Functional Dyspepsia: The Indian Scenario

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What is Functional Dyspepsia?

The term “dyspepsia” is derived from the Greek language and it literally means “bad digestion.”1 Dyspepsia is a common complaint among individuals seeking medical care as well as in general population.2 Dyspepsia is diagnosed in presence of symptoms thought to originate from the gastro-duodenal region (early satiation, postprandial fullness, epigastric pain or burning). Before undertaking esophagogastroduodenoscopy, patients are categorized as un-investigated dyspepsia (UD).1 If there is no organic cause to explain dyspeptic symptoms on upper gastrointestinal endoscopy, the patient is diagnosed having functional dyspepsia (FD).2

Magnitude of Problems of FD in India: Dyspepsia is a condition of great clinical significance as large proportion of patients visiting gastroenterology clinics all over have dyspepsia.3,4 Prevalence of dyspepsia is about 20-30% worldwide.5 Although most prevalence studies in community report prevalence of UD, it is still reasonable to accept that majority of dyspeptic patients have FD as organic causes are quite uncommon.5 A study from India reported prevalence of dyspepsia to be 30.4%.6 In another multi-centric study from India, primarily targeted to study epidemiology and clinical profile of irritable bowel syndrome (IBS, another functional bowel disorder that may overlap with FD), found frequency of dyspeptic symptoms to be as high as 49% in community.6 In a study from Chandigarh, India, of 2048 individuals, 155 (7.5%) had dyspepsia (defined as intermittent or persistent pain, nausea or discomfort referable to the upper alimentary tract that has been present for 1 month or more and was unrelated to exertion).7 Therefore, from the limited data available, it may be concluded that 7.6 to 49% of Indian population report dyspeptic symptoms. However, in none of these studies, currently accepted criteria such as Rome criteria, were used to diagnose FD.8 Hence, wide variation in reported prevalence of dyspepsia might be related to variation in criteria used for the diagnosis or to true difference in prevalence in different parts of the country.

Pathogenesis of FD with particular reference to Indian perspective

Dyspepsia and H. pylori: It has been shown that gastric H. pylori infection is associated with dyspeptic symptoms. But cause and effect relationship has not yet been established beyond doubt. Seroprevalence of H. pylori is high in developing countries such as India. 80% of Indian adults have antibodies against H. pylori in their sera.9 However, even subjects without dyspeptic symptoms are frequently positive to H. pylori antibody.10 Many randomized controls trials evaluated effect of H. pylori eradication on symptoms of FD.13,20 Most studies, however, showed conflicting results.

A study from Delhi, India, evaluated efficacy of anti-H. pylori treatment on symptoms of FD.21 80 patients (65% H. pylori infected) with FD were randomized to receive H. pylori eradication treatment or placebo and evaluation of dyspeptic symptoms was done at baseline, at one and at three months after therapy. Anti-H. pylori treatment consisted of Amoxycillin 750 mg, Clarithromycin 250 mg and Omeprazole 20 mg twice daily for 7 days. Dyspeptic symptoms score was significantly higher in patients infected with H. pylori compared to those negative. There was significant difference in dyspeptic symptoms score between H. pylori positive and in H. pylori negative subjects after eradication treatment. Dyspeptic symptoms scores improved after anti-H. pylori treatment in patients who were positive for H. pylori (p< 0.001). Therefore, this study is in favour of an etiological role of H. pylori infection in FD.22

In another Indian study, frequency of pathogenic strains of H. pylori among dyspeptic symptoms was evaluated.22 dupA (duodenal ulcer promoting) gene of H. pylori was present in 36/96 (37.5%) in H. pylori strains isolated from duodenal ulcer patients and 16/70 (22.8%) from FD patients (p< 0.05). Also, 35/36 duodenal ulcer patients and 14/16 FD patients were infected with H. pylori cag A bearing genotypes. Therefore, it may be concluded from this study that though frequency of isolation of pathogenic H. pylori was higher among patients with duodenal ulcer, about a fifth patient with FD was also infected with pathogenic strains of H. pylori. The results of this study are however, in contrary to a serological study from Delhi that showed that frequency of Cag A antibody in sera was comparable among patients with non-ulcer dyspepsia (an older terminology for FD) and duodenal ulcer.23

Dyspepsia following gastrointestinal infection: Recently, gastrointestinal infection has been recently recognized as a possible etiological factor in the pathogenesis of FD.24 This subset of FD that develops after an episode of gastrointestinal infection is termed as post-infectious FD. This may suggest that an inflammation-immunological circuit may also play important role in the development of FD.24 Mearin reported a prospective cohort study carried out in a Spanish village, Torroella de Mongri, where an outbreak of acute gastroenteritis occurred.25 The study evaluated the development of dyspepsia at 3, 6 and 12 months following the acute gastroenteritis compared with randomly selected controls. Prior to the acute gastroenteritis outbreak, the prevalence of dyspepsia were similar in cases and controls (2.5% vs 3.8%). Following the episode of acute gastroenteritis, the prevalence of dyspepsia increased significantly compared with unexposed subjects. At 1 year, 14% of the affected persons developed post infectious dyspepsia. The relative risk for development of dyspepsia was 5.2 (95% CI = 2.7 to 9.8). In a study from Pakistan, patients with giardiasis reported dyspeptic symptoms.26

Gastric acid output in FD: The Indian perspective: Hypersecretion of acid and gastric dysmotility has been proposed as important mechanism in pathogenesis of FD.27 Gastrin, a gastrointestinal peptide hormone such as gastrin may play role in causing gastric acid hypersecretion. Fasting gastrin concentration in serum was found to be higher in patients with FD than control subjects.27 H. pylori colonization pattern and density may influence gastric acid output in patients with FD. Whereas antral gastritis leads to increased secretion of gastric acid, pan-gastritis reduces it.28 A study from UK suggested that H. pylori colonization density and peak gastric output in patients with non-ulcer dyspepsia may be inversely correlated.29 Since frequency of H. pylori infection

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Table 1: Treatment received by the patients with dyspepsia

<table>
<thead>
<tr>
<th>Treatment given</th>
<th>No. of dyspepsia subjects</th>
<th>Relief after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antacid</td>
<td>255</td>
<td>140</td>
</tr>
<tr>
<td>Acid suppression therapy</td>
<td>135</td>
<td>126</td>
</tr>
<tr>
<td>Prokinetic drugs</td>
<td>24</td>
<td>14</td>
</tr>
</tbody>
</table>

is high in India, gastric acid secretion may be lower in Indian patients. Lower gastric acid output in Indian than Western subjects might be related to lower parietal cell mass among Indians. Lower gastric acid output among Indian patients may have therapeutic implication as this may suggest that dose of proton pump inhibitor may need to be lower in Indian patients. In fact, a study from China did show that 30-mg daily lansoprazole was not more effective than 15-mg dose. Studies on this issue are needed in Indian population.

Review of Indian literature on FD: A cross-sectional survey evaluating epidemiology of dyspepsia in an urban population of Mumbai city was a major study on dyspepsia from India. A detailed symptom questionnaire that included questions related to dyspeptic symptoms, socio-economic class, diet, addiction, consultation behavior, treatment response, was used. Dyspepsia was defined as upper abdominal fullness and pain present for at least one month. IBS was defined by Manning’s criteria. 2549 subjects (mean age 37.2 years) were surveyed and based on their symptoms, categorized into three groups, no dyspepsia, dyspepsia IBS overlap syndrome and dyspepsia alone. 712 subjects belonged to lower, 1338 subjects to middle and 499 higher socioeconomic classes. Of 2549, 774 (30.4%) subjects had dyspepsia. Prevalence of dyspepsia was similar in men (30.9%) and women (29.7%). Dyspepsia was more prevalent in subjects aged > 40 years (35.1%, p = 0.00003). Most common symptoms included abdominal fullness (n = 614, 24%), abdominal pain (n = 374, 13.6%), heartburn (n = 272, 10.7%) and belching (n = 271, 10.6%). Significant symptoms (present atleast once a week) were present in 306 subjects (12% of the population). Dysmotility, ulcer and reflux type dyspepsia were present in 33.2%, 9.9% and 3.7%, respectively. Mixed type of dyspepsia was present in more than half of the subjects (52%). Frequency of dyspepsia was associated with diet and consumption of spices. Dyspepsia was more prevalent in subjects who abused tobacco (198/449, p < 0.001, RR=1.61) or alcohol (121/249, p<0.001, RR=2.02). 321 subjects with dyspepsia (41.4%) had visited physician for their complaints. 4.5 and 7.2 subjects had undergone endoscopy and ultrasonography, respectively. Subjects with dyspepsia underwent more investigation than IBS (p<0.001). Data on treatment prescribed to these patients and response are summarized in Table 1.

In another prospective, pan-Indian multi-centric study, primarily aimed to evaluate clinical profile of patients with IBS, 1364 of 2785 patients with IBS reported upper abdominal pain or discomfort, which are the cardinal symptom for FD. This study suggested that frequency of overlap between FD and IBS is high Indian population. Such high frequency of overlap has also been reported in other studies from Asia and West. High frequency of dyspepsia IBS overlap in Indian population may have therapeutic implication suggesting need for multiple drugs targeting multiple symptoms in these patients. In fact, recent Asian IBS consensus suggested use of multiple drugs to treat this syndrome in Asia.

Socioeconomic Impact of FD in India: No Indian study is available to show the health related quality of life in relation to FD. Studies from other Asian countries showed that FD is associated with substantial impairment of quality of life, work absenteeism, reduced productivity and use of health care resources with consequent economic burden. Considering high prevalence of FD in Indian population, socio-economic burden of this disease in Indian population is expected to be enormous. Studies are needed on this issue in Indian population.

Conclusion

Limited data available from India suggest that FD is a common condition in Indian population. Frequency of H. pylori infection is high in Indian population with and without FD. There is no study on frequency of FD following other gastrointestinal infection (post-infective dyspepsia) from India though acute gastrointestinal infection is common in Indian population. Socio-economic burden of FD in Indian population, though expected to be enormous, has not yet been studied.

References


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