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Prevalence of Helicobacter pylori infection in. patients with chronic dyspepsia among rural population A prospective study.

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ABSTRACT

The objective of this study is to recognize the incidence and prevalence of H. pylori among rural and urban population in and around Chrompet, Chennai, Tamil Nadu, INDIA. To study the clinical features and endoscopic appearance of patients with chronic dyspeptic symptoms in adult. A prospective study with 50 patients with dyspepsia attending in Department of Medicine Sree Balaji Medical College & Hospital, Chrompet, Chennai, TAMILNADU, INDIA and also its sub centres both as inpatients and out patients, age group from 20 years to 70 years for a period of one year March 2014 – 2015. The number of H. pylori positive cases were 42%. Common symptoms in descending order are epigastric pain 84%, nausea 84%, vomiting 66%, regurgitation 60%, postprandial fullness 56%, bloating 52% and early satiety 48%. Upper gastrointestinal endoscopy findings are esophagitis 12%, erosive gastritis 38%, gastric ulcer 6%, duodenitis 14% duodenal ulcer 4%, malignant ulcer 2%, combination lesion 10% normal mucosa 14% H. pylori was positive in 42% of patients with predominant lymphocytic infiltration. The prevalence of H.pylori infection in chronic dyspeptic patients among rural population is significantly high. A research on familial screening for H.pylori is needed. It is essential to find an appropriate vaccine for H.pylori because recurrence of symptoms or persistence of the disease as we assume needs awareness of re-examination and revising of findings. Thus, the above study approves the statement "no H.pylori, no ulcer" and also contradicts the study on H.pyloi that it is protective against reflux disorders.

Keywords : Dyspepsia, Helicobacter pylori, upper gastrointestinal endoscopy, gastritis.

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INTRODUCTION

Helicobacter pylori was brought to the world's attention in 1983 when Robin Warren and Barry Marshall, two Australian investigators reported isolation of spiral gram negative bacterium from gastric mucosal biopsy specimen of patients with chronic gastritis and peptic ulcer.² *H.pylori* lives primarily in the antral mucosa.² It is attributed to be one of the prime causes for bleeding in Non Steroidal Anti Inflammatory Drug induced patients and also in cirrhotic. It is usually linked with gastritis, peptic ulcer disease, gastric adenocarcinoma and gastric lymphomatous reaction (Maltoma).¹ A link with non ulcer dyspepsia is highly speculating and still remains uncertain. The worldwide prevalence of *H.pylori* is closely related to socioeconomic development.

Low socioeconomic status, crowded living conditions, suboptimal sanitary conditions appear to be major risk factors for acquiring *H.pylori*.³ There is a strong epidemiological evidence of water borne transmission in a remote village set up during festive occasions. Environmental reservoirs such as water, reserves, and pet animals play a vital role in transmission of the disease. It is needless to emphasize that nosocomial infection may also play a role in the disease transmission.⁵

This prospective study is mainly to highlight the prevalence of *H.pylori* in symptomatic dyspeptic patients among rural population and efficacy of triple drug therapy for *H.pylori* infection. It is going to be a tip of ice burg study in a socioeconomic or developing countries like ours whether necessary to do endoscopy in patients with symptoms.

Diagnostic test for *H.pylori* includes- non invasive: Urea breath test; Invasive: Rapid urease assay, histology, special stain for *H.pylori*, culture with varying sensitivity and specificity. Culture is the main specific diagnostic test for *H.pylori*. With-this in mind we have analyzed the prevalence of *H.pylori* among rural population.

AIMS AND OBJECTIVES

- To evaluate the prevalence of *Helicobacter pylori* infection among symptomatic chronic dyspeptic patients in a rural population Kanchipuram District Tamil Nadu.
- To study the clinical features and endoscopic appearance of patients with chronic dyspeptic symptoms in adults.
- To contradict or approve the statement "no acid no ulcer, no pepsin no ulcer, no *Helicobacter pylori* no ulcer". To study the increase or decrease in the prevalence of *H.pylori* among rural population.

MATERIALS AND METHODOLOGY

This is a prospective type of study in which all the patients referred to our hospital with chronic dyspepsia are seen predominantly with following symptoms done in Department of Medicine Sree Balaji Medical College & Hospital, Chrompet, Chennai, TAMILNADU, INDIA.

- Epigastric pain
- Nausea
- Vomiting
- Early satiety
- Bloating
- Postprandial fullness
- Regurgitation

A complete history of Non Steroidal Anti Inflammatory Drug ingestion, smoking, alcohol and previous dyspeptic symptoms were gone through in detail. Patient belonging to either sex, age group of 20-70 years were affected by the disease. All the patients were examined clinically thoroughly for abdominal examination and other systemic examination in the Medical Gastroenterology Department of our hospital. These patients were subjected for basic hematological, biochemical and cardiac evaluation (X-ray chest, ECG).

After suggesting Ultra Sonogram abdomen patients were advised to undergo esophagogastroduodenoscopy. H.pylori study was undertaken using rapid urease test where color reactions after dipping gastric mucosal biopsy into the media in positive cases. Simultaneously endoscopy biopsy from the esophagus, stomach, duodenum and antral mucosa is taken and subjected to H.pylori staining.⁵

Clinical, endoscopic and histological studies were analyzed among the patients. All the patients with H.pylori positive were treated with anti Helicobacter pylori therapy and triple drug therapy initially followed by standard Proton Pump Inhibitors. The duration of the study is about 2 months where 50 to 60 is the sample size.

INCLUSION CRITERIA :

- Patients between 20-70 years of age
- Patients willing to undergo endoscopy

EXCLUSION CRITERIA :

- Patients below and above 20-70 years of age
- Patients not willing to undergo an endoscopy

We will consider the statistics to study the prevalence and surveillance of H.pylori infection among the given rural population.

SYMPTOM ANALYSIS:

Nausea, Vomiting, Early satiety, Bloating, Postprandial Fullness, Epigastric pain, Regurgitation.

VISUAL ANALOGUE GRADE:

- 0 = absent
- 1 = mild (not influencing the usual activities)
- 2 = moderate (diverting from, but not urging modifications of usual activities)
- 3 = severe (influencing usual activities, severely enough to urge modifications)
- 4 = extremely severe (requiring bed rest).

UPPER GI ENDOSCOPY FINDING: AND RAPID UREASE TEST:

The mechanism of urease producing bacterium, H.pylori converts urea to ammonia in the urea broth. The alkalinity due to ammonia results in the color change of the medium from yellow to pink.

HISTOPATHOLOGY REPORT :

The type of gastric histology is studied by the histopathological evaluation. Special stains like Giemsa stain is used.

RESULTS

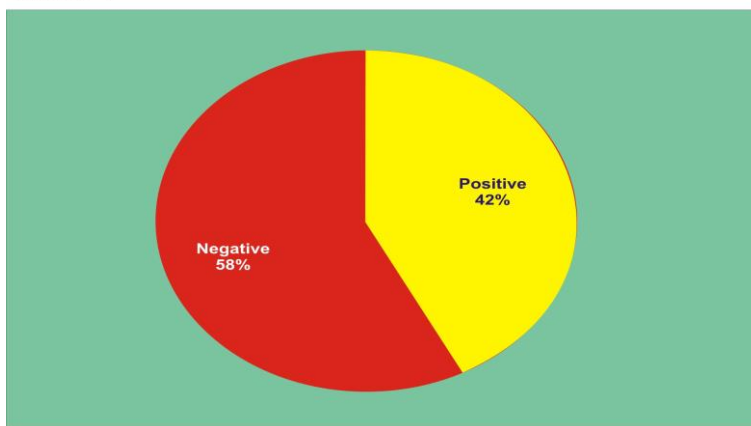
The number of cases included in the study were 50, inclusive of male(31 cases) and female(19 cases). The average age of H.pylori infection was 45.4 years. The average duration of symptoms was 1.8 years. The number of positive cases were 21(14 male;7 female) as shown below in figure 1 & 2. Rapid urease test (RUT) showed positivity in 25 cases(50%) and histopathology showed positivity in 21 cases(42%) Most of the patients presented with epigastric pain (81%), nausea(76%), vomiting(66%), early satiety(48%), bloating (52%), post prandial fullness (56%), regurgitation (60%) as shown in figure - 3 was also history of NSAIDs (34%), smoking(24%) and alcohol(18%) among the patients included in the study as depicted in figure - 4. Gastroduodenoscopy showed Acid Peptic Disease(APD) in 31 cases(62%), Non ulcer dyspepsia in 7 cases(14%), incompetent OG junction in 4 cases(8%) as explained in figure – 5. Histopathological findings showed gastritis

(32 cases;64%/0), oesophagitis(10cases;5 in positive cases;20%), duodenitis (7 cases;14%) and adenocarcinoma (1 patient;2%) figure -6.

The results of the study are:

CATEGORY	MALE	FEMALE	TOTAL	PERCENTAGE
No. OF CASES	31	19	50	100%
H.pylori POSITIVE	14	7	21	42%
NSAID INTAKE	6	11	17	34%
SMOKING & ALCOHOL	11	0	11	22%
ACID PEPTIC DISEASE	20	11	31	62%
NON ULCER DYSPEPSIA	4	3	7	14%
INCOMPETENT OG JUNCTION	2	1	3	6%
GASTRITIS	17	15	32	64%
ADENOCARCINOMA	1	0	1	2%

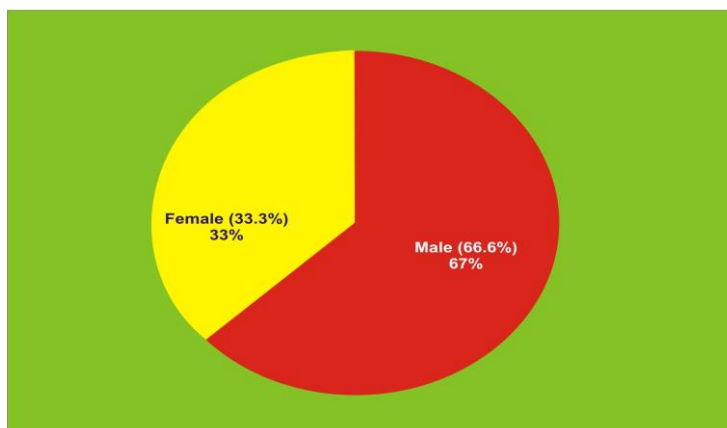
FIGURE - 1



Prevalence of H Pylori in the Study

FIGURE 1. PREVALENCE OF H PYLORI IN THE STUDY

FIGURE - 2



Male and Female Ratio of H.Pylori Positive Cases

FIGURE 2. MALE AND FEMALE RATIO OF H.PYLORI POSITIVE CASES

FIGURE - 3

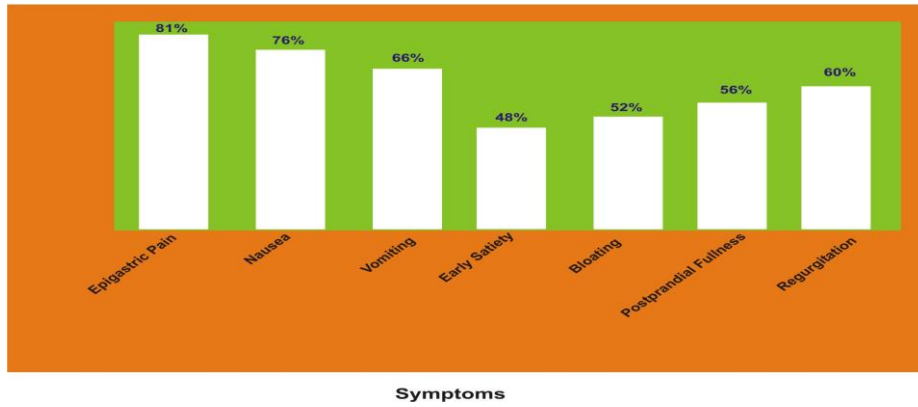


FIGURE 3. SYMPTOMS

FIGURE - 4

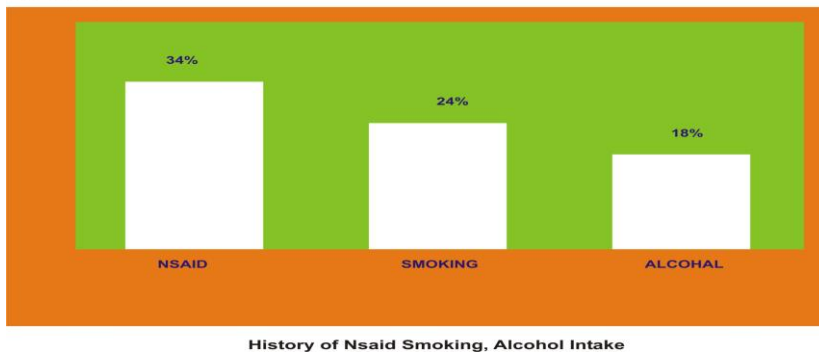


FIGURE 4. HISTORY OF NSAID SMOKING, ALCOHOL INTAKE

FIGURE - 5

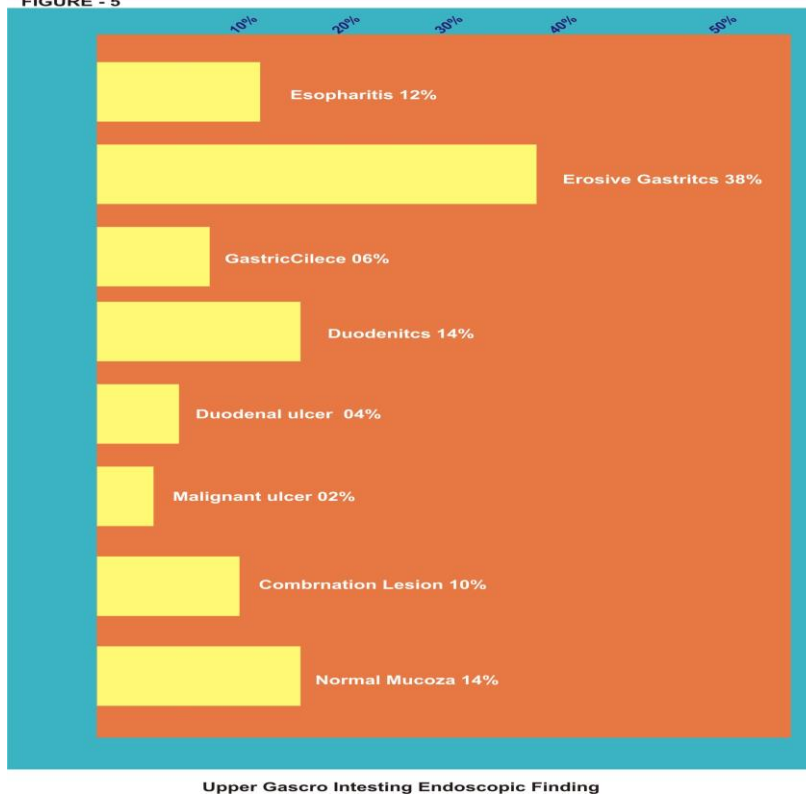


FIGURE 5. UPPER GASCRO INTESTING ENDOSCOPIC FINDING

FIGURE - 6

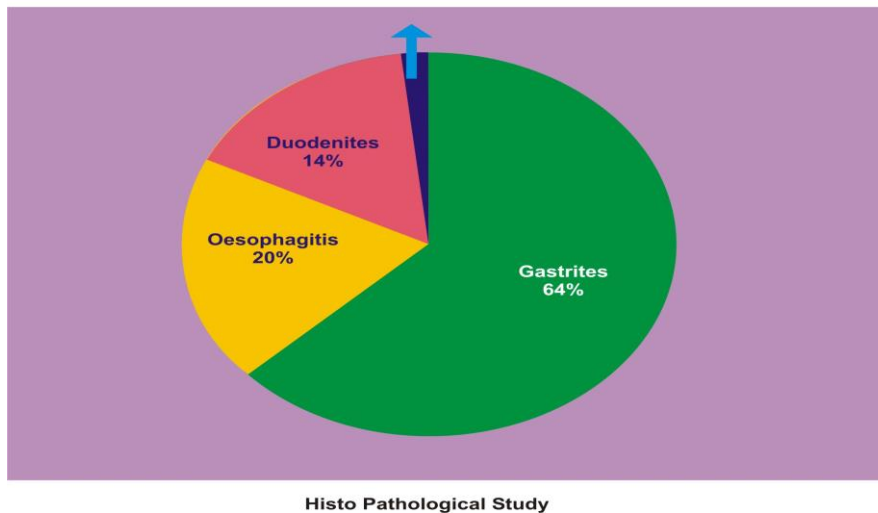


FIGURE 6. HISTO PATHOLOGICAL STUDY

DISCUSSION

The-prevalence of 42% of Helicobacter pylori infection in the considered rural population explains high incidence. This may be mostly due to poor hygiene in rural areas. H.pylori infection is most common among areas of poor sanitation.

An increased male incidence(67%) may be due to factors like smoking and alcohol intake which makes room for H.pylori infection in GIT. The average age of 45.4 years signifies H.pylori infection among elderly in this rural set up.

The average duration of symptoms in H.pylori infection is 1.8 years. H.pylori infected patients become symptomatic after a period of 6 months following its infection. The positive cases(50%) with Rapid Urease Test more than the histopathological evaluation(42%) may be due to false positive results or artifacts in the urea broth used. The incidence of Acid Peptic Disease(62%) more than Non Ulcer Dyspepsia(14%) in patients with chronic dyspeptic symptoms is because H.pylori invades the gastric mucosa causing superficial ulcers,erythematous,edematous and unhealthy mucosa seen through a gastroduodenoscope. Gastritis in 32 cases(64%) is the contribution of many factors like NSAIDs, smoking and alcohol. Predominance of gastritis may be because H.pylori most commonly infects pyloric region of stomach than other parts of GIT. So pain abdomen is a common symptom in chronic dyspeptic patients. H.pylori is also associated with adenocarcinoma (2%). Incompetent oesophageogastric junction(OG Junction) with esophagitis in 6% of the cases unfavours the study on H.pylori,that it protects against the reflux disorders.

REFERENCES

- [1] Marshall,B., unidentified curved bacterium in active chronic gastritis(letter). Lancet 1:1273-1274,1983.
- [2] Warren JR, Marshall BJ, unidentified curved bacterium on gastric epithelium in active gastritis. Lancet 1983;1:1273.
- [3] Gill HH, Majmudar.P., Age related prevalence of H.pylori antibodies in Indian subjects. Indian Journal of Gastroenterology.,1994;13;92-4.
- [4] Armstrong.D., H.pylori infection and dyspepsia. Scand Journal of Gastroenterology 1996;31(supplement 215); 38-47.
- [5] Cutler AF, Haystad SI Ma CK et al, Accuracy of invasive and non invasive and non invasive tests to diagnose H.pylori infection in familial transmission. Gastroenterology 1995;109(1):136-41.
- [6] Shibi Mathew, M.Ramesh,R.Shobana Devi, Prevalence of H.pylori infection among dyspeptic patients, Indian Journal of Gastroenterology;30; supplement 1; November 2011.