PREVALENCE OF *H. PYLORI* DUODENAL ULCER PERFORATION

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ABSTRACT

BACKGROUND
Duodenal ulcer perforation is among common surgical emergencies. Recent data suggests that more than 99% of all duodenal ulcers having infection with *H. pylori* is associated with use of NSAIDS. There is a necessity to study the association of *H. pylori* infection with perforated duodenal ulcers. If proved, control of *H. pylori* may reduce this catastrophe and burden on the society.

METHODS
This study was conducted at Hi-Tech Medical College & Hospital, Bhubaneswar from December 2016 to October 2018. 30 cases were studied thoroughly according to the proforma. All the positive cases were given triple drug regimen (*H. pylori* kit) for a period of 14 days and negative cases were given omeprazole therapy for same period. Patients of duodenal ulcer perforation who were undergoing laparotomy for the same were selected.

RESULTS
Age wise distribution maximum i.e. 36.66% patients belonged to age group 41-50 yrs. In our study, incidence of *H. pylori* infection was 53.33-66.66%. Male: Female ratio was found to be 28:2. 15 and 19 out of 28 male patients showed presence of *H. pylori* with RUT & *H. pylori* antibody test respectively (i.e. incidence was 53.57% and 67.85%) and 1 out of 2 female patients showed positive RUT and *H. pylori* antibody test.

CONCLUSIONS
Incidence of *H. pylori* infection was 53% (RUT) and 66% (*H. pylori* antibody card test) in our study population. Maximum patients presented with hypovolemic shock, which was major cause of mortality and morbidity in our study group.

KEYWORDS
*H. pylori*, Ulcer, Urease Test, Perforation.


BACKGROUND
Helicobacter pylori (*H. pylori*) has a role in the multifactorial aetiology of peptic ulcer disease. A link between *H. pylori* infection and duodenal ulcer disease is now established. Other contributing factors and their interaction with the organism may initiate the ulcerative process.1

Duodenal ulcer perforation is among common surgical emergencies. In our institute it is the second most common emergency. It is associated with significant morbidity and mortality as most of the patients present late with shock and hypovolemia, needing aggressive resuscitation and management.2

Recent data suggests that more than 99% of all duodenal ulcer and 96% of all gastric ulcer having infection with *H. pylori* or use of NSAIDS.3 There is a necessity of study to prove the association of *H. pylori* infection in perforated duodenal ulcers. If proved, control of *H. pylori* infection may reduce this catastrophe and burden on the society.4 We have selected Anti *H. pylori* Antibody card test and Rapid Urease Test for detection of *H. pylori* as it is.5

Aims and Objectives
1. To determine the prevalence of *H. pylori* infection in duodenal ulcer perforation.
2. To study cases of duodenal ulcer perforation in relation to *H. pylori*.
3. To study different etiological factors in cases of perforated duodenal ulcer.

METHODS
This study was conducted at Hi-Tech Medical College & Hospital, Bhubaneswar from December 2016 to October 2018. These 30 cases were studied thoroughly according to the proforma. A detailed history and proper consent were taken when the condition of the patient was stable. In
critically ill patients, the patients were resuscitated, and history and consent were taken after the patient was stabilized. All the positive cases were given triple drug regimen (H. pylori kit) for a period of 14 days and negative cases were given omeprazole therapy for same period.

Selection Criteria
Patients of duodenal ulcer perforation who were undergoing laparotomy were at risk. To find the agreement between two methods the RUT and antibodies was used.

Exclusion Criteria
1. Patients who were conserved due to any co-morbid condition.
2. All the cases of prepyloric or gastric perforation.

RESULTS

<table>
<thead>
<tr>
<th>Age Group (in Years)</th>
<th>Sex</th>
<th>H. pylori Antibody Test</th>
<th>RUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>10-20</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>21-30</td>
<td>1</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>31-40</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>41-50</td>
<td>1</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>&gt;50</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>10</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 1

Since p-value is less than that of 0.05, indicates that the RUT and H. pylori Antibody Test are independent but associated. To find the agreement between two methods we calculated Kappa coefficients, results as follows-

<table>
<thead>
<tr>
<th>Measure of Agreements</th>
<th>Value</th>
<th>Asymp. Std. Errora</th>
<th>Approx. Tb</th>
<th>Approx Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kappa</td>
<td>.455</td>
<td>.158</td>
<td>2.588</td>
<td>.010</td>
</tr>
</tbody>
</table>

Table 3. Symmetric Measures

Since p-value for Kappa coefficient is less than that of 0.05 indicates significant association between RUT and H. pylori Antibody Test.

Risk Factors | Number of Patients out of 30 | Percentage |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoholism</td>
<td>14</td>
<td>46.66</td>
</tr>
<tr>
<td>NSAIDS</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>H/O acid peptic disease</td>
<td>13</td>
<td>43.33</td>
</tr>
<tr>
<td>Helicobacter pylori infection</td>
<td>20</td>
<td>66.66</td>
</tr>
<tr>
<td>Smoking</td>
<td>8</td>
<td>26.66</td>
</tr>
<tr>
<td>Tobacco eating</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Spicy food</td>
<td>7</td>
<td>23.33</td>
</tr>
</tbody>
</table>

Table 4. Risk Factors

Maximum number of patients i.e. 66.66% showed H. pylori as risk factor. Alcoholism (46.66%) was second most common risk factor. H. pylori infection is a significant cause for duodenal ulcer perforation (p<0.05). Then Alcoholism and Tobacco and so on. Observed difference in the alcoholism in positive and negative RUT is not significant (p>0.05). Observed difference in the alcoholism in positive and negative H. pylori Antibody Test is not significant (p>0.05). The proportion of RUT positive with no smoking is more than that of RUT positive with Smoking (p<0.05). Observed difference in the smoking and result of H. pylori Antibody Test is not significant (p>0.05). Observed difference in the NSAIDS and result of RUT are not significant (p>0.05). Observed difference in the NSAIDS and result of H. pylori Antibody Test are not significant (p>0.05). Observed difference in the APD in positive and negative RUT is not significant (p>0.05). Observed difference in the Tobacco and result of RUT are not significant (p>0.05). Observed difference in the tobacco and results of the H. pylori Antibody Test are not significant (p>0.05). Indicates that the Sp. Food and results of the H. pylori Antibody Test are not significant (p>0.05).

93.33% patient presented with epigastric pain i.e. pain was the most common presenting symptom. Vomiting was
seen in 63.33% patients i.e. it was the second most common presenting symptom. Obliteration of liver dullness was observed in 100% patients. Hypotension was seen in 83.33% patient. Guarding was observed in 80% rigidity was observed in 5.33%. Maximum number case i.e. 43% cases presented within 48 hours. Hypovolemic shock was seen in 66.66% patients. Chest infection (e.g. Pneumonia) was seen in 36.66%. Leak was rarest complication seen and was observed only in 3.33% patients. Mortality was 6.66% in our study in patients of perforated duodenal ulcer.

DISCUSSION

We have selected the simplest, highly specific and sensitive H. pylori antibody & rapid urease test for detection of H. pylori in patients of duodenal ulcer perforation so that by detection of infection we can treat patient with triple drug regimen.6 We found that, in age wise distribution maximum i.e. 36.66 patients belonged to age group 41-50 yrs. In our study incidence of H. pylori infection was 53.33-66.66%. Our study Male: Female ratio was found to be 28:2. 15 and 19 out of 28 male patients showed presence of H. pylori with RUT & H. pylori antibody test respectively (i.e. incidence was 53.57% and 67.85%) and 1 out of 2 female patient showed positive RUT and H. pylori antibody test. We had studied various etiological factor for duodenal ulcer perforation like alcoholism, non-steroidal anti-inflammatory drugs intake, acid peptic disease, H. pylori infection smoking, tobacco chewing and dietary inclusion of spicy food. Among all this we found H. pylori infection was the commonest (66.66%) cause, after which alcoholism (46.66%) and history of acid peptic disease (43.33%) were on the list. Amazingly 7 out of 17 patients who were positive RUT & H. pylori antibody test respectively had no other etiological factor, that indicates H. pylori can individually act as an etiological factor in causation of duodenal ulcer. 93.33% of our patients presented with pain in epigastrum. The pain is typically non-radiating, burning in quality and located in the epigastrum. Pain usually experienced 2-3 hrs after meal at night which in two third of patients awakens them. Vomiting (63.33%) was second common presenting symptom. 66.66% patients in our study presented with hypovolema which was major cause of mortality and morbidity in our study group. 13 out of 30 (43.3%) patient presented within 48 hours of disease. We had 1 patient who presented on 4th day of onset of disease. Burst abdomen was seen only in two patients (6.66%). The other patient was 70 yrs old chronic smoker & had bronchitis. Hence the reason for burst could be poor general condition of patient with impaired wound healing.7 The mortality in our study was 6.66% i.e. 2 out of 30 patients due to perforated duodenal ulcer. Patients who were presented very late were already in septicaemia and multisystem dysfunction and that attributed to their mortality.8 Significantly associates with fatal outcomes in patients undergoing emergency surgery for duodenal ulcer perforation. A few patients were followed for nearly 6 months while most of them lost to follow up. 4 patients had features of dyspepsia, despite giving H. pylori triple drug kit for 14 days and were given a repeat course of same drug and recovered well.

CONCLUSIONS

Incidence of H. pylori infection was 53% (RUT) and 66% (H. pylori antibody card test) in our study population. Among various etiological factors, H. pylori infection was found to have maximum association with duodenal ulcer perforation. Maximum number of patients presented with hypovolemic shock, which was the major cause of mortality and morbidity in our study group. Triple drug regimen (H. pylori kit) used for treatment of patients was very effective in reduction in recurrence of symptoms. Hence this study advocates early diagnosis and treatment of H. pylori in all high-risk patients. Early intervention with simple closure of duodenal ulcer with eradication of H. pylori can reduce the morbidity and mortality.

REFERENCES