Original Research Paper Surgery

" A STUDY ON ASSOCIATION OF HELICOBACTER PYLORI IN GASTRIC DISORDERS

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ABSTRACT

Background

Gastric disorders (benign and malignant) remains a major public health problem in several developed and developing countries, especially in Asia. In the past 2 decades the association between Helicobacter pylori infection and gastric disorders has been firmly established. Indeed, the International Agency for Research on Cancer categorized H. pylori as a Group I carcinogen for gastric cancer

METHODOLOGY

This study was done from Jan 2014 till Aug 2015, 62 patients were included . All patients were admitted and routinely investigated. The following parameters were observed age of presentation, risk factors associated, clinical features, investigations like blood routine, ultrasound, upper gastrointestinal endoscope, rapid urease test, histopathology.

Rapid urease test is the endoscopic investigation of choice as it is simple, easy to read , has high sensitivity and specificity for detection of H. pylori than any other tests and hence it is used in this study.

RESULTS

After analyzing all the data using SPSS, Syntax software version 16.0, Chi square analysis the following are observed.

Age incidence for malignancy is more in 5th and 6th decade. 78% were males and 22% were females. The mean age group was 60 years.

Histopathology showed well differentiated adenocarcinoma (27.7%), moderately differentiated adenocarcinoma (5.5%), poorly differentiated adenocarcinoma (66.67%). Rapid urease test was positive in 20% of patients in malignancy group.

Age incidence for benign gastric diseases is in 4th decade. Gastritis is the most common than gastric ulcers and others in that HPE finding of chronic gastritis is the most common. Rapid urease test was positive in 25.71% of the patients in the benign group.

CONCLUSION

We conclude that there is association between H pylori infection and gastric disorders (both benign and malignant) but it is less (<30%), which is in contrast to the literature which show high association (>50%) and this may be due to improved hygiene , empirical antibiotic usage for H.Pylori, other common causes like smoking , alcohol , genetic factors and also may be due to population studied.

KEYWORDS : H.Pylori, Rapid Urease Test,Benign and Malignant Gastric disorders.

INTRODUCTION

Helicobacter pylori is a ubiquitous organism that can be seen in 50% of general population. It's association with various gastric disorders are well established in numerous studies after its discovery in 1983.Peptic ulcer disease is the most studied disease related to *H pylori* infection. H. pylori is seen in 90% of duodenal ulcer and 75% of gastric ulcer Patients. This bacterium is also involved in the pathogenesis of several extragastric diseases, such as mucosa-associated lymphoid tissue lymphomas (MALTomas) gastroeso phageal reflux disease (GERD) and gastric carcinomas. In some population H. pylori can be seen associated in 80% of gastric cancers. H. pylori is labeled as a definite carcinogen in 1994 by the international agency for cancer research . It is associated with gastric adenocarcinoma , gastric lymphoma and MALTomas.

OBJECTIVES

1. To study the association of H pylori in benign and malignant disorders of stomach.
2. To study presence of H pylori in association with different histological types of carcinoma Stomach and benign gastric diseases (such as gastritis, gastric ulcers , erosions and polyps).

METHODOLOGY:

A prospective clinical study was undertaken at Government Dharmapuri medical college hospital, Dharmapuri to know the various upper gastro-intestinal endoscopic findings in patients presenting with dyspepsia The study was conducted from Jan 2014 to August 2015. The patient selection was by convenience sampling.

A detailed clinically history was elucidated, followed by careful clinical examination, which were recorded as per the proforma. All the patients included in the study underwent upper gastrointestinal endoscopy and the findings were noted.

The inclusion and exclusion criterias were as follows:

INCLUSION CRITERIA:

1. Patients above 13 years of age.
2. Patients showing symptoms of gastric disorders (abdominal pain , vomiting, hemetemesis , malena, dyspepsia , loss of apetite, loss of weight, etc.)

EXCLUSION CRITERIA:

1. Patients below 12 years of age.
2. Pregnant and lactating women.
3. Patients who has taken Anti H. pylori drugs in the past 6 months
4. Patients on NSAID's for more than one month duration.
5. Unwilling or unfit patients for endoscopy.

PROCEDURE:

All the patients in this study group, on inpatient basis underwent upper gastro-intestinal endoscopy under topical anesthesia. The patients were asked to fast for 12 hours prior to the procedure. Only a few patients were given 5-10mg diazepam intravenously for sedation.

Lignocaine viscous or oral lignocaine sprays were given to the patient 5-10 minutes before the procedure for the local anaesthetic effect. The upper gastro-intestinal endoscopy was conducted with olympus, flexible, fibreoptic endoscope with patients in left lateral positions.

The instrument is advanced under direct vision, with the tip of the endoscope in central lumen. Using the optimal insufflations to keep the lumen of the esophagus well distended. Esophagus was looked for any inflammatory changes, growth. The gastro-esophageal mucosal junction was identified at 38-40cms from the incisors. (This junction is usually serrated and readily identified by the color difference between the esophageal and gastric mucosa, called as Z line).

The position of the esophageal hiatus in the diaphragm is identified by asking the patient to inhale deeply, the diaphragmatic hiatus during inspiration creates an imprint on the esophageal and gastric wall. The position of both the hiatus and the mucosal junction are recorded in order to document the possibility of a hernia or of a columnar lined esophagus. Gastro-esophageal junction should be observed for closed or widely patulous. On entering the stomach, endoscope slightly down and towards the left, a view of greater curvature and of the posterior wall is obtained. Aspiration of all retained liquid is done to reduce the risk of aspiration and to allow proper examination of the stomach. A rotation movement of the tip of the instrument allows examination of the anterior and posterior walls of the body of the stomach. The lesser curvature down to the angulus and the greater curvature are viewed by the same position motion. The most proximal part of both the curvatures are better examined when using the J manoeuvre. Stomach was looked for inflammatory changes, ulcer, growth , erosions , polyps.

By rotating and angulating the tip endoscope is advanced to assess the antrum. Prepyloric and pyloric ring observed directly, the passage through the pylorus being done under direct vision. When the pylorus yields, complete assessment of the duodenum is done upto second part.

Endoscopic biopsies were taken from the antrum, growth and the edge of the ulcer crater depending on the findings.

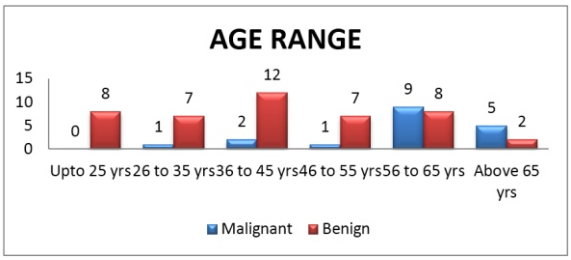
Antral biopsy is used for rapid urease test in which the RUT card is used. Here the biopsied tissue is placed over the card which contains a yellow coloured medium. Then a drop of distilled water is placed over it and the results are studied after 15 mins, 30 mins and at 24 hrs . If the tissue contains urease enzyme which is produced exclusively by H . pylori , the yellow coloured medium changes to pink or red colour then the test is considered positive . If colour change doesn't occur then the test is considered negative and the results are noted .

Biopsy specimens were also sent in formalin solution for histopathology . Each of the biopsy specimens were fixed in 10% buffered formalin, routinely processed to paraffin and 3 µm sections cut.

RESULTS

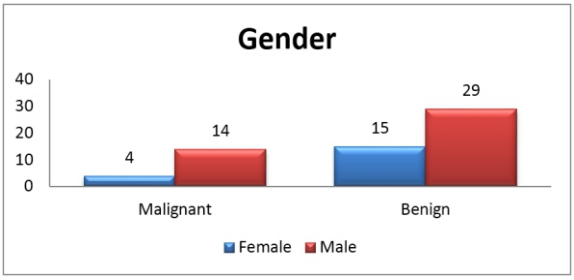
Results of the study are listed below:

AGE DISTRIBUTION

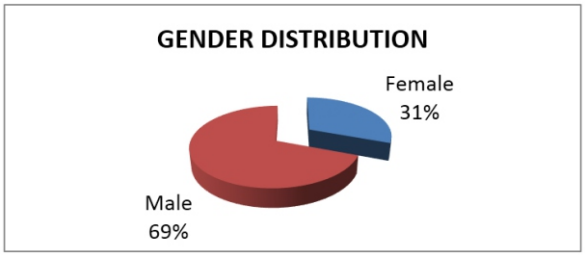


Age range	Benign	Malignant
Upto 25yrs	8	0
26-35 yrs	7	1
36-45 yrs	12	2
46-55 yrs	7	1
56-65 yrs	8	9
Above 65 yrs	2	5
Total	44	18

SEX DISTRIBUTION



	BENIGN	MALIGNANT	TOTAL
MALE	29	14	43
FEMALE	15	4	19
TOTAL	44	18	62



ENDOSCOPIC FINDINGS :

During endoscopy the following findings were noted, 36 patients had gastritis and among these 36 pts , 5 persons had co existing Duodenal Ulcer.

Ulceroproliferative growth were second common findings which was seen in 18 patients

FINDINGS	MALE	FEMALE
GASTRITIS	23	13
GROWTH/MALIGNANCY	14	4
POLYP	2	2
EROSIONS	5	3
GASTRIC ULCER	3	0

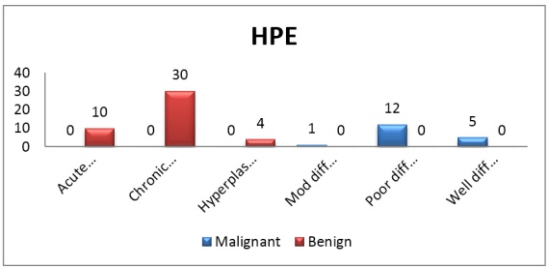
HISTOPATHOLOGICAL EXAMINATION:

HPE of the biopsied tissue shows the following :

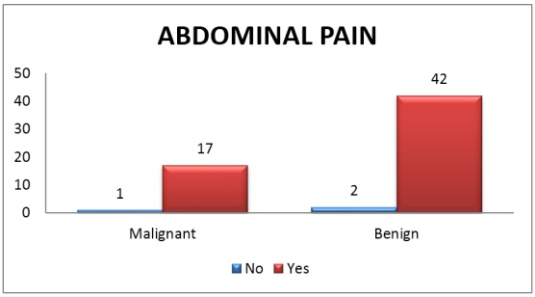
Among the benign group 30 patients had chronic gastritis, 10 patients had acute gastritis, 4 patients had hyperplastic polyp.

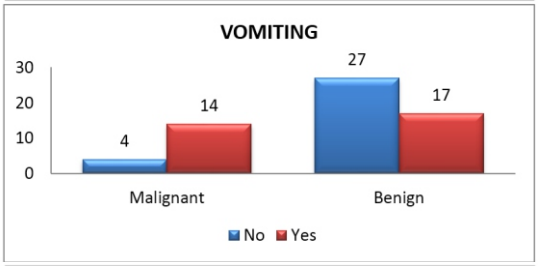
Among the malignancy group , 12 patients had poorly

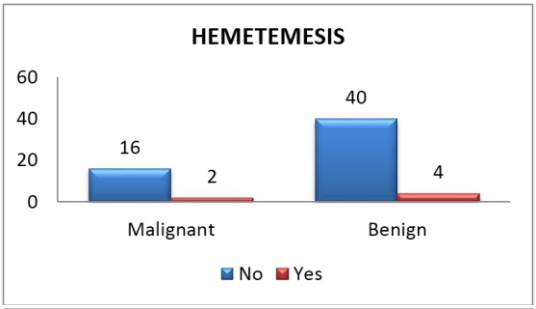
differentiated adeno carcinoma, 5 patients had well differentiated adenocarcinoma and one patient had moderately differentiated carcinoma.

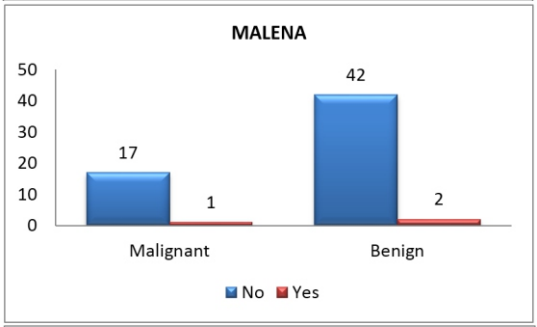


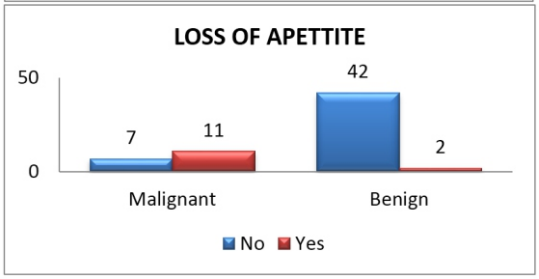
SYMPTOM ANALYSIS:

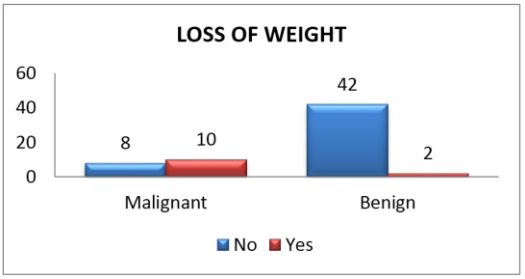


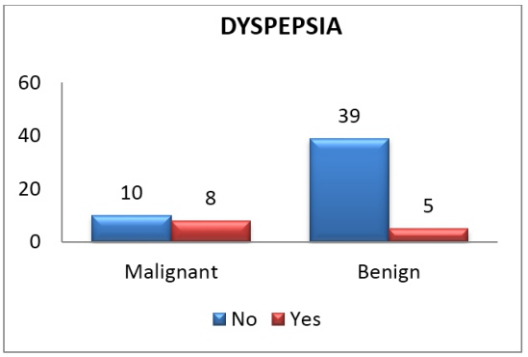










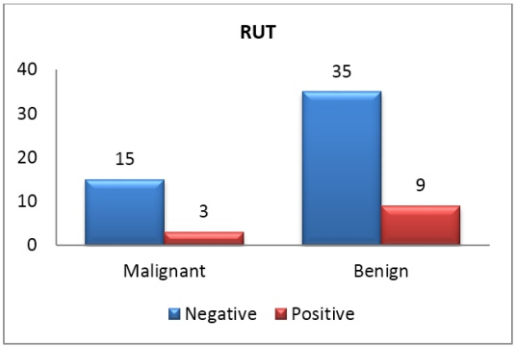


In most of the patients in the malignancy group , common complaint was abdominal pain (94.44%) followed by vomiting (77.8%) , loss of apetite (61.11%) , weight loss (55.6%) ,dyspepsia (44.44%) , hemetemesis (11.11%), malena (5.5%).

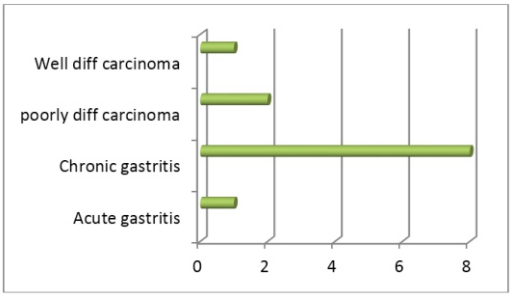
In patients with benign gastric diseases most common symptom is abdominal pain (95.5%), followed by vomiting (38.6%), dyspepsia (11.4%), hemetemesis (9.1%) ,and loss of apetite , loss of weight and malena (4.5% each)

RAPID UREASE TEST RESULTS

All patients underwent endoscopy and biopsy were taken from the antrum and body . Rapid urease test using RUT DRY TEST kit was done for all patients. The results are as follows:



Of the 35 patients in benign group five patients had co existing duodenal ulcer and out of these 5 patients four had positivity for Rapid urease test.



Crosstab

			BM		Total
			Malignant	Benign	
RUT	-	Count	15	35	50
		% within BM	83.3%	79.5%	80.6%
	+	Count	3	9	12
		% within BM	16.7%	20.5%	19.4%
Total	Count	18	44	62	
	% within BM	100.0%	100.0%	100.0%	

The collected data was analysed with SPSS 16.0 version. To describe about the data descriptive statistics frequency analysis, percentage analysis, cross tabulation and the mean and S.D were used. To find the significance difference between the bivariate samples in Independent groups (Malignant & Benign) Independent t test was used. To find the significance in categorical data Chi-Square test was used. In all the above statistical tools the probability value .05 is considered as significant level. **P VALUE IS 0.732.**

DISCUSSION

A prospective study entitled "A study on Association of Helicobacter pylori in Gastric disorders" was undertaken in Government Dharmapuri medical college hospital to study the presence of H. pylori in various gastric disorders .

Eslick GD et al did a meta analysis of observational epidemiological studies. A total of 42 studies met the selection criteria and were categorized by the type of study design: eight cohort and 34 case-control studies.They concluded that H. pylori infection is associated with a 2-fold increased risk of developing gastric adenocarcinoma Xue FB et al also did a meta analysis observational epidemiological studies. Twenty-one papers of case-control studies were selected, including 11 on gastric cancer,7 on precancerous lesion of stomach and 3 on lymphoma of stomach and the results of Meta analysis present a strong evidence to support the conclusion that H. pylori infection is a risk factor for gastric carcinoma.

Kang JK et al studied the association of helicobacter pylori in gastritis and peptic ulcer disease . H. pylori were present in 96.6% of patients with active chronic gastritis, 100% of patients with duodenal ulcer and 76.9% of patients with gastric ulcer, while present in only 6.3% of individuals with histologically normal gastric mucosa. The bacteria colonized the antral mucosa more frequently than the body or than the duodenal cap mucosa.

Sung-Hsin Kuo and Ann-Lii Cheng studied association of h. pylori in MALTomas. Low-grade mucosa-associated lymphoid tissue (MALT) lymphoma of the stomach, gastric MALT lymphoma, is associated with Helicobacter pylori infection. The eradication of H pylori using antibiotics is successful in 60% to 80% of affected patients.

The association between H. pylori and gastric cancer was proven by numerous case control studies nested in large cohorts which could prospectively examine the H. pylori status of gastric cancer patients. This association was considered sufficient by the Working Group of the International Agency for Research on Cancer / World Health Organization to recognize H. pylori as a Group I carcinogen for humans in 1994.

After informed consent 62 cases of various gastric disorders were included in the study and were studied clinically as per the proforma from Jan 2014 to August 2015 In this study males have a preponderance to have both benign and malignant disorders. In benign group 66% were males and 34% were females.In the malignancy group 78% were males and 22% were females. Of the benign group gastritis is most common.In malignant group poorly differentiated carcinomas are more common.

Mean age for benign diseases is 42 years and for malignancy mean age is 60 years . It is common in 5th and 6th decade of life which is comparable with other literature .

In most of the patients in the malignancy group , common complaint was abdominal pain (94.44%) followed by vomiting (77.8%) , loss of apetite (61.11%) and weight (55.6%) ,dyspepsia (44.44%) , hemetemesis (11.11%), malena (5.5%).

In patients with benign gastric diseases most common symptom is abdominal pain (95.5%), followed by vomiting (38.6%), dyspepsia (11.4%), hemetemesis (9.1%) ,and loss of apetite , loss of weight and malena (4.5% each)

HPE of the biopsied tissue shows the following :
Among the benign group 30 patients had chronic gastritis, 10 patients had acute gastritis, 4 patients had hyperplastic polyp.

Among the malignancy group , 12 patients had poorly differentiated adeno carcinoma, 5 patients had well differentiated adenocarcinoma and one patient had moderately differentiated carcinoma.

In my study there were no cases of gastric lymphoma or MALToma.

COMPARISON TABLE:
MALIGNANCY GROUP

S NO.	VARIABLES		M.A. Majid Et Al (N = 140)	OUR STUDY (N=18)
1.	SEX	M	75%	78%
		F	25%	22%
2.	AGE	MEAN	51.48	60
3.	INVESTIGATION	RUT	24.28%	20%

Rapid urease test was done to find the presence of Helicobacter pylori in these patients . Since Rapid urease test has high sensitivity and specificity which is about 95% , this test is used for this study. The test was positive in 20% of patients in malignancy group and 25.71% of patients in benign group.

In the benign group with RUT positivity 88.9%% of patients had chronic gastritis, 11.1% had acute gastritis in HPE.

In malignancy group with RUT positivity 66.7% had poorly differentiated carcinoma, and 33.3% had well differentiated carcinoma in HPE.

CONCLUSION

On analyzing the data, we found that Rapid urease test is positive in 20% of patients with malignancy and 25.71% of patients with benign gastric disorders . This shows that H. pylori is one of the causes for benign diseases (gastritis) and also a risk factor for malignant transformation of gastric mucosa .

- Histopathology showed well differentiated carcinoma (27.7%), moderately differentiated carcinoma (5.5%) and poorly differentiated carcinoma (66.6%).
- 80% of Duodenal ulcer patients had positivity for H. pylori which is significant .
- Thus we conclude that there is association between H pylori infection and gastric disorders(both benign and malignant) but it is less (<30%), which is in contrast to the literature which show high association (>50%) and this may be due to improved hygiene , empirical antibiotic usage for H.Pylori, other common causes like smoking , alcohol , genetic factors and also may be due to population studied.

So in cases of benign gastric disorders endoscopic biopsy with rapid

urease test followed by anti H.pylori therapy will decrease the future development of carcinoma.

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