Helicobacter pylori infection among patients undergoing upper gastro-intestinal endoscopy

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Abstract

Background: Helicobacter Pylori is an organism initially observed in 1893 and has not been recognized as an infections agent until 1982 in the work of nobel laureates, warren and Marshall. **Aim and objectives:** To estimate the prevalence of Helicobacter Pylori infection among patients in rural population with dyspeptic symptoms, undergoing Upper Gastro Intestinal Endoscopy. To compute the association of H.Pylori with gastro-intestinal lesions such as gastritis, duodenal ulcer, gastric ulcer, gastric and esophageal carcinomas in a medical college and tertiary Hospital in a rural area in Andhra Pradesh. **Materials and method:** The present study comprises of 154 patients (inpatients and outpatients) undergoing upper gastro-intestinal endoscopy in the Department of General Surgery, Konaseema Institute of Medical Sciences. **Results:** Most prominent symptom among 154 cases was abdominal pain occupying 97%. Among these cases, most common is hunger pain 80% and 13% of the patients have pain immediately after taking food. Most prominent sign in our study was epigastric tenderness 90% Smoking was seen in 70% of cases most of these patients were males. **Conclusion:** Early detection of H.Pylori in symptomatic individuals helps to plan eradication treatment for H.Pylori thus it can be eliminated to avoid future complications.

Key Words: Helicobacter Pylori, Upper Gastro-Intestinal Endoscopy.

INTRODUCTION

Helicobacter Pylori is an organism initially observed in 1893 and has not been recognized as an infections agent until 1982 in the work of nobel laureates, warren and Marshall. H.pylori is a gram negative organism, grows only under micro aerophilic conditions on rich media. An interesting features of these bacteria is their ability to adapt to harsh conditions. They are capable of becoming virtually metabolically inactive with minimal synthesis of DNA and RNA through a conversion from spiral into coccoid forms, offering a survival advantage in cases when chances of survival are slim to none. They colonises various regions of upper digestive system, mainly the stomach and duodenum causing stomach and duodenal ulcers and certain cancers1–4. The nature of H.Pylori and its infections niche, the human stomach, suggests ingestion as the most likely means of acquiring this pathogen. Three routes of transmission are being known, widely debated among researchers – oral – oral, gastro-oral or faeco – oral. The organism has a striking biochemical characteristic of abundant urease enzyme production. H.Pylori have a special affinity for gastric mucosa and is etiologically associated with chronic active gastritis, peptic ulcer (duodenal and gastric) and gastric cancer. H.Pylori infection is almost always acquired in childhood and usually persists throughout life unless a specific treatment is given5–8. H.Pylori infects atlease 50% of the world’s population and poor socio-economic status is regarded as the most important risk factor for acquisition of infection. The prevalence of H.Pylori was different world-wide, however rural population is found to have more prevalence. In India, the prevalence have been reported in...
the range of 60 – 80%.\(^9\)\(^-\)\(^12\) H. pylori has been demonstrated world wide and its strong association with certain upper gastro intestinal diseases is well documented. The infection rates were higher in persons of Mediterranean and Asian origin (89%) compared to those of Western, European / North America origin (57%).\(^3\)\(^-\)\(^17\) H. pylori is strong producer of enzyme oxidase, catalase and urease. The urease activity enables us to identify the organism rapidly.\(^18\) Since H. pylori infection rates are much higher in developing world, it has been presumed that re-infection rates with the organism following successful eradication therapy would also be higher than the 1% rate documented in developing world.\(^19\) The pathogenesis of H. pylori as a gastric pathogen is dependent on virulence (Maintainence) factors and pathogenic mechanisms, which allow H. pylori to survive in the environment of gastric lumen.\(^20\)

**MATERIALS AND METHOD**

The present study comprises of 154 patients (inpatients and outpatients) undergoing upper gastro-intestinal endoscopy in the Department of General Surgery, Konaseema Institute of Medical Sciences and Research Foundation, Amalapuram, East Godavari District which is a rural area with a population of approximately 53,331. All patients aged about 18 years, residing in rural area and Low socio-economic status undergoing upper gastro-intestinal endoscopy were included in the study. These patients are then subject to take standard questionnaire prepared by us and then subject to study methods. A detailed proforma of each patients was prepared. Every patient after taking informed consent was subjected to upper gastro intestinal endoscopy after 12 hours of overnight fasting with “Olympus” fibro optic endoscope. Mucosal biopsies were taken from the antrum of stomach or duodenum (according to the case findings) and subjected rapid urease test, culture in BHI Agar with 5% sheep blood, histopathological Examination and Giemsa staining. The blood samples from each patient were subject to Rapid Immunoglobulin detection test – using commercially available rapid IgG detection kits The clinical samples were taken from patients by performing UGI Endoscopy. The endoscope was thoroughly rused with sterile normal saline just before collection of specimen. The Endoscope and Biopsy forceps were thoroughly rused with water and then soaked in 2% Glutaral delyde solution (cidex) for 10 minutes between cases. The Endoscopist after a preliminary clinical examination of the patient, passes the scope in left lateral position of the patient after giving local pharyngeal anaesthesia with 4% xylocaime viscus. The status of esophagus, esophago-gastric junction, Body and Pylorus of stomach, anturn and first and second parts of duodenum were thoroughly examined. Fundus of the stomach was examined by rotation of the scope (J-manoevere). From each patient, three antral mucosal biopsies were taken. If a growth was noted., a separate specimen is taken for histopathological examination. Biopsy was taken with a biopsy forces and with the help of sterile disposable needles – these specimens were isolated. The first specimen was directly inoculated into the rapid urease test medium. The second specimen was transported in sterile containers with normal saline to the Department of Pathology, KIMS, Amalapuram for Histopathology and Giemsa staining. The third specimen was transported to the Department of Microbiology, KIMS, Amalapuram on urease Agar medium and cultured within 2 hours.

**OBSERVATIONS AND RESULTS**

One – fifty cases of upper GI disorders and controls were studied with reference to presence of Helicobacter Pylori. Fundal, Antral, Diffuse and Non – Diffuse kind of Gastritis studied. Total 154 patients were included in the study, with 77 with Gastritis, 4 with Duodenitis, 16 with Gastric Ulcer, 8 with Duodenal Ulcer, 14 with Malignancy, and 35 with Non – Ulcer Normal (Chart 1). Out of 154 patients, majority were in decade of life i.e., 24.5%. 23.2% in the fourth decade of life, 20% in Third decade of life,16.7% in fifth decade and 15% in second decade. Males were more predominant i.e., 52% when compared to 48% females. Symptoms of Burning upper abdominal pain in 97% patients, vomiting in 26%, Belching in 18% and Anorexia in 9%. Signs of Epigastric Tenderness in 90% of patients and Anemia 41% Most prominent symptom among 154 cases was abdominal pain occupying 97%. Among these cases, most common is hunger pain 80% and 13% of the patients have pain immediately after taking food. Most prominent sign in our study was epigastric tenderness 90% Smoking was seen in 70% of cases most of these patients were males. History of intake alcoholic beverages was found in 38% of the patients and the mean duration was 8 years Location of Ulcer was Anterior wall in 58% of patients in Posterior wall in 38% and Multiple Ulcers in 4%. The association between H.Pylori and upper GI disorders was seen in 53.8% of cases. Association between H.Pylori and normal individuals was seen in 34% of the cases. H.Pylori was identified in 53.8% of the cases, out of them 67% in Gastritis patients, 25% in Duodenities patients, 28% in Malignancy patients, 62% in Gastric Ulcer and 50% in Duodenal Ulcer patients (Chart 2).
DISCUSSION

Long time since the isolation of Helicobacter Pylori by Robin Warren and Barry Marshall in Perth in West Australia. The causal association of H. Pylori in the peptic ulcer disease has heralded a revolution in our thinking about the pathophysiology and treatment of peptic ulcer disease. In a study by Gill and Desia\textsuperscript{21}. The prevalence of H. Pylori infection in Pptic ulcer disease was highest in the 3\textsuperscript{rd} decade i.e., above 70\% and in the control group it was 50\%. This is in contrast to western studies where 50\% of the control population was infected with H. Pylori by 5\textsuperscript{th} decade. The difference in H. Pylori prevalence between these two suggests a faeco – oral mode of transmission or unhygienic environmental conditions, which were responsible for the transmission of H. Pylori during the younger age group. In this study, Acid Peptic diseases were more common in younger age group i.e., 3\textsuperscript{rd} decade. Among the Acid Peptic disease, Gastritis (67\%) was the most common followed by gastric ulcer disease (62\%), Duodenal Ulcer Disease (50\%), Malignancy (28\%) and Duodenitis (25\%) each in our study. The occurrence of Acid peptic disease was found to be slightly higher in males in this study. The major symptoms in the patients in this study were upper abdominal pain, Excessive Belchings and vomtings of these burning type of upper abdominal weas the commonest – 97\%, Predominantly hunger pain (80\%) in the epigastric region. The incidence of various factors, known to precipitate peptic ulcer was Alcoholic Beverages (90\%), Spicy Foods (72\%), Irregular Food Habits (70\%), Smoking (69\%).

CONCLUSION

Early detection of H. Pylori in symptomatic individuals helps to plan eradication treatment for H. Pylori thus it can be eliminated to avoid future complications. A rational treatment plan for patients with Upper Gastrointestinal Disorders is to be considered categorizing each patient in view of H. Pylori presence instead of indiscriminate use of various Antacids, as prolonged treatment of symptomatic individuals with antacids in H. Pylori presence may produce a relative low acid environment thus more ideal for H. pylori to grow and thus become a causative agent for pathologically significant lesions.

REFERENCES


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