Sucralfate Versus Ranitidine in Non-Ulcer Dyspepsia: Results of A Prospective, Randomized, Open, Controlled Trial

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Abstract

In an open trial, 100 patients with non-ulcer dyspepsia were randomized to receive either ranitidine 150 mg twice daily (n=47) or sucralfate 1 g four times a day (n=53) for four weeks. An 'intention to treat' analysis revealed that global relief in symptoms was significantly more frequent in the sucralfate group than in the ranitidine group after two weeks (77.4% vs 59.6%; p=0.06) and four weeks (66.8% vs 63.8%; p=0.001) of treatment. It is concluded that sucralfate is superior to ranitidine in providing symptomatic relief in patients with non-ulcer dyspepsia. (Indian J Gastroenterol 1992; 11: 7-8)

Key words: Acid-peptic disease, histamine H₂-receptor blockade, mucoprotective agent.

Introduction

A common cause of dyspepsia is the presence of Helicobacter pylori in the stomach. Various therapeutic measures directed against this organism have been evaluated. However, the role of non-drug therapy remains undefined. Here we report the results of a randomized, double-blind, controlled study comparing sucralfate and ranitidine in the treatment of non-ulcer dyspepsia.

Materials and Methods

One hundred and ten consecutive outpatients with non-ulcer dyspepsia were randomized to receive either ranitidine 150 mg twice a day (Group A: n=47) or sucralfate 1 g four times a day (Group B: n=53) in an open manner (Table)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Ranitidine (Group A: n=47)</th>
<th>Sucralfate (Group B: n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr) Mean ± SD</td>
<td>25.9 ± 11.8</td>
<td>29.8 ± 9.6</td>
</tr>
<tr>
<td>Sex (M/F)</td>
<td>25:22</td>
<td>29:24</td>
</tr>
<tr>
<td>Smokers</td>
<td>5(10.6%)</td>
<td>8(15.1%)</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>2(4.3%)</td>
<td>2(3.8%)</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper abdominal pain</td>
<td>46(97.9%)</td>
<td>50(94.3%)</td>
</tr>
<tr>
<td>Duration of pain (mo)</td>
<td>Mean ± SD 30.2 ± 30.0</td>
<td>36.5 ± 48.7</td>
</tr>
<tr>
<td>Range</td>
<td>1.5-180</td>
<td>1-240</td>
</tr>
<tr>
<td>Nausea, vomiting</td>
<td>10(27.7%)</td>
<td>16(30.2%)</td>
</tr>
<tr>
<td>Abdominal distension</td>
<td>11(29.4%)</td>
<td>11(20.8%)</td>
</tr>
<tr>
<td>Erections</td>
<td>11(29.4%)</td>
<td>11(20.8%)</td>
</tr>
<tr>
<td>Epigastric tenderness</td>
<td>5(10.6%)</td>
<td>8(15.1%)</td>
</tr>
</tbody>
</table>

* All values between groups A and B: NS (p>0.05)

Dyspepsia was defined as any pain, abdominal discomfort or nausea referable to the upper alimentary tract, present intermittently or continuously for at least one month and not precipitated by exertion. Patients with jaundice, dysphagia or bleeding were excluded. NUD was diagnosed after excluding patients with gastro-esophageal reflux by history, irritable bowel syndrome by the Manning's criteria, and peptic ulcer by abdominal ultrasound. Patients having endoscopic evidence of esophagitis, gastritis, duodenitis, peptic ulcer or malignancy and those receiving non-steroidal anti-inflammatory drugs or antibiotics were excluded. Details of smoking habits and alcohol consumption were recorded.

Follow-up was done at 2 and 4 weeks after starting the therapy. At each visit, patients recorded relief of pain, nausea, vomiting and abdominal distension on a visual scale scored to indicate relief as 25%, 50%, 75% and 100%.

Compliance was assessed by residual pill counting. Statistical analysis was done using Student's t test and Mann-Whitney test.
Results
Forty seven patients received ranitidine (group A) and 53 sucralfate (group B). Patients' demographic features were similar in the two groups. Seven patients, one in group A and six in group B, did not report for follow-up and were considered as treatment failures.

After two weeks of therapy, 28 of 47 (59.6%) patients in group A had global relief of symptoms compared to 41 of 53 (77.4%) patients in group B (p<0.05). Similarly, after four weeks a significantly better response was observed in group B than in group A; 46 of 53 (86.8%) versus 30 of 47 (63.8%) respectively (p<0.001).

Discussion
Our study showed that sucralfate was superior to ranitidine (p<0.001) in providing global relief of symptoms in NUD patients. We preferred a ranitidine treated control group to a placebo group, since H2-blockers have been shown to be either comparable or superior to antacids and placebo5,16 in the management of NUD patients.

Sucralfate stimulates gastric mucous and bicarbonate secretion and increases mucosal production of prostaglandins.13 Sucralfate has been shown to prevent morphological and functional changes in the non-ulcerated gastric mucosa such as disruption and exfoliation of surface epithelial cells, prominent mucus release, mucosal hyperemia and edema of the lamina propria. Sucralfate particles not only attach to the epithelial cells but are also taken up by mucosal macrophages. These changes produce a drop in mucosal potential difference and an increase in luminal concentration of prostaglandin E2.15 Between 1 and 3 h of sucralfate administration, the epithelial cells probably release arachidonic acid from cell membrane phospholipids which triggers prostaglandin synthesis by the gastric mucosa.19 This could, by an yet unknown mechanism, provide symptomatic relief in NUD patients.

An Italian multicenter study17 comparing ranitidine and sucralfate in patients with dyspepsia found both to be equally effective in providing symptomatic relief in patients with non-erosive gastritis (77.6% and 79.4% respectively symptom free at the end of 8 weeks) though sucralfate was significantly superior in promoting endoscopic and histological healing and in improving mucosal inflammatory changes. However, in our study, ranitidine was significantly more effective in providing pain relief during the first four weeks of therapy. We did not include patients with erosive gastritis or duodenitis; yet sucralfate was found to be significantly superior to ranitidine in providing symptomatic relief. Perhaps, morphological and functional changes induced by this drug in apparently normal gastric mucosa are responsible for the relief of symptoms.

References