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Orignal Article

Rational Drug Therapy of Peptic Ulcer Disease in Patients Admitted To Gastroenterology Ward of LRH Peshawar Khyber Pakhtunkhwa, Pakistan

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ABSTRACT

Peptic ulcer disease is defined as an upper gastric mucosal rupture due to acid that results in the formation of ulcers that extend beyond the muscular mucosa to the submucosa.**Objective:** To assess the rational drug therapy of peptic ulcer disease in patients admitted to Gastroenterology ward of LRH Peshawar Khyber Pakhtunkhwa, Pakistan. **Methods** The present study was conducted from 12 Sep 2019 to 10 Nov 2019 at the Gastroenterology ward, Lady Reading Hospital Peshawar Pakistan, aiming to accurately investigate the Peptic Ulcer Disease state, signs and symptoms, and to ensure complete information about drug therapy and patients response. **Results:** Data from a total of 100 patients (60 female and 40 male) of all age, having various peptic ulcer diseases were included in this study. It was concluded that mostly female patients (60%) were having peptic ulcers as compared to male patients (40%). It was found that 30-40 years old peptic ulcer patient percentage was 20%. **Conclusion:** it was observed that frequent use of Nonsteroidal Anti-inflammatory Drugs (NSAIDs) has been associated as one of the main causes of peptic ulcers.

INTRODUCTION

Ulcer means the erosion of the surface of any organ due to shedding of inflamed necrotic tissue that lines the organ. Spicy and acidic foods, Stress and restless lifestyle are considered as the leading causes of peptic ulcer. However, for up to 60% stomach ulcers the bacterium *Helicobacter pylori* is responsible -[1]. The main risk factors of peptic ulcers are old *age, obesity, smoking, excessive alcohol use,* frequent use of painkillers, *too little sleep, type O blood and chronic* stress. Acute peptic ulcers may also result from taking aspirin or anti-inflammatory drugs for longer periods. The term peptic ulcer refers to those that occur either in the stomach or duodenum. If peptic ulcer is found in the stomach, it is called gastric ulcer and if it is found in duodenum, it is called duodenal ulcer [2]. Peptic ulcer disease (PUD) gastrointestinal problems are characterized by secondary mucosal damage to the secretions of pepsin and gastric acid. It usually occurs in the lower abdomen and the proximal duodenum [3]. It may occurs in the lower esophagus, distal duodenum or genitals, as is the case with undiagnosed hypersensitivity states such as Zollinger-Ellison syndrome or in ectopic gastric mucosa [4]. Smoking, Stress and unhealthy diet were considered to be the principal causes of stomach ulcers. However, the *Helicobacter pylori* bacterium is responsible in foremost duodenal ulcers and up to 60% stomach ulcers. Mucus and other chemicals usually protect the stomach and duodenum from digestive juices. If this protective mechanism is disturbed, powerful digestive acids can

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penetrate the lining of these organs and cause peptic ulcers[5]. A person can get more than one ulcers at a time and ulcers generally range between 3mm and several centimeters in diameter [6]. PUD has become a major disease affecting the elderly population, ranging in age from 55 to 65 years. Approximately 500,000 new cases of PUD are reported per year[7]. Generations born around the middle of the 20th century are at the highest risk of peptic ulcer disease. Cigarette smokers have about twice risk of ulcers as compared to nonsmokers. The current study shows a link between smoking and peptic ulcer disease applied to both gastric and duodenal ulcers and to both men and women [8]. Duodenal ulcers in men are more common in women than gastric ulcers, it has been found to be true, and 35% of patients diagnosed with gastric ulcer will suffer from severe anxiety. Although the death rate from peptic ulcer is low, it causes more pain and costs more [9]. Acute peptic ulcers may result from taking anti-inflammatory drugs. Sometimes they may result from chronic stress, hypotension, hemorrhage, endotoxin shock or cardiac infarction. Patients on steroids may also develop acute peptic ulcers, known as steroid ulcer [10]. Chronic peptic ulcer represents a profound loss of substance, often associated with *Helicobacter pylori* hyper-clorhidric chronic gastritis and chronic use of NSAID [11]. A chronic peptic ulcer is caused by excessive ectopic peptic gastric secretion, resulting in either parietal stimulatory mechanism such as gastrin release[12]. In more than 95% of cases Chronic peptic ulcer represents a deep loss of substance, most often associated with helical cabbage ulcers occurs in the lower abdomen and in the duodenum [13]. The gastric wall around the ulcer is tolerated, causing fibrosis, which involves the base of the ulcer and spreads under the surrounding mucus. Being retractable, fibrosis manages to pull the gastric mucosa toward the base of the ulcer, so that the gastric mucosal folds around the loss of the substance. The fibrous base of the ulcer may be a vessel with a wall or a thrombosis [14]. A variety of contaminants and co-morbidities are associated with a more serious risk of peptic ulcer infection. Basic ailment, medical procedure, or hypovolemia prompting splanchnic Hypo pharyngeal gastro esophageal reflux disease or ulcers (stress ulcers) can occur; they can be silent or show up with grooves or piercings. Smoking also increases the risk of recurrence of ulcers[15].

METHODS

This Clinical clerkship was conducted at the Gastroenterology ward, Lady Reading Hospital Peshawar.This project took 8 weeks to collect the data from 12th September 2019 till 10th November 2019. Patients of all age groups having various peptic ulcer diseases i.e. Peptic ulcer, Gastric ulcer and duodenal ulcer were involved in this study. Out of 100, there were 60 female and 40 male patients distributed gender wise. The required data collection was done on the basis of information mentioned in the pro forma. This bit of the information shows some trait of the patient like; name, address, gender, age, Bed number, Admitted ward, Date of confirmation. It additionally helps in legal and legitimate purposes. These are the medical features or symptoms that the patient has mentioned as the reason for their visit to hospital narrated in their native language. It provides data on why the patient is admitted to a particular ward.This portion tells about what kind of medicine has been taken before that may have treated the condition before, or have worsen it, or no effect at all.Investigation processes carried out as diagnostic tools for diagnosis in the form of endoscopy, pathology, histology, urea, breath and biochemistry tests . It provides information to confirm the final diagnosis of the disease. The clinical observations through investigation and symptoms are put into clinical knowledge to find out the underlying cases of the disease known as diagnosis. Ward Level Treatment includes medical therapy for the diagnosed diseased at hospital or ward level, which gives an idea about the patient whether the administered drugs resulted any improvement or not. The drugs prescribed to the patient after discharge is also added in the study.

Data Analysis: The current therapy that has been provided in the hospital was analyzed for the following main drug related errors: Drug prescription without indications, Drug interactions, Improper drug selection, Uncontrolled condition, Non-compliance, Drugs requiring dose adjustment in Hepatic or Renal Impairment, Adverse related effects.

RESULTS

Patients Demographic Data: data collected, out of all cases, 40% were male while 60% were female patients suffering from Peptic Ulcer disease as shown in figure 1.

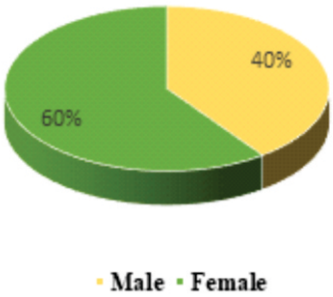

Figure 1: Patient Demographic Data

Area Wise Distribution: In all the 100 cases, admitted patients belonged to different areas including Peshawar, Chirat, Badaber, Karkhano, Barda, Waziristan, Kohat, Banu, Mardan and Afghanistan as well (table 2).

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S/No	Area	Frequency	Percentage
1.	Chirat	10	10%
2.	Badaber	10	10%
3.	Karkhano	10	10%
4.	Barda	10	10%
5.	Afghanistan	20	20%
6.	Kohat	10	10%
7.	Banu	10	10%
8.	Mardan	10	10%
9.	Waziristan	10	10%

Table 2: Area wise Distribution of patients

Age wise Distribution: In Age wise distribution mostly peptic ulcer patients were above 20 years, 60 percent patients were 30 or above 30 years and 30 percent were above 40 years old. The Ratio of the age wise distribution is given in the table 3.

Age of the Patient (Years)	Number of Patients	Percentage
01-20	10	10%
21-30	20	20%
31-40	40	40%
41-50	20	20%
51-60	10	10%

Table 3: Age wise Distribution of patients

Main causes of Hospitalization: In most of the histories, the patients were suffering from Peptic Ulcer Disease, out of which, 1 had peptic ulcer because of frequent use of NSAIDs, 2 of them were suffering from peptic ulcer because Helicobacter pylori, 3 of them had Peptic ulcer the disease, 3 of them had Duodenal Ulcer (type of PUD), 1 was suffering from Duodenal Ulcer along with H. pylori infection.

Therapy Provided in the Hospital: During this period of study at Lady Reading Hospital Peshawar, record from the patient's histories were taken including Medication, laboratory Diagnostic Reports.

S/No	Category of Medicines	Medication used
1.	Antibiotics	Ceftriaxone Amoxicillin Clarithromycin Levofloxacin Ciprofloxacin Cefotaxime
2.	GIT Drugs	Phloroglucinole Domperidone
3.	Anti-Emetic	Metoclopramide
4.	Antacid	AlOH + MgOH
5.	Mucu-Protective	Sucralfate
6.	H2 Blockers	Cimetidine
7.	Proton Pump Inhibitors	Omeprazole Esomeprazole

Table 4: Drugs provided in the Hospital

Drugs Interaction: It was observed during this study at Lady Reading Hospital Peshawar, that mostly PPIs are administered for the management of Peptic ulcer in combination with antibiotics and GIT drugs, pain-killers, antidepressants, sedatives and vitamin-B complex for the related symptoms. While using in combination some of which had reported Drug Interactions, which are given below

Drugs Interaction	Occurrence	Case No.
Sucralfate / Levofloxacin	01	03
Cimetidine / Bromazepam	01	04
Sucralfate / Ceprofloxacin	01	05
Cimetidine / Alprazolam	01	06
Esomeprazole / Iron	01	09
Clarithromycin / Fluoxetine	01	07
Iron / Ciprofloxacin	01	09

Table 5: Drug-Drug Interaction

Poly Pharmacy: PolyPharmacy was observed in Case no.2, Case no.3, Case no.6 and as well as Case no.9.

Side Effects Observed: Various adverse effects were observed in different cases:

Drugs Interaction	Occurrence
Vomiting	01
Nausea	01, 02, 03 and 07
Headache	02, 03, 07 and 09
Diarrhea	01 and 10
Constipation	05, 06 and 08
Drowsiness	04, 06, 08 and 10
Dry Mouth	06, 07 and 08

Table 6: Adverse Effects Observed

DISCUSSION

The present study conducted at the Gastroenterology ward, Lady Reading Hospital Peshawar, aims to accurately investigate the Peptic Ulcer Disease state, signs and symptoms, to ensure complete information about drug therapy and patients response. PUD is a common clinical problem which is characterized by abdominal pain, change in appetite, unexplained weight loss, nausea, vomiting, heart burn and dark, tarry stools . Demographic Graph (Figure 1) shows that most of the female patients (60%) were having peptic ulcer disease as compared to male patient (40%). Age wise it has been found that 30-40 years old patients' percentage was 20% as given in table 3. Data from a total of 100 patients (60 female and 40 male) of all age, having various peptic ulcer diseases were involved in this study. The two most important risk factors associated with PUD comes out to be H. pylori infection and frequent use of NSAIDs. Old age, obesity, smoking, excessive alcohol use, too little sleep, type O blood and chronic stress, are the other risk factors of peptic ulcers. Endoscopy is one of the

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best diagnostic tool for PUD . But since it is not possible to perform endoscopy in so many dyspeptic patients, there are some non-endoscopic approaches depending on the prevalence of H. pylori infection in the population. The Drug related problem such as Drug-Drug interactions were found in 70% of therapy use for Peptic ulcer disease which requires more knowledge of Clinical Pharmacy to practice it for rational use of medication . Moreover it is clear from the above discussion that efficient treatment, less NSAIDs use and Elimination of Helicobacter pylori results in clinical improvement and treatment, as well as long-term healing of ulcers.

CONCLUSION

It was concluded that most of the female patients (60%) were having peptic ulcers as compared to male patient (40%). It was found that peptic ulcer percentage is found to be higher among patients of age 30 and above. Moreover, controlled use of NSAIDs and H. Pylori treatment may also result in decreased prevalence of PUD.

REFERENCES

[1] Lee, Y.Y., S. Mahendra Raj, and D.Y. Graham, Helicobacter pylori infection–a boon or a bane: lessons from studies in a low-prevalence population. Helicobacter, 2013. 18(5): p. 338-346. doi: 10.1111/hel.12058.

[2] Bertleff, M.J., et al., Randomized clinical trial of laparoscopic versus open repair of the perforated peptic ulcer: the LAMA Trial. World journal of surgery, 2009. 33(7): p. 1368-1373. doi: 10.1007/s00268-009-0054-y.

[3] Ali, M., et al., Soil and water conservation practices in district Swabi, KP, Pakistan. Adv Crop Sci Tech, 2018. 6(366): p. 2. doi: 10.4172/2329-8863.1000366

[4] Taha, A.S., et al., Famotidine for the prevention of peptic ulcers and oesophagitis in patients taking low-dose aspirin (FAMOUS): a phase III, randomised, double-blind, placebo-controlled trial. The Lancet, 2009. 374 (9684): p. 119-125. doi: 10.1016/S0140-6736(09)61246-0.

[5] Cichoke, A.J., The complete book of enzyme therapy. A Complete and Up-To-Date Reference to Effective Remedies. 1999: Penguin.

[6] Avery, A.J., et al., A pharmacist-led information technology intervention for medication errors (PINCER): a multicentre, cluster randomised, controlled trial and cost-effectiveness analysis. The Lancet, 2012. 379(9823): p. 1310-1319. doi:https://doi.org/10.1016/S0140-6736(11)61817-5

[7] Sung, J., E. Kuipers, and H. El-Serag, Systematic review: the global incidence and prevalence of peptic ulcer disease. Alimentary pharmacology & therapeutics, 2009. 29(9): p. 938-946. DOI: 10.1111/j.1365-2036.2009.03960.x

[8] Wang, C.-H., et al., High-dose vs non–high-dose proton pump inhibitors after endoscopic treatment in patients with bleeding peptic ulcer: a systematic review and meta-analysis of randomized controlled trials. Archives of internal medicine, 2010. 170(9): p. 751-758. doi: 10.1001/archinternmed.2010.100.

[9] Israel, D.A., et al., Helicobacter pylori strain-specific differences in genetic content, identified by microarray, influence host inflammatory responses. The Journal of clinical investigation, 2001. 107(5): p. 611-620. doi: 10.1172/JCI11450.

[10] Schaffer, D., et al., Risk of serious NSAID-related gastrointestinal events during long-term exposure: a systematic review. Medical journal of Australia, 2006. 185(9): p. 501-506. doi:10.5694/j.1326-5377.2006.tb00665.x.

[11] Roderick, P., et al., Cost-effectiveness of population screening for Helicobacter pylori in preventing gastric cancer and peptic ulcer disease, using simulation. Journal of Medical Screening, 2003. 10(3): p. 148-156. doi: 10.1177/096914130301000310.

[12] Kahi, C.J., et al., Endoscopic therapy versus medical therapy for bleeding peptic ulcer with adherent clot: a meta-analysis. Gastroenterology, 2005. 129(3): p. 855-862. doi: 10.1053/j.gastro.2005.06.070.

[13] Ng, F.H., et al., Famotidine is inferior to pantoprazole in preventing recurrence of aspirin-related peptic ulcers or erosions. Gastroenterology, 2010. 138(1): p. 82-88. doi: 10.1053/j.gastro.2009.09.063.

[14] Fallah, M.S., F. Mansour-Ghanaei, and A. Shafaghi, Eradication of Helicobacter pylori in duodenal ulcer disease tetracycline & furazolidone vs. metronidazole & amoxicillin in omeprazole based triple therapy. Medical Science Monitor, 2002. 8(3): p. PI27-PI30.

[15] Lanza, F.L., A guideline for the treatment and prevention of NSAID-induced ulcers. The American journal of gastroenterology, 1998. 93(11): p. 2037. doi: 10.1111/j.1572-0241.1998.00588.x.

[16] Graham, D., et al., Campylobacter pylori detected noninvasively by the 13C-urea breath test. The Lancet, 1987. 329(8543): p. 1174-1177. doi: 10.1016/s0140-6736(87)92145-3.

[17] Yuan, Y., I.T. Padol, and R.H. Hunt, Peptic ulcer disease today. Nature Clinical Practice Gastroenterology & Hepatology, 2006. 3(2): p. 80-89. doi: 10.1038/ncpgasthep0393.

[17] Genovese, M.C., et al., Interleukin-6 receptor inhibition with tocilizumab reduces disease activity in rheumatoid arthritis with inadequate response to

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DOI: https://doi.org/10.54393/pbmj.v5i2.222

disease-modifying antirheumatic drugs: the tocilizumab in combination with traditional disease-modifying antirheumatic drug therapy study. Arthritis & Rheumatism: Official Journal of the American College of Rheumatology, 2008. 58(10): p. 2968-2980. doi: 10.1002/art.23940.

[19] Jain, S., M. Umesh, and H. Nandeesh, A study on prescription pattern of drugs used in the treatment of peptic ulcer disease in a tertiary care hospital.

[20] Singh, G. and G. Triadafilopoulos, Appropriate choice of proton pump inhibitor therapy in the prevention and management of NSAID-related gastrointestinal damage. International journal of clinical practice, 2005. 59(10): p. 1210-1217. doi: 10.1111/j.1368-5031.2005.00660.x.

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