



Original Research Article

H. Pylori Infection Status in Cases of Acid Peptic Disease Patients in Rural Population of Malwa Region of Madhya Pradesh

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Abstract

Introduction: Peptic ulcer disease (PUD) is very common problem encountered by physicians in day-to-day practice. Prevalence of this disease varies from country to country and Previous concept regarding PUD was that “no acid, no ulcer”. Now, it is certain that *H. pylori* is the main agent causing peptic ulcer. *H. pylori* is found in 95% of patients with duodenal ulcers and 70% of cases with gastric ulcers. *H. pylori* infection is chronic and once acquired remains life long, unless eradicated by antibiotics given for some other conditions.

Methods and Materials: This study was conducted on 100 acid PUD patients at Internal Medicine Department of Index Medical College Hospital and Research Centre, Indore from October 2017 to April 2018. Patients who were suffering from symptoms related to PUD who gave consent for upper gastrointestinal endoscopy, those patients were selected for this study and the *H. pylori* infection was detected by rapid urease test (RUT) kit test.

Results: Among the 100 patients of PUD who were studied in this study, 75 patients had RUT positive result and 25 patients had RUT negative result. It was also observed that amongst the RUT positive patients, those who had strongly positive RUT status, they had more severe form of peptic ulcer disease, whereas weakly positive RUT patients had moderately severe form of the disease, and those who had negative RUT report, they had very minor form of the disease.

Conclusion: High prevalence of *H. pylori* infection is found in patients suffering from PUD in rural India hence its treatment can help in preventing significant morbidity as well as recurrence in these patients. Patients with various complaints, where UGI endoscopy is done, they should routinely have their *H. pylori* status checked, regardless of indication.

Keywords: Peptic ulcer disease, *H. pylori*, Upper gastrointestinal endoscopy, Rapid Urease Test.

Introduction

Peptic ulcer disease (PUD) is very common problem encountered by physicians in day-to-day practice. Prevalence of this disease varies from country to country. It was believed that “no acid, no ulcer”. During the last two decades there has been a tremendous progress in understanding the aetiology, pathogenesis and management of the disease. Now, it is certain that infection by *H. pylori* is main aetiological agent of PUD^[1].

H. pylori is gram-negative, helical, rod-shaped bacterium, colonizes the mucosa of stomach approximately one-half of population^[2].

H. pylori is found in 95% of patient of duodenal ulcer and 70% of cases with gastric ulcers^[3]. It is typically transmitted via the fecal-oral route during early childhood and persists for decades. The bacterium is a known causative agent for both duodenal ulcer and also gastric ulcer^[4], and a risk factor for mucosa-associated lymphoid tissue (MALT) lymphoma and also gastric adenocarcinoma^{[5],[6]}. *Helicobacter* infection is chronic and once acquired remains life long, unless eradicated by antibiotics given for some other conditions. Overcrowding, poor socio-economic status and poor hygiene are associated with too much infection rate. Re-infection rate also too high in poor, developing countries due to the above mentioned risk factors^[1].

The American College of Gastroenterology (ACG) recommends testing of *H. pylori* infection status in patients with active PUD or history of PUD, dyspepsia symptoms, or gastric MALT lymphoma^[7]. Although the entire genome of *H. pylori* has been sequenced, it is still not clear how this organism, which is a resident organism in the stomach, causes ulceration in duodenum, or whether its eradication will lead to a decrease the occurrence of gastric cancer.

Aims and Objectives

To analyze the prevalence of *Helicobacter pylori* infection status in acid PUD.

Study Design: The study is an observational cross-sectional study.

Methods and Materials

This study was conducted on 100 PUD patients at Internal Medicine Department of Index Medical College Hospital and Research Centre, Indore from October 2017 to April 2018.

These patients were subjected to undergo endoscopy under local anesthesia with all aseptic precautions after taking written consent and preprocedural HIV and HBsAg blood testing. *H. pylori* infection was tested by rapid urease test (RUT) kit. Tissue samples were taken commonly from the tissues near antrum and RUT kit tests were performed immediately after taking out the samples. There was no major bleeding observed from the sites from where biopsy samples were taken.

The prevalence of *H. pylori* was analyzed by using descriptive statistical methods.

Inclusion criteria

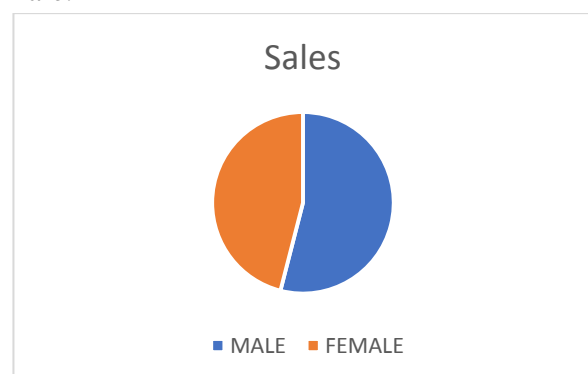
- Patients who were suffering from symptoms related to PUD who gave consent for endoscopy and were able to afford it.

Exclusion criteria –

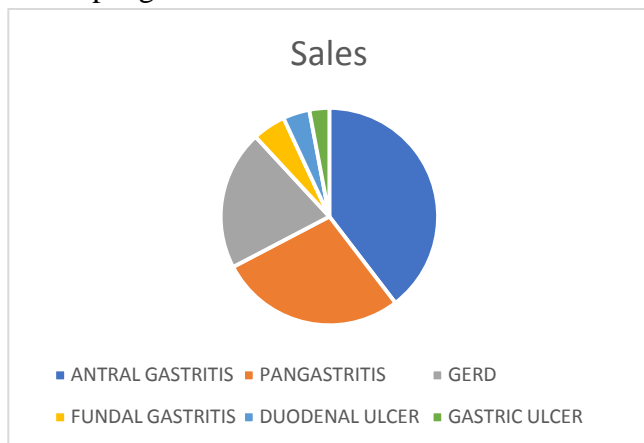
- Patients who did not have symptoms like PUD.
- Patients who were suffering from symptoms like peptic ulcer, but who did not give consent for endoscopy.

Results

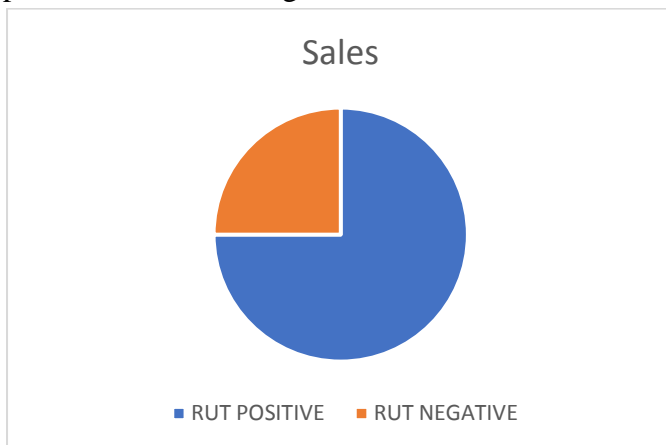
Among the 100 patients of PUD who were studied in this study, 54 patients were male and 46 were female.



Antral gastritis was found in 40 patients, pangastritis was found in 28 patients, GERD (gastro-esophageal-reflux disease) in 20 patients, predominantly fundal gastritis in 5 patients and DU in 4 patients, these patients also had duodenitis. 3 patients had gastric ulcer and 2 patients were diagnosed as antral ulcer with acute severe pangastritis.



There were few patients who had mixed lesions like GERD with gastritis. Amongst 100 patients who undergo RUT testing with tissue sample taken from near pyloric antrum, 75 patients showed positivity towards RUT testing and 25 patients were RUT negative.



It was also observed that amongst the RUT positive patients, those who had strongly positive RUT status, they had more severe form of PUD, whereas weakly positive RUT patients had moderately severe form of the disease, and those who had negative RUT report, they had very minor form of the disease.

Discussion

Gastric epithelium always faces constant assault because of lot of harmful factors including hydrochloric acid (HCL), pepsinogen/pepsin, and bile salts. Moreover, there are many external substances, for example alcohol, medications, and bacteria comes in contact with gastric mucosa. There is a very effective biologic system which provides defense against these harmful substances and protects from injury of mucosa and also it can repair it easily if there is any injury. The defense system protects the mucosa by barriers at three-level, they are at pre-epithelial level, at epithelial level, and at subepithelial level. The mucus-bicarbonate-phospholipid, acts as a physico-chemical barrier^[8].

Since *H. pylori* was first discovered by Warren and Marshall in 1983, it has radically changed our understanding and clinical management of gastric and duodenal disease, and much has been researched about its clinical aspects and its epidemiology. It is found at deep mucus plug of mucosal layer or in between gastric epithelium and the mucosal layer. It may remain attached to epithelium of stomach.

Multiple strains of *H. pylori* exist and are characterized by their ability to express several host invading factors. It is possible that the different diseases which are caused by *H. pylori* infection can be caused by different strains of the organism with distinct pathogenic features^[8].

Diseases such as gastro esophageal reflux disease (GERD), esophagitis, gastric ulcer, gastritis, duodenal ulcer, Zollinger Ellison syndrome (ZES) and Meckel's diverticular ulcer are collectively represented by the term acid peptic diseases^[9]. The major complications of PUD are perforation and hemorrhage which may result in high mortality in these patients^[10]. Patients with dyspepsia, requires to be investigated. Endoscopy is the best investigating tool for diagnosing the upper GI tract disease^[11].

Many patients still attribute symptoms related to dyspepsia are caused by diet, stress, and lifestyle factors; however, *H. pylori* is the main causative

agent of PUD, it is proven already. It is also associated with gastric cancer, mainly MALT type gastric lymphoma.

The most common risk factors for PUD are *H. pylori* infection and NSAIDs overuse, and estimated odds ratios in USA for both are 3.7 and 3.3, respectively^[8].

Its prevalence and incidence varies in relation to different factors like geography, ethnicity, age, and socio-economic factors. Infection is high in developing and poor countries and lower in developed countries. Overall, 70 to 90% of adults harbor the bacteria in most developing countries; most individuals acquired the infection during children, before 10 years of age.

Although the exact pathogenesis of *H. pylori* causing duodenal ulcer is not known, it is proposed that gastric metaplasia in duodenum serves a precursor for ulcer formation in duodenum by providing a nidus for colonization of *H. pylori* in duodenum and subsequent inflammation leading to ulcer formation at one stage^{[12],[13],[14]}.

Conclusion

High prevalence of *H. pylori* infection is found in patients suffering from PUD in rural India and hence its treatment can help in preventing significant morbidity as well as recurrence in these patients. The high prevalence of infection suggest that it is a major public health burden in developing countries like India and thus an important agenda for public health investigation followed by implementation of proper strategies of control and eradication. Patients with various complaints, where UGI endoscopy is done, they should routinely have their *H. pylori* status checked, regardless of indication. The disease has low mortality but has considerable individual suffering and consequently loss of manpower and also cumulative high cost for symptomatic therapy. In-depth further studies need to be done to evaluate the local antibiotic resistance pattern and to assess whether infection with *H. pylori* is strongly related to pre-cancerous lesions like

intestinal metaplasia and also gastric cancer in this part of world.

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