A STUDY ON DIAGNOSIS OF HELICOBATER PYLORI INFECTION BY CULTURE AND MOLECULAR METHODS FROM GASTRIC BIOPSY SPECIMENS AND SEROLOGICAL ASSAYS IN PATIENTS WITH PEPTIC ULCER DISEASE

ABSTRACT

INTRODUCTION;

Helicobacter **pylori** are a common bacterial infectious disease whose manifestations predominantly affect the gastrointestinal tract. Gastric carcinoma remains the second most frequent cause of worldwide cancer related deaths. Helicobacter pylori is a Gram negative, microaerophilic bacterium found usually in the antrum and cardia of stomach. Clinical significance of H.pylori was first proposed by Warren and Marshall and it' s association with peptic ulcer disease. Subsequently H.pylori, being a nitrate converting bacteria had been recognised as main cause of peptic ulcer disease and its colonization a major risk factor for intestinal type of gastric carcinoma. H.pylori is also an independent risk factor for atrophic gastritis, gastric adenocarcinoma and MALT lympoma.

AIM & OBJECTIVES:

1. To identify the Helicobacter pylori in gastric biopsy samples from patients with clinical diagnosis of gastroduodenal disease.
2. To compare the various tests like microscopic examination of Gram stain, Giemsa stain smears, Rapid urease test and Histopathology correlation with culture and molecular methods for identification of H.pylori.
3. To evaluate antibody IgG response to H.pylori by ELISA.
4. To perform the molecular detection of H.pylori from the gastric biopsy samples.

METHODOLOGY:

In this Cross -sectional prospective study, 120 patients with clinical diagnosis of gastroduodenal diseases and Endoscopic diagnosis of gastric lesions were included. A detailed clinical history was obtained for risk analysis. The endoscopic guided gastric biopsy samples were collected for histopathological examination and microbiological examination like Rapid urease test (RUT) , microscopic examination of Gram and Giemsa stained smears for evidence of H. pylori infection. 3 ml of Blood sample was collected from each of these patients for estimation of serum anti- Helicobacter pylori IgG antibody (HpIgG) titre by using quantitative ELISA(CALBIOTECH KIT ,USA). Molecular metods like PCR done for randomly selected 50 samples.

Results and Discussion:

In the study, presence of Helicobacter pylori in gastric biopsy samples were detected by conventional and Molecular methods.

Gender and age analysis revealed that, there was Male preponderance (65.8%) among the 120 study population and maximum number of patients with Gastroduodenal diseases were in the third decade of life. Duodenal ulcer was the most common Endoscopic diagnosis among the study population and epigastric pain was the predominant symptom among the patients with gastric carcinoma and peptic ulcer disease. Among 120 samples, the positivity of rapid urease test was 54% . It includes 20.8% of duodenal ulcer, 12.5% of gastritis, 12.5% of gastric carcinoma and 8.3% of gastric ulcer. The direct gram stain showed gram negative bacilli about 35.8 % (43 patients).Report values were compared with U. Arora et al[63] reference study.

Histopathological examination results were suggestive of gastroduodenal disease in 59% of cases. This is compared with study conducted by Aarti et al[47] that showed histopathological findings highly correlated with clinical diagnosis of gstroduodenal

disease. In this study the seroprevalence rate of H.pylori IgG antibodies was estimated to be 27.5%. In various international and national studies, the prevalence had been reported to vary from 19% to 80% [5]. In the PCR test, 23 cases were positive among 50 samples (randomly selected) which includes 18 cases of gastric carcinoma and 5 cases were peptic ulcer disease.

CONCLUSION :

H.pylori colonization posses a great challenge in the clinical Microbiology especially in patients with malignancy and other chronic gastric lesions. The currently used diagnostic methods are either too technically demanding or resource constraining. Hence HpIgG antibody assays could be employed as a useful screening assay with stringent quality control measures in place for the estimation of seroprevalence of Helicobacter pylori among the high risk population. However subsequent serum samples are required to follow up the severity of the disease, and a larger sample size for a point prevalence study. Isolation of organisms is possible only in reference laboratories.

PCR amplification of H.pylori , DNA sequences has the potential to be a highly sensitive method for the laboratory diagnosis of H.pylori infection. The combination test of rapid urease test with PCR testing as a rapid and appropriate diagnostic method for H.pylori infection.

Keywords : H.pylori, HP IgG, ELISA