

H.Pylori Stool Antigen Prevalence Among Dyspeptic Patients From A Super Speciality Hospital Of North India

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Abstract :

Background: *Helicobacter pylori* (*H. pylori*) resides in the stomach, colonizes gastric epithelium, and causes several digestive system diseases. Several diagnostic methods utilizing invasive or non-invasive techniques with varying levels of sensitivity and specificity are developed to detect *H. pylori* infection. *H.pylori* stool antigen assay is a promising non-invasive test to detect *H.pylori* infection.

Aim : To study prevalence of *Helicobacter pylori* antigen in stool of patients with dyspepsia attending Nehru Hospital, PGIMER, Chandigarh.

Methods: Patients undergoing for diagnosis and treatment for dyspepsia at Nehru Hospital, PGIMER were included in the study. Stool samples of these patients were taken in stool container and stored at -20°C and further tested for *H.pylori* stool antigen (HpSA) by ELISA(Epitope Diagnostics,USA).

Result: A total of 6177 patients of dyspepsia were included in the study. Out of these, 964 patients of dyspepsia were positive (15.6%) for *H.pylori* stool antigen, signifying presence of *H.pylori* in the gut. About 4955 patients (80.21%) of dyspepsia were negative for HpSA by ELISA. 258 patients(4.17%) of dyspepsia had equivocal result by ELISA for HpSA.

Conclusion: 15.6% patients of dyspepsia attending Nehru Hospital, PGIMER had *Helicobacter pylori* infection in their gut from this region. *Helicobacter pylori* stool antigen test by ELISA could be a promising screening test for detection of *H.pylori* in patients of dyspepsia.

Key words: *Helicobacter pylori*, HpSA, Dyspepsia

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I. Introduction

Helicobacter pylori (*H. pylori*) resides in the stomach, and duodenum causing several digestive system diseases. *Helicobacter pylori* associated diseases such as peptic ulcer disease, gastritis and gastric cancer commonly present as dyspepsia. In the evaluation of dyspepsia, clinical signs and symptoms have a limited role because they do not reliably predict underlying pathology and endoscopy findings(1). Endoscopy is the best strategy for confirming the cause of dyspepsia. However, it is an expensive and time consuming procedure. Several diagnostic methods utilizing invasive or non-invasive techniques with varying levels of sensitivity and specificity are developed to detect *H. pylori* infection. *Helicobacter pylori* stool antigen (HpSA) test has been shown to be another accurate non-invasive test for the initial diagnosis of *H.pylori* infection(2).

II. Objective

To study prevalence of *Helicobacter pylori* antigen in stool of patients with dyspepsia attending Nehru Hospital, PGIMER , Chandigarh.

III. Materials and Methods

Study Design : Prospective study

Study Method : Patients of dyspepsia attending Nehru Hospital ,PGIMER, Chandigarh were included in the study. Past history of epigastric pain, bloating, nausea and vomiting were noted. Patients underwent detailed examination and appropriate tests were done. Stool samples of these patients were collected in stool container and stored at -20°C and tested for presence of *Helicobacter pylori* antigen in stool (HpSA) by ELISA (EDI™ Fecal *H.pylori* Antigen ELISA Kit, Epitope Diagnostics, U.S.A).

IV. Results

The present study included 6177 patients of dyspepsia visiting Nehru Hospital, PGIMER, Chandigarh for treatment. There were 3445 male patients (55.77%) and 2732 female patients(44.21%).The period of study

was between October 2021 to December 2023. Stool sample of each patient was collected and tested for HpSA during the period. Stool sample positive for HpSA was defined if O.D. value of tested sample was above cut-off O.D. Negative HpSA for a stool sample was defined if O.D. of sample was below the O.D. of negative cut-off as described in manufacturer's kit booklet. Equivocal result were declared of those stool samples whose O.D. value was between Positive O.D. cut-off and Negative O.D. cut-off. A total of 964 dyspepsia patients (15.6%) were HpSA positive signifying Helicobacter pylori infection in the stomach or duodenum. 4955 patients (80.21%) of dyspepsia were HpSA negative. 258 patients (4.17%) of dyspepsia had equivocal result for HpSA.

Table No. 1. H.pylori Stool Antigen tests in dyspepsia patients (n = 6177, 3445 Males, 2732 Females)

Sl. No.	HpSA ELISA Test	No. of Dyspepsia Patients	Percentage
1.	Positive	964	15.6 %
2.	Negative	4955	80.21 %
3.	Equivocal	258	4.17 %

Note : Positive cut-off O.D. ≥ 0.140 , Negative cut-off O.D. ≤ 0.110 , Equivocal \rightarrow O.D. Between Positive and Negative O.D. cut-off

V. Discussion

In present study dyspeptic adult patients positive for H.pylori Stool Antigen test was 15.6% (964/6177 pts.). This was high number for a non-invasive test being positive for H.pylori at this centre. Study from Africa has reported 33.5% patients of dyspepsia (n=167) positive for H.pylori stool Antigen test (3). A study from malnourished children of Dhaka showed 14.8% children with dyspepsia positive for HpSA (4). The present study shows similar prevalence. However, H.pylori stool antigen tested in 300 adult dyspeptic patients showed 81% positive for H.pylori in Ethiopia (5). This high percentage could be due to poor socio-economic structure and poor hygiene practises in that country. The presence of H.pylori antigen in stool signifies active H.pylori infection in gut which needs appropriate management. This test may also have a role in monitoring the response to treatment in those patients who were diagnosed with H.pylori infection by invasive methods and non-invasive methods.

VI. Conclusion

15.6 % patients of dyspepsia attending Nehru Hospital, PGIMER had Helicobacter pylori infection in their gut from this region. Helicobacter pylori stool antigen test by ELISA could be a promising screening test for detection of H.pylori in patients of dyspepsia.

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