ORIGINAL RESEARCH PAPER

Volume-6 | Issue-9 | September-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PREVALANCE OF HELICOBACTER PYLORI INFECTION IN ADULT DYSPEPTIC PATIENTS IN NORTH EAST ANDHRA PRADESH

Medical Science

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KEYWORDS

1. Background

Helicobacter pylori is a Gram-negative bacteria with strong association with upper gastrointestinal diseases such as peptic ulcer disease (gastric ulcer, duodenal ulcer) and malignancies (gastric cancer, lymphoma), reported worldwide (1). In developing countries, H. pylori is typically acquired in early childhood and may persist for a lifetime if left untreated (2). In adults, the H. pylori infection rate increases with age (3). Oro-oral and feco-oral routes are the most common modes of H. pylori transmission in developing countries. Less common modes of transmission are zoonotic and iatrogenic (such as endoscopic or through dental procedures) transmissions (4).

In several previous studies, there were differences in the prevalence rate of H. pylori infection between countries. It can be due to diverse contributing factors including socioeconomic status, geographical or living conditions, and ethnicity of each population. Dyspepsia is a medical condition characterized by chronic or recurrent pain in the upper abdomen, which is considered as one of the most common causes of patients' referrals to gastroenterology centers .The definition of dyspepsia has been elusive with variety of proposed descriptions. Dyspepsia is defined based on the recent Asian Consensus Report as a symptom or set of symptoms that is (are) considered to originate from the gastroduodenal region. In this consensus report, the dyspepsia symptoms are epigastric pain, epigastric burning, postprandial fullness, early satiation, and others, including bloating in the upper abdomen, nausea, vomiting and belching.

Functional dyspepsia is defined as chronic dyspeptic symptoms in the absence of organic, systemic, or metabolic condition (s), which is (are) likely to explain the symptoms . In the western world, the reported prevalence of dyspepsia ranged 25- 50%(5). The prevalence of H. pylori in the Indian subcontinent can be as high as 80 per cent or more in rural areas. The most commonly recognized manifestation of H. pylori infection in India is peptic ulcer disease, particularly duodenal ulcer disease, which outnumbers gastric ulcers between 8:1 and 30:125. As in other regions, the actual risk of a particular outcome from an H. pylori infection is predicated on the pattern of gastritis. Some reports from Asia have demonstrated that the prevalence rate of H. pylori infection has declined rapidly in these regions (6).

2. Objectives

This study was conducted to determine the prevalence rate of H. pylori infection among a population of adult patients with dyspepsia in North east Andhra, using rapid urease test .

3. Patients and Methods

3.1. Study Population

After obtaining the approval of the university ethical committee as well as written informed consent from the patients, all the patients with dyspepsia attending King George Hospital Vizag ; as a major referral center for gastrointestinal diseases in North Andhra, were recruited into the study between May and November 2016.

Inclusion criteria : 1. Patients between above 17 years of age 2. Patients showing symptoms of dyspepsia for more than 2 weeks. Dyspepsia includes a series of symptoms: upper abdominal pain, discomfort, nausea, and vomiting, bloating, early satiety. Patients with any 2 out of 6 symptoms mentioned above are included in the study.

Exclusion criteria : 1. Patients below 17 years and above 60 years of age 2. Pregnant and Lactating women 3. Patients on Proto-pump inhibitors 4. Patients who are known cases of chronic pancreatitis 5. Patients on NSAIDs for more than one month duration 6. Patients who have received Anti-Helicobacter pylori treatment 7. Patients with esophageal growths on endoscopy 8.Patients with history of gastric or esophageal surgery. 9. Unwilling or unfit patients for gastroscopy Procedure After applying the inclusion and exclusion criteria

Diagnosis of dyspepsia was based on clinical findings.

We defined dyspepsia if the patient had one or more of these symptoms with duration of one month or longer: postprandial fullness, early satiation, epigastric pain, epigastric burning, bloating in the upper abdomen, nausea, vomiting, and belching (16). Upper gastrointestinal endoscopy was performed for all the patients with dyspepsia as an objective assessment for the diagnosis of causes was also performed. We categorized our patients based on the endoscopic finding into two groups:

1- normal,
2- abnormal findings(ulcer,growth,erosions,erythema,nodularity and others)

All the patients in this study group underwent upper gastrointestinal endoscopy under topical anesthesia. The patients were asked to fast for 12 hours prior to the procedure. Lignocaine viscous or oral lignocaine sprays were given to the patient 5-10 minutes before the procedure for the local anesthetic effect. On entering the esophagus, any lesions/growths in the esophagus were looked for. On entering the stomach; presence of any ulcers or growths was looked for. Any evidence of gastritis or bile reflux from the duodenum was noted. Then the duodenum was entered, up to its second part and evidence of any duodenitis or ulceration was noted. Two endoscopic biopsies were taken, measuring approximately 2-3 mm each from the gastric antrum and the body of stomach in the area of severe gastritis (maximum redness) or the edge of the ulcer crater depending on the findings. The biopsies from the body and the antrum were randomly taken in cases where in the endoscopic findings were normal. Biopsy specimens were immediately placed using a sterile handle on a paper containing urea and a color indicator. The adhesive label is sealed firmly and properly and the label over the test paper is pressed to squeeze the fluid out of the biopsy sample. Positive test for Helicobacter pylori was indicated by change in color of the medium from yellow to pink or red. The test was read as strongly positive when the change in color occurred within 5-15 minutes following inoculation and weakly positive when the color change occurred in first 6 hours. The case was taken as Helicobacter pylori positive when the rapid urease test was positive.

3.2. Statistical Analysis

All the data were expressed as mean ± standard error. Chi square test was used and significance was defined as a P value < 0.05. Data analysis was performed with SPSS software (version 19, SPSS Inc., Chicago, Illinois, USA).

4. Results

Out of 431 patients with dyspepsia a total of 376 patients met the inclusion criteria underwent biopsy and rapid urease test. The mean

age of the study group is 44.8 years.Of the included patients,256 (68.1%) were male and 120 (31.9%)were female. There was no association between sex and infection (P = 0.57). H. pylori infection was observed in 189(73.8%) males and 87(72.5%) of female patients (Table 1) and its prevalence was more in young age(Table 1). Of the 376 patients tested, 276 (73.4%) were positive and 100 (26.5%) were negative for H. pylori infection. The prevalence of H.Pylori infection is seen in younger age group with a positivity rate of 78.5% in age less than 55 years and only 57.6% positive in age more than 55 years.

Table 1. Prevalence of H. pylori Infection in study population

Gender	Total	H. pylori-Positive, No. (%)
Male	256 (68.0%)	189 (73.8%)
Female	120 (31.9%)	87 (72.5%)
Total	376 (100%)	276 (73.4%)
Age	Total	H. pylori-Positive, No. (%)
< 55	284 (75.5%)	223 (78.5%)
>55	92(24.4%)	53(57.6%)

Table 2 .Smoking and association with H.pylori

Smoking status	H. pylori-Positive, No. (%)
Smoker(248)	203(81.8%)
Non smoker (128)	73(57.03%)

Table 3 Alcohol and association with H.pylori

Alcohol	H. pylori-Positive, No. (%)
Alcoholic(148)	95(64.1%)
Non alcoholic(228)	181(79.3%)

Table 4 Prevalence of H. Pylori in various symptoms of dyspepsia

Symptom	H. pylori-Positive, No. (%)
Upper abdominal pain	114(41.3%)
Abdominal discomfort	86(31.1%)
Nausea and vomiting	15(5.4%)
Early satiety	61(22.1%)

Most common presentation in patients with dyspepsia is upper abdominal pain followed by discomfort and early satiety. Patients presenting with upper abdominal pain had a positive result in 41.3% cases , 31.1% positivity rate in abdominal discomfort .

Table 5. Pattern of Endoscopic Findings in H. pylori Infection

Group 1	134
Group 2	142

As the endoscopy results indicated, 134(48.5%) H. pylori-positive patients had normal endoscopic findings (groups 1) and 142 (51.5%) had abnormal endoscopic findings(group2).

5. Discussion

H. pylori infection is a major cause of gastroduodenal diseases. Several studies from Asia and the Middle East including China, South Korea, Iran, and Kuwait have shown that the prevalence of H. pylori has declined in these areas in the recent years. In the present study, we did not get a significant difference in H. Pylori prevalence according to gender. This is in concordance with the study results of Tarkhashvili et al[7]In contrast a study by Kaore et al[8] showed a higher prevalence in the male gender.

Age distribution of H. pylori infection showed a trend towards decrease in infection with the advancing age.This is similar to the observations laid by Kaore, et al[8] reported increased H. pylori infection in age groups of 20-40 years than the older age group.

In 376 patients studied, 276 patients tested positive for Rapid Urease test, these patients were considered to have H. pylori infection. Said et al reported a sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of 98, 100, 100, 98 & 99% respectively for RUT. The Prevalence of H.Pylori infection in the present study is 73.4% this is in concordance with studies by Poddar and Yachha(9) who demonstrated that almost 80% of the population in India was infected with H. pylori. Ahmed et al. (10) also showed that the overall prevalence of H. pylori in India was 80%.

This study shows that 81% of male patients who smoke were tested positive for H. pylori with a significant p value of 0.002. Most studies reported slightly increased odds of H. pylori infection among smokers. On the other hand, there are a few studies which show that there is only moderate but not significant increase in the prevalence of H. pylori infection among smokers. The observed net association of smoking with active H. pylori infection may result from various mechanisms with partly antagonistic effects on risk of infection

There are few studies which have shown that moderate amount of alcohol consumption would decrease the risk of H. pylori infection similar to our study in which non alcoholics have an increased risk of H.Pylori infection with a significant p value of 0.0012. All our observations in the present study are comparable to other studies.

The present study has significant advantages like being conducted in a large patient group of 376 and computation of association of multiple variables with H. pylori infection. The present study has a major limitation that association of H. pylori infection with life-style related modifiable factors was not accessed. There is a need of another broader study in this region, assessing the association of different demographic and life-style factors and pre-existing conditions like diabetes mellitus with a prevalence of H. pylori infection and follow-up of the patients after treatment and life-style modifications.

In conclusion, there is a high prevalence of H. pylori infection in rural population of Ernakulam district of Kerala, South India. Though, the prevalence of H. pylori gastritis and associated abdominal symptoms is high in number, serious gastrointestinal complications develop in few. Absolute prevention of these complications and relief from the distressing abdominal symptoms can be achieved through early detection by conventional and affordable diagnostic methods and empirical treatment with anti H. pylori therapy

Acknowledgements

We would gratefully like to thank all the patients who contributed to this study.

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