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RESEARCH ARTICLE
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FREQUENCY OF H. PYLORI INFECTION IN PERFORATED PEPTIC ULCER PATIENTS

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ABSTRACT

Introduction: Peptic ulcer disease is a common medical problem with a lifetime prevalence of 5-10% and an incidence of 1.5-3% in general population per year.
Objective: To determine the occurrence of H. Pylori infection in patients with perforated peptic ulcer.
Setting: Department of Surgery, Lady Reading Hospital, Peshawar, Pakistan
Study design: Cross sectional Study.
Duration of study: Six months from 4th August 2020 to 4th February, 2021.
Materials and methods: In the current study a total of 171 patients were observed. Data like patient age, sex, history of Non-steroid anti-inflammatory drugs usage in last 10 days and history of peptic ulcer disease was noted. Patients were managed and were prepared for surgical intervention as per protocol. During surgery the biopsy from perforation site was taken and was sent for culture & sensitivity. IBM-SPSS Version.23 was used for analysis of data.
Results: In the current study, a total of 171 patients were enrolled. In our study, 150(87.72%) patients were male and 21(12.28%) patients were female. 79(46.2%) patients had positive history of NSAID usage and 92(53.8%) patients had negative history of NSAID usage. 93(54.4%) patients had helicobacter pylori infection and 78(45.6%) patients didn't had helicobacter pylori infection.
Conclusion: Our study concludes that the frequency of H. pylori infection was 54.4% in perforated peptic ulcer patients.

Keywords: H. pylori, Perforated peptic ulcer, Common medical problem.

INTRODUCTION

With a lifetime frequency of 5–10% and an annual incidence of 1.5–3% in the general population, peptic ulcer disease is a prevalent medical condition (1, 2). Frequency of Helicobacter pylori-induced peptic ulcer disease and the resulting hospitalizations has sharply decreased in recent years (3, 4). The extensive usage of anti-secretory medications is responsible for this decrease. However, treating Helicobacter pylori infections has grown increasingly difficult as a result of rising antibiotic resistance (1). Perforation accounts for 40% of peptic ulcer-related mortality and is one of the most prevalent indications for exploratory laparotomy in emergency surgical departments, despite being a less common consequence of peptic ulcers than bleeding (1:6) (5). Both stomach and duodenal ulcers are

included in peptic ulcer disease, which is brought on by an imbalance between aggravating (pepsin, hydrochloric acid) and defensive (mucus layer, prostaglandins) elements. The underlying tissues become exposed to gastroduodenal secretions as a consequence of mucosal erosion brought on by injury to the gastroduodenal mucosa (1).Historically, this disease has been linked to nutritional variables, emotional stress, a hypersecretory acid milieu, and other psychosocial issues. However, the epidemiology of this condition has altered due to the rise in alcohol and smoking addiction, the widespread use of NSAIDs, and the rising prevalence of H. pylori infection. It has been shown that 31% of patients with peptic ulcer disease had an H. pylori infection (6). In a different investigation, a biopsy revealed that 61% of these individuals had an H. pylori infection (7). 53 (46.7%) of the patients in a different investigation of peptic perforation were positive for H. pylori (8). The frequency of H. pylori in perforated peptic ulcers was 44% in patients who used non-steroidal anti-inflammatory medicines, but it rose to 86% when only those who did not take these medications were taken into account (P=0.09) (9). It has also been seen in asymptomatic patients. The purpose of my research is to determine the H. pylori prevalence infection in patients with perforated peptic ulcers since there is no study conducted in our hospital.

MATERIAL AND METHODS

Setting: Department of Surgery, Lady Reading Hospital, Peshawar, Pakistan
Study design: Cross sectional study
Duration of study: Six months from 4th August 2020 to 4th February, 2021.
Sample size: Sample size was 171 patients with peptic perforation, by taking the 46.9% frequency of positive H. pylori in peptic perforation[8], with 7.5% margin of errors and 95% confidence interval.

Inclusion Criteria

- All patient with perforated peptic ulcers according to operational definition
- Either gender were enrolled
- Age 20 to 60 years.

Exclusion Criteria

- All patients with previous history of abdominal surgery.
- Those with history of trauma, or any other cause of peptic perforations like acid ingestions, known medical history of intestinal tuberculosis etc.

Data collection procedure

Permission from the ethical committee was taken before the start of the study. All patients were admitted in emergency surgical unit and were evaluated according to inclusion criteria. Those patients who met the criteria were enrolled in the study. All the benefits and harms associated with the study were explained.

Data like patient age, sex, history of Non-steroid anti-inflammatory drugs usage in last 10 days and history of peptic ulcer disease was noted. Patients were managed and were prepared for surgical intervention as per protocol. During surgery the biopsy from perforation site was taken and was sent for culture &sensitivity. In the culture report the presence of H. pylori was noted. All data was collected by the researcher himself and was noted in the proforma.

Data analysis

A statistical software named IBM-SPSS.Version.23 was used for analysis. Age was presented as mean with standard deviation and gender, history of NSAID usage, and H. pylori presence was presented as frequency and percentage. Stratification of age, gender, previous history of NSAID usage was done against the presence of H. pylori.

RESULTS

In the current study age distribution among 171 patients was analyzed as 35(20.46%) patients were in age group ranged from 20-40 years and 136(79.53%) patients were in age ranged from 41-60 years. Mean age was 37 years with standard deviation SD± 12.2. (Table No 1)

Gender distribution among 171 patients was analyzed as 150(87.72%) patients were male and 21(12.28%) patients were female. (Table No 2)

History of NSAID usage among 171 patients was analyzed as 79(46.2%) patients had positive history of NSAID usage and 92(53.8%) patients had negative history of NSAID usage. (Table No 3)

Frequency of helicobacter pylori infection among 171 patients was analyzed as 93(54.4%) patients had helicobacter pylori infection and 78(45.6%) patients didn't had helicobacter pylori infection . (Table No 4)

Table 1: Age distribution of the patients

Age	Frequency	Percentage
20-40 years	35	20.46%
41-60 years	136	79.53%
Total	171	100%

Table 2: Gender distribution of the enrolled patients

Gender	Frequency	Percentage
Male	150	87.72%
Female	21	12.28%
Total	171	100%

Table 3: History of NSAID usage

NSAID USAGE	FREQUENCY	PERCENTAGE
Positive	79	46.2%
Negative	92	53.8%
Total	171	100%

Table 4: Frequency of h. Pylori infection

H. Pylori infection	Frequency	Percentage
Yes	93	54.4%
No	78	45.6%
Total	171	100%

DISCUSSION

Treating Helicobacter pylori infections has grown increasingly difficult as a result of rising antibiotic resistance (1). Perforation accounts for 40% of peptic ulcer-related mortality and is one of the most prevalent indications for exploratory laparotomy in emergency surgical departments, despite being a less common consequence of peptic ulcers than bleeding (1:6) (5).Our research indicates that Our analysis reveals that, out of 171 patients, 35 (20.46%) were in the 20–40 age range, and 136 (79.53%) were in the 41–60 age range. There were 21 (12.28%) female patients and 150 (87.72%) male patients. 92 patients (53.8%) had a negative history of NSAID use, whereas 79 patients (46.2%) had a positive history. Helicobacter pylori infections were present in 93 individuals (54.4%) and absent in 78 patients (45.6%).Similar results were found in another research by Rehmani B et al. (11) where the fast urease test revealed an H. pylori infection in 62 individuals (82.67%) and histopathology in 46 patients (61.33%). It demonstrates that a significant portion of perforation patients do not have the H. pylori bacteria, meaning that not all of these individuals would benefit from eradication treatment. In order to confirm the presence of H. pylori, the surgeon should take a stomach antral mucosal biopsy during the procedure. Only patients who test positive should be given eradication medication.Similar results

were seen in another research by John B et al (12), where the patients' mean age at presentation was 52.81±14.5 years. The ratio of men to women was 4.14:1. 46 cases (40.7%) had stomach ulcer perforation, and 67 cases (59.3%) had duodenal ulcer perforation out of 113 cases. Of these, 53 patients (46.7%) tested positive for H. pylori. There was no discernible correlation between the incidence of H. pylori infection in peptic ulcers and NSAIDS consumption, diet, smoking, or hypertension. Our investigation revealed a strong correlation between H. pylori and diabetes mellitus (p=0.02), which warrants further research.Another trial by Gisbert JP et al. (13) that included 160 individuals with non-complicated peptic ulcers and 16 patients with perforated peptic ulcers showed similar results. Eighty-seven percent of patients without a perforated peptic ulcer had H. pylori, compared to sixty-two percent of patients with this complication (P = 0.01). those with perforated peptic ulcers were more likely to use non-steroidal anti-inflammatory medicines (P = 0.012) (56%) than those without perforation (26%). The frequency of H. pylori in perforated peptic ulcers was 44% in patients who used non-steroidal anti-inflammatory medicines, but it rose to 86% when only those who did not take these medications were taken into account (P = 0.09). The only variable in the multivariate analysis that was associated with peptic ulcer perforation was the use of non-steroidal anti-inflammatory medicines [odds ratio, 3.6 (95% CI, 1.3-10); P = 0.016]. Similar results were seen in another research by Magsi AM et al. (14) that included the operation of 198 patients who had acute peritonitis as a result of a peptic ulcer rupture during a three-year period. Of these patients, 27 (13.64%) were female and 171 (86.34%) were male. Of the patients, 143 (77.27%) had no prior history of PUD, while 45 (22.73%) had a history of PUD and were receiving partial treatment. 35/45 (77.77%) of the symptomatic group and 115/153 (75.16%) of the asymptomatic group had H-pylori. 54/153 (35.29%) of the asymptomatic group and 9/45 (20%) of the symptomatic group were smokers. 54/153 (35.29%) of the asymptomatic group and 9/45 (20%) of the sick group used NSAIDs and steroids. There were 27/153 (17.64%) alcoholics in the asymptomatic group and 18/45 (40%) in the symptomatic group. A unusual risk factor was betel nut. Every patient was from a poor socioeconomic background. H. pylori infection prevalence was lower in patients with perforations than in patients with simple ulcers, according to a few studies. These studies found that the H. pylori positivity rate was between 33 and 47% (15–18). According to this research, the following authors have also observed an intermediate connection with H. pylori. According to previous studies (19–23), the of H. pylori infection prevalence in perforated peptic ulcers ranges from 55-70%. According to Debongni's 1995 (24) research, the prevalence of H. pylori infection in the general population was 36% in patients with perforated ulcers, 56% in those without, and 86% in those without ulcers. They came to the conclusion that individuals with perforations are a diverse population and that H. pylori infections are the primary cause of recurrent ulcers.

CONCLUSION

Our study concludes that the frequency of H. pylori infection was 54.4% in perforated peptic ulcer patients.

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