer include Alcoholic consumption and NSAIDs. Food contributing to ulcer includes tea, coffee, alcohol, cayenne pepper, etc. Foods that irritate mucosal lining and causes ulcer to include spicy, oily, fatty, and acidic food. Irregular meal timings, overeating, loss of appetite are the different eating habit associated with peptic ulcer. An empty stomach allows gastric acid to act on surface mucosa of the stomach directly and irritates the stomach leading to gastric ulcer. Abdominal pain caused by gastric ulcer is enhanced with meals.[12] Stress due to serious health problems such as those requiring treatment in an intensive care unit is well described as a cause of peptic ulcers, termed stress ulcers (Table 1).[13]

The online survey of the patient suffering from peptic ulcer was done, and different patient responses were recorded. Various parameters were taken into consideration. From the 100 responses recorded via survey based on the questionnaire response, peptic ulcers mostly occur at any age.

The demographic characteristics of participants have been studied. More than half of patients with PUD in both healthcare facilities were males (69.8%). It shows that males are more prone to ulcer than females. A similar study was conducted by Arul *et al.*,[14] the prevalence of peptic ulcer disease has shifted from predominance in males to similar occurrences in males and females. The lifetime occurrence is approximately 11–14% in men and 8–11% in women.[15] Minimum percentage response was shown in the age group ranging from 12–25 years. Table 2, Figure 1 represents the relation between age and percentage response.

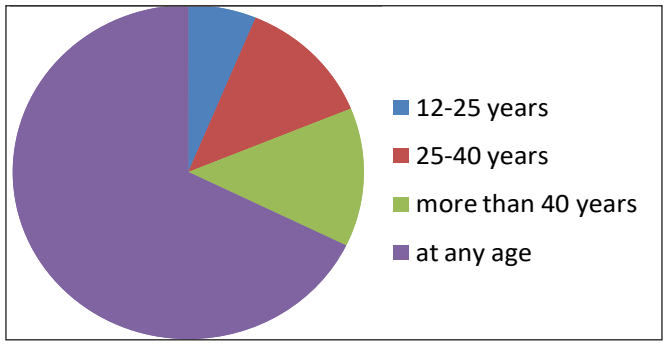

Figure 1: Representing age of patient and percentage response

Table 1: Risk factor assessment

S. No.	*Risk Factors*	*Number(n=100)*	*Percentage (%)*
1	NSAIDS	5	5.0
2	Current Smoker	15	15.0
3	Heavy Drinker	10	10.0
4	Food Habits	43	43.0
5	Other Diseases	27	27.0

Table 2: Age factor *vs* percentage response on peptic ulcers

S. No.	*Age*	*Response (%)*
1	12–25 years	11.1%
2	25–40 years	22.2%
3	More than 40 years	23.8%
4	At any age	42.9%

Table 3: Herbal drugs used in peptic ulcer patients

S.No	Herbal formulation	Number	Percentage (%)
1	Avipattikar churna	10	7.63%
2	Ulsol	4	3.05%
3	Alsarex	5	3.8%
4	Shatavari	96	73.2%
5	Kamadugha rasa	3	2.3%
8	Yashtimadhu	2	1.5%
9	Acidact	11	8.4%

Table 4: Classification of antipeptic ulcer drug prescribed

S. No	Prescribed drug	n=100	Percentage (%)
1	H2 Receptor Antagonist	10	10%
2	Proton Pump Inhibitors	96	96%
3	Antacid	90	90%

Table 5: Anti-peptic ulcer drugs prescribed

S. No	Drug prescribed	Number	Percentage
1	Pantoprazole	120	49.79
2	Pantoprazole + Domperidone	4	1.65
3	Pantoprazole + Levosulpride	1	0.41
4	Omeprazole + Domperidone	2	0.82
5	Esomeprazole	3	1.24
6	Omeprazole	1	0.41
7	Ranitidine	1	0.41
8	Ranitidine+Domperidone	4	1.65
9	Rabeprazole	1	0.41
10	Sodium Alginate+Calcium Carbonate+Sodium Bicarbonate	99	41.07
11	Sucralfate	5	2.07

The other parameter which was taken into consideration was the type of drug used in peptic ulcer patients. According to the survey number of people depending on allopathic medicine was more as compared to herbal. Patients using Allopathic drugs were 66.7%, and that of herbal drugs is 46%. Among 100 populations, many herbal formulations were used. Among this formulation, shatavari (73.2%) is the most commonly prescribed formulation, followed by Avipattikar churna, Acidact, Alsarex, Ulsol, and Yashtimadhu (Table 3). Preliminary phytochemical screening of this medicinal plant identified the presence of important secondary metabolites like flavonoids and tannins, which are the active principle of anti-ulcer activity. The large variety of ethnomedicinal herbs, which are valuable as anti-ulcer agents and their use were experimentally evaluated.[16,17]

Proton Pump Inhibitors were the most prescribed ulcer healing drugs category, with the utilization frequency in tertiary healthcare facilities (96%) (Table 4). Kadiri *et al*., found out that Proton pump inhibitors were the most prescribed ulcer healing drugs category with the utilization frequency more in tertiary compared to secondary healthcare facilities (91.3% and 74.8%, tertiary and secondary healthcare facility, respectively) in north-central Nigeria.[18]

Antacid utilization (90%) in the study center was high as it is given to patients and other anti-peptic ulcer drugs. To date, no drug meets all goals of therapy. Drug treatment of peptic ulcers is targeted at either counteracting aggressive factors or stimulating the mucosal defense. Drugs that inhibit or neutralize gastric acid secretion include histamine H2-receptor antagonists, Proton pump inhibitors, anticholinergics, prostaglandins, and antacids.[19]

The most commonly prescribed PPI in our study subjects was found to be Pantoprazole followed by Sodium Alginate + Sodium Bicarbonate + Calcium Carbonate Oral Suspension. Omeprazole and Rabeprazole were found to be the least prescribed drug among the proton pump inhibitors. Priti *et al.* found that the most common class of anti-peptic drug ulcer prescribed was Proton Pump Inhibitors followed by H2 blockers and Antacids (Table 5).[20]

The most commonly used therapy for Peptic ulcer disease was Combination therapy as compared to monotherapy. 55.6% of the patient was on multiple drug therapy while only 44.4% used monotherapy for peptic ulcer treatment.

CONCLUSION

The primary object of this project was epidemiological evaluation and drug utilization pattern of drug used peptic ulcer patients by conducting a survey online. From the result as per the survey, it was concluded that peptic ulcers could occur at any age. Allopathic drugs are more preferred in the treatment of the peptic ulcer than herbal drugs. More male patients are affected as compared to females. Proton Pump Inhibitors are the most common anti peptic ulcer drugs prescribed. From the above studies it may be concluded that the most used Anti-peptic ulcer agent in our hospital was Pantoprazole, and food habits were the main risk factor in peptic ulcer. Clinical Pharmacists can provide patient education and management of risk factors associated with peptic ulcer development and recurrence. The importance of adherence and counseling on the proper administration of drug therapy is also an important part of treatment success.

ACKNOWLEDGEMENT

We wish to acknowledge the support of all members during this research.

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