RESEARCH ARTICLE
THE EVALUATION OF FREQUENCY AND SEASONAL VARIATIONS OF ACID PEP TIC DISEASE: A SEVEN YEARS STUDY
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ABSTRACT
Acid peptic disease (APD) is a worldwide health problem. It includes a variety of inflammatory and ulcerative lesions involving esophagus, stomach and duodenum. The disease condition may persist with multiple symptoms, one of them being dyspepsia. The object of the present study was to determine the frequency and seasonal variations of APD in patients presenting with dyspeptic symptoms. This observational study was carried out at the endoscopy unit in Baqai Medical University from December 2003 to December 2010, over a period of seven years. The evolution of APD frequency remained equivocal throughout the study period. However, a decline was noted in the frequency of peptic ulcer disease (PUD) especially for gastric and duodenal ulcer cases but a rise during autumn and winter seasons was also noted in duodenal ulcer cases.

Keywords: Acid peptic disease, peptic ulcer disease, inflammatory acid peptic disease, esophago-gastro-duodenoscopy.

1. INTRODUCTION
Acid peptic disease (APD) includes a variety of lesions (inflammatory and/or ulcerative) that can occur from esophagus to duodenum and even jejunum and ileum in some cases. The inflammation of these organs can be recognized by visualizing through endoscopy which reveals the signs of edema and red appearance of mucosa. The microscopic evaluation of biopsy specimen is then also required for a definitive diagnosis of mucosal inflammation. The pathophysiology is however, believed to be the result of damage from acid and pepsin activity in the gastro-duodenal region.

APD may be present with various upper gastrointestinal symptoms such as nausea and vomiting, heartburn, bloating and stomach discomfort, grouped together as dyspepsia or may also be present with signs of upper gastrointestinal bleeding e.g. hematemesis or melena. Dyspeptic symptoms are the most common complaints in patients with APD whereas gastritis is found to be the commonest cause of dyspepsia1. In such cases endoscopy of the upper digestive tract is considered to be the gold standard for the study of upper gastrointestinal symptoms especially, dyspepsia2. It allows macroscopic as well as histological identification of the lesions from biopsies which can guide proper management of the disease.

The literature describes a progressive reduction in the frequency of gastric and duodenal ulcers3-7. Some studies have also reported a seasonal variation of peptic ulcer disease (PUD) and their complications3, 8-14. Some authors have suggested that seasonal variation is particularly noticeable for dyspepsia and duodenal ulcers8-14, while other authors have been unable to confirm this or have concluded that this periodicity has disappeared15-17. Therefore, this study has been conducted to assess the frequency and seasonal variations of APD (esophagitis, gastritis, gastric erosions, duodenitis, esophageal, gastric and duodenal ulcers) in patients presenting with upper gastrointestinal symptoms.

2. METHODS
This observational study was conducted over a seven year period from 19th December 2003 to 18th December 2010. The study sample consisted of subjects aged 14 years and above. A total of 1458 patients presented with various upper gastrointestinal symptoms underwent diagnostic oesophago-gastro-
duodenoscopy (OGD) and finally 1254 subjects were included in the study. The rest of the patients were excluded as they were found to have other disease states such as hiatus hernia, esophageal varices or upper gastrointestinal neoplasia. The procedure was performed by both the authors. The patients were referred by the attending physician either from the out or in-patient departments. The biopsies were taken when requested by the attending physician or when deemed necessary by the endoscopist. The upper gastrointestinal endoscopies were arranged by appointments twice per week. The reports of each endoscopy included the demographic data and description of lesions whereas the inflammatory conditions of the endoscopic structures were characterized by erythema (generalized or patchy) with or without edema. The gastric erosions consisted of parietal defect in the mucosa less than 1 mm in depth and therefore, the inflammation and erosion were grouped together as inflammatory acid peptic disease (IAPD) in this study. Similarly, the ulcers of these structures were characterized by a parietal defect in the mucosa more than 1 mm in depth and were grouped as PUD$^{18}$.

Four seasons of the year were allocated with three months for each season, for e.g., winter included mid-November till mid-February and so on. The frequencies for overall APD and separately for IAPD and PUD were calculated yearly for assessing the occurrence of the mentioned disorders throughout the study period.

2.1. Ethical Considerations
Since the endoscopies were advised by a physician, therefore, prior to performing the procedure, the endoscopists checked the referral orders and made sure that the patients’ conditions were optimal. All subjects were required to provide informed consent and were explained with the procedure in detail. The study was consistent with the universal ethical principles.

3. RESULTS
The analyzed data included 630 males (50.2%) and 624 females (49.8%), the male to female ratio was 0.99:1.01 and mean age was 39±15.5 years. The overall frequency and sex distributions of APD are shown in Table 1.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Disease</th>
<th>No. of Male Patients (%)</th>
<th>No. of Female Patients (%)</th>
<th>Total No. of Patients (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory</td>
<td>Esophagitis</td>
<td>82 (6.5)</td>
<td>49 (3.9)</td>
<td>131 (10.4)</td>
</tr>
<tr>
<td>Acid Peptic</td>
<td>Gastritis</td>
<td>509 (40.6)</td>
<td>472 (37.6)</td>
<td>981 (78.2)</td>
</tr>
<tr>
<td>Disease</td>
<td>Gastric erosions</td>
<td>99 (7.9)</td>
<td>90 (7.2)</td>
<td>189 (15.1)</td>
</tr>
<tr>
<td>(IAPD)</td>
<td>Duodenitis</td>
<td>63 (5.0)</td>
<td>25 (2.0)</td>
<td>88 (7.0)</td>
</tr>
<tr>
<td>Peptic Ulcer</td>
<td>Esophageal ulcer</td>
<td>17 (1.4)</td>
<td>8 (0.6)</td>
<td>25 (2.0)</td>
</tr>
<tr>
<td>Disease</td>
<td>Gastric ulcer</td>
<td>33 (2.6)</td>
<td>21 (1.7)</td>
<td>54 (4.3)</td>
</tr>
<tr>
<td>(PUD)</td>
<td>Duodenal ulcer</td>
<td>31 (2.5)</td>
<td>15 (1.2)</td>
<td>46 (3.7)</td>
</tr>
</tbody>
</table>

* The total no. of patients are 1254, however, the values and their percentages in Table 1 includes patients diagnosed with either single or multiple pathological conditions.
No endoscopic abnormalities were seen in 185 (14.7%) patients, i.e. 73 males (5.8%) and 112 females (8.9%). APD was seen in 1069 patients (85.2%) consisting of 557 males (44.4%) and 512 females (40.8%). A total of 356 patients (28.4%) were diagnosed with multiple pathologies containing 236 males (18.8%) and 120 females (9.6%). The incidence of PUD was observed in 125 patients (9.9%) i.e. 81 males (6.4%) and 44 females (3.5%). Although some decline in the frequency of APD was noted during the years 2008 and 2009, the overall trend of APD frequency especially that of IAPD remained equivocal throughout the study period (Fig. 1 and 2). A definite decline although somewhat erratic was apparent in case of PUD especially for gastric and duodenal ulcer cases (Fig. 3). No seasonal variation was apparent in patients with IAPD (Fig. 4). Duodenal ulcer showed clear peaks during autumn and winter and a trough during spring and summer seasons (Fig. 5).
4. DISCUSSION
This study presents the second set of results spanning over a long period of time from the endoscopy unit of Fatima Hospital, Baqai Medical University, Karachi. The first study addressed Dyspepsia in a rural cohort. The study has allowed us to establish the trend behavior and seasonality of different pathologies comprising major components of the spectrum of APD. The distribution of sex and age in this study group was equal as in previous study from the same institution. The frequencies of patients with normal and mixed pathological findings on endoscopy in our series were similar to those in a twelve year study from District Headquarter Hospital, Rawalpindi. Similar to our previous study, gastritis remains the most frequent and esophagitis the least common endoscopic findings while the frequencies of gastric and duodenal ulcers remained unchanged as well.

This study has also shown a decreasing trend of gastric and duodenal ulcers, which is in accordance to the previous publications. Trend behavior of esophageal ulcer remained non-conclusive. However, no study could be found for APD or IAPD and neither for esophageal ulcer. Overall behavior of APD frequency especially that of IAPD remained equivocal throughout the study period. In published literature, seasonal variations have been studied mainly for gastric and duodenal ulcers. Operator bias for endoscopic findings and exact time frame of different seasons may be the limiting factors in this study.

5. CONCLUSION
Gastritis is the most frequent and esophagitis is the least common endoscopic findings in dyspeptic patients. No change was apparent in evolution of APD or in IAPD over the study period. In PUD group, gastric and duodenal ulcers showed a decreasing trend. Seasonal increase was apparent in case of duodenal ulcer patients during winter and autumn. Further studies will put more light on the trend and seasonality of acid peptic disease in Pakistan.

6. ACKNOWLEDGMENT
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REFERENCES


