Section: General Surgery

Original Research Article

A CLINICAL STUDY OF PREVALANCE OF H PYLORI INFECTION IN PATIENTS UNDERGOING UPPER GI ENDOSCOPY FOR DYSPEPSIA AT DR B.R.AMC&H

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ABSTRACT

Background: Un-investigated dyspepsia is commonly seen in the General Surgery OPD and is the leading reason for upper gastrointestinal endoscopy. The prevalence of significant upper GI findings in these patients is unfamiliar. This study assess the profile of upper GI endoscopy findings in dyspeptic patients and observe the prevalence of H. pylori in relation to age, sex, symptomatology, and endoscopic findings (e.g., gastritis, gastric ulcers, duodenitis, esophagitis, cancers).

Materials and Methods: This prospective study included 100 patients undergoing UGI endoscopy with biopsy from the antrum and body of the stomach. Biopsies were tested using the rapid urease test (RUT) kit, and H. pylori detection was confirmed through histology.

Results: The majority of cases were female, particularly in the age group of 31-40 years (28%). Pain abdomen (57%) and regurgitation were common complaints. Most had pan gastritis as the endoscopic finding, with high RUT positivity.

Conclusion: OGD is the preferred diagnostic tool for chronic upper GI symptoms. RUT is an efficient method for diagnosing H. pylori with high specificity and sensitivity, crucial for early treatment and preventing gastric carcinoma.

Keywords: Dyspepsia, UGI Endoscopy, H Pylori, RUT.

INTRODUCTION

Dyspepsia, derived from the Greek terms 'Duis' (bad) and 'peptin' (to digest), refers to a collection of symptoms related to the upper gastrointestinal tract, often termed indigestion by patients. The American Gastroenterological Association defines it as persistent upper abdominal pain. Dyspepsia is classified into two types: organic (e.g., erosive esophagitis, gastric ulcers) and functional. Postprandial distress syndrome and epigastric pain syndrome are examples of functional dyspepsia. According to Rome IV criteria, dyspepsia involves symptoms like postprandial fullness, epigastric pain, and burning. Endoscopy helps differentiate organic from functional causes, though limited in developing countries due to diagnostic access issues.

Objectives: The objective of this survey is to observe the prevalence of H Pylori in patients with regards to Age/Sex/Symptomatology/Endoscopic findings (gastritis/gastric ulcer /duodenitis /duodenal ulcer /Oesophagitis /gastroduodenal polyps etc.).

MATERIALS AND METHODS

Source of Data

Data was collected from patients undergoing upper GI endoscopy for dyspeptic symptoms in the department of General Surgery (OPD/IPD) at DR.B.R.AMC&H.

Method of Collection of Data

A prospective observational study was conducted with 100 patients visiting OPD/IPD. Detailed clinical history was obtained, and informed consent was given. Each patient underwent UGI endoscopy with biopsy from the antrum. The biopsied tissue was subjected to the rapid urease test (RUT) kit, and H. pylori presence was indicated by color change within 120-180 minutes. Additional biopsies were taken for lesions or malignancy suspicion, and H&E

staining was done for further analysis. Data were entered into a proforma and analyzed statistically.

Study Design: Prospective study.

Sampling Frame: Dyspepsia patients attending the surgical OPD or admitted at DR.B.R.AMC&H.

Sample Size:100 patients.

Study Period:12 months (July 2022 - August 2023).

Inclusion Criteria: Dyspeptic symptoms, age >18, willingness to participate.

Exclusion Criteria: Chronic liver/kidney disease, PPI/antibiotics use, bleeding disorders, non-willing participants, <18 years, known GI cancer

Sample Size Estimation

Sample size: 100 patients Prevalence of dyspepsia: 57% p = 57% = 0.57

z = 1.96 = 2 Standard normal variate at 95% confidence interval e = 0.175 (17.5%) precision

Sample size estimation formula

n = z2 p(1-p)/e2

= 4(0.57) (1-0.57) / (0.175)2

=98.5 ~ 99

99 is the minimum sample.

So, we considered 100 as the sample size

RUT KIT

RUT POSITIVE

RESULTS

Table 1: Sample distribution by age and gender

	<30 YRS	31-40 YRS	41-50 YRS	51-60 YRS	>60 YRS	TOTAL
MALE	7	12	12	12	3	46
FEMALE	16	16	13	5	4	54
TOTAL	23	28	25	17	7	100

Majority (28%) of our sample population was of 31-40 years of age followed by 41-50 yrs and below 30 years.

Table 2: Distribution by smoking status and gender

	MALE	FEMALE	TOTAL
SMOKER	**22**	**5**	**27**
NON-SMOKERS	**25**	**48**	**73**
Total	**47**	**53**	**100**

Table 3: Ddistribution by alcohol consumption and gender

	MALE	FEMALE	TOTAL
ALCOHOLIC	**17**	**5**	**22**
NON- ALCOHOLIC	**30**	**48**	**78**
TOTAL	**47**	**53**	**100**

Table 4: Sample distribution by symptoms

Symptoms	No. of patients	Percentage of patients (%)
pain	57	57
Regurgitation +/- night pains	12	12
Nausea +/- vomiting	9	9
Dysphagia	9	9
Hematemesis +/- Malena	5	5

Table 5: Sample distribution based on OGD findings

OGD Findings	No of patients	Percentage of patients (%)
Antral Gastritis	18	18
Pan Gastritis	34	34
Fundal Gastritis	1	1
Erosive Gastritis	5	5
Proximal Gastritis	3	3
Duodenal Ulcer	1	1
Gatric Ulcer	2	2
Normal	36	36
Total	100	100

Table 8: Sample distribution by Laxles

LOWER ESOPHAGEAL SPINCHTER	NO OF PTS (FREQUENCY)	PERCENTAGE
NORMAL	71	71
LAX	29	29
Total	100	100

Table 9: Sample distribution by age and RUT findings

RUT FINDINGS	NO OF PTS	PERCENTAGE OF PTS
POSTIVE	46	46
NEGATIVE	54	54
TOTAL	100	100

Table 10: Sample distribution by rut results across age groups

AGE	POSITIVE	NEGATIVE	TOTAL
BELOW 30	9	15	23
31-40	13	15	28
41-50	15	10	25
51-60	7	10	17
60+	3	4	7
TOTAL	47	53	100

Table 11: Sample distribution by rut results compared to gender

RUT	MALE	FEMALE	TOTAL
POSITIVE	21	25	46
NEGATIVE	26	28	54
TOTAL	47	53	100

RUT was positive in 21 male patients out of 47. RUT was positive in 25 out of 53 pts.
Chi square was 0.74 (not significant)

Table 12: Sample distribution based on rut results compared to gastritis occurrence

OGD FINDINGS	RUT POSITIVE	NO OF PATIENTS
ANTRAL GASTRITIS	11	18
PAN GASTRITIS	22	34
FUNDAL GASTRITIS	0	1
EROSIVE GASTRITIS	4	5
PROXIMAL GASTRITIS	3	3
DUODENAL ULCER	1	1
GASTRIC ULCER	2	2
NORMAL	3	36
TOTAL	46	100

Table 13: Rut results vs. Histopathological examination findings

HPE	Positive	Negative	Total
Normal	5	35	40
Chronic inflammation	35	12	47
Atrophic	2	0	2
Gastritis and dysplasia	2	4	6
Gastritis and metaplasia	2	2	4
Total	47	53	100

H Pylori was commonly seen in biopsy with findings of gastritis.
Chi square was 0.18 (not significant)

DISCUSSIONS

Prevalence of H pylori infection

In the present study, the highest H. pylori prevalence was in the 31-40 year age group (26%), followed by 41-50 years (24%) and under 30 years (22%). The lowest prevalence was in those over 60 years (11%). Breken RK's 20161 study in Norway showed a low prevalence in children and a peak of 45% in older age groups. Ezeigbo's 20162 study in Nairobi concluded the highest prevalence in the 38-47-year age group. These findings highlight regional and age-related differences in H. pylori prevalence.

STUDY	STUDY SAMPLE	TOTAL POSITIVE	PREVALENCE
Adlekha et al.	530	329	62%
Singh et al.	147	87	59%
Bapat et al.	96	50	55%

Rastogi et al.	208	92	44%
Present	100	47	47%

In our study, results aligned with those of other similar studies, reinforcing the previous findings. The prevalence of H. pylori has decreased over the years, which may be attributed to changes in human host factors along with socioeconomic and hygiene improvements. It seems that enhancing hygienic practices and living standards can significantly reduce the H. pylori infection.

Prevalence to age- Comparison with other studies

Study	Study Findings
Breken.RK	0.6% - children, 20%- adolescents, 45%- adults
Sara Asthari	Prevalence decreased with age
Ezeigbo	38-47- 56.2% and 49.3% respectively, 18-27 years had the least prevalence
Rastogi	30-39 years- max (50.7%), more than 70 years- min (20%).
Adlekha	< 50 years −61.7% (176/285) and >50 years −62.4%
Present	31-40yrs was 26%, followed by 41-50 yrs. was 24%, followed by 30yrs was 22%, in 51-60yrs. it was 14% and the least prevalence was found in more than 60yrs (11%).

Gender

In the present study, H. pylori prevalence was 44% among 47 males and 47% among 53 females, with no statistically significant difference. Adlekha et al. 2013 in Kerala found no significant gender difference.[3] Rangaswamy's 2016 study in Coimbatore reported a significant difference between sexes, with higher prevalence in males.[4] Sara Asthari's 2015 study in Iran also found no significant gender difference.[5] Ezeigbo R. Obiagali's 2016 study in Nairobi observed a higher prevalence in males than females.[2] Similarly, Rastogi's 2015 study in Uttar Pradesh reported no significant gender difference.[6]

Prevalence according to Sex- Comparison with other studies

STUDY	MALE (% positive)	FEMALE (% positive)
Adlekha	62	38
Ranganathan	66	33
Sara Asthari	83	83
Ezeigbo	39	39
Rastogi	43	48
Present	44	47

HISTOPATHOLOGICAL FINDINGS

Adlekha et al. (2013) in Kerala found that 10.5% of 530 patients had reactive gastritis, with 65.9% testing positive for H. pylori. Gastric mucosa was normal in 8.4%. Histological features in gastritis included intestinal metaplasia (8.1%) and glandular atrophy (18.7%). These features were more common in dysplasia/cancer cases: intestinal metaplasia (57.1%) and glandular atrophy (71.4%). There was no significant correlation between H. pylori and intestinal metaplasia ($P = 0.58$) found, but a significant association was observed with peptic ulcers and dysplasia/cancer ($P = 0.02$ and $P < 0.01$, respectively).[3]

In Tarkhashvi's 2009 Georgia study, H. pylori was found in 72%, with 78% in gastritis, 58% in peptic ulcers, and 58% in dysplasia/cancer.[7] Bansal's 2017 study found 54% H. pylori positivity in chronic gastritis, 100% in gastric ulcers.[8] Sharma's 2015 Kashmir study showed 50.5% H. pylori positivity in gastritis, 80% in duodenal ulcers.[9] In the present study, H. pylori positivity was 100% in gastric/duodenal ulcers and other conditions.

ENDOSCOPIC FINDINGS: In the present study, the highest prevalence of H. pylori was found in gastric ulcers and duodenal ulcers, at 100%, followed by 80% in erosive gastritis, 64% in pangastritis, and 8.3% in normal mucosal cases. The p-value of 0.18 showed a statistically significant association between H. pylori infection and endoscopic findings.

Adlekha et al. (2013) in Kerala concluded that the most common endoscopic abnormality was gastritis (69%), followed by duodenitis, esophagitis, duodenogastric reflux, hiatal hernia, gastric ulcer, duodenal ulcer and Barrett's esophagus. The correlation between endoscopic abnormalities and H. pylori infection was highly significant ($P < 0.01$).[3]

Akeel's 2018 Saudi study observed 49% H. pylori positivity in healthy controls, 44% in gastritis, 45.2% in gastric ulcers, and 47.1% in duodenal ulcers.[10] Yadav's 2018 study in Aurangabad found 72.6% in gastritis, 85.7% in gastric ulcers, and 91.6% in duodenal ulcers.[11] Sulthana's 2011 Bangladesh study showed varied positivity, while Ayana's 2014 Tanzanian study reported H. pylori positivity in gastritis (72%), gastric ulcers (50%), and duodenal ulcers (89%).[12,13]

PREVALENCE ACCORDING TO ENDOSCOPIC FINDINGS- COMPARISON WITH OTHER STUDIES

STUDY	GASTRI TIS		G. ULCE R		D. ULCE R		DUOD		EPH		Ca G N		N	
	T	(+) %	T	(+) %	T	(+) %	T	(+) %	T	(+) %	T	(+) %	T	(+) %
AKEEL and coworkers	255	44	31	45	17	47							53	49
ABBOUD and coworkers	177	40	19	6	8	63	68	50	42	67				
YADAV And coworkers	190	73	56	86	48	92	48	92						
SULTHANA And coworkers	5	40	6	50	5	40					69	27	20	0
AYANA And coworkers	127	72	12	50	38	89	32	69			14	58		
PRESENT	61		1	1	1	1	15	66	15	60	0	0	36	8.3

CONCLUSION

1. Majority of the ulcer dyspepsia are in age group of 31-40 years Followed by 41-50years and had high prevalence of H pylori infections
2. Majority of the symptomatic patients were females.
3. Majority of the patients were non-smokers (73%).
4. Ulcer dyspepsia common in males, however H Pylori infection was more prevalent among females in our study
5. Majority of the ulcer dyspepsia patients have habit of consumption of alcohol and majority of them were males.
6. Pain, Regurgitation, night pains, Fatigue, Nausea, vomiting, dysphagia was noticed in majority of the patients.
7. 57.3% patients reported relief of symptoms with anti H. pylori treatment
8. Majority of the patients were complaining of pain abdomen followed by regurgitation, nausea, vomiting.
9. Majority of the patients were having pan gastritis followed by antral gastritis and 100% of patients of gastric and duodenal ulcer were RUT positive on OGD
10. Out of 100 patients, 29% were found to have lax LES which contributes to the regurgitation.
11. The study should be expanded to include more number of cases to obtain statistically significant results.

Summary

Dyspepsia is a common gastrointestinal disorder affecting 20-30% of Indians daily, with *Helicobacter pylori* (H. pylori) being a prevalent infection. The study found a significant association between H. pylori and dyspeptic symptoms, particularly in gastric and duodenal ulcers, supporting the need for H. pylori screening. The study aimed to categorize dyspeptic syndromes and evaluate the link between H. pylori and ulcer dyspepsia. Of 100 patients, 30% were aged 31-40 years, with 58.6% being male. Most ulcer dyspeptic patients (80-90%) had associated symptoms, and anti-H. pylori treatment improved 57.3% of cases.

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