Dysphagia in Adult Japanese Is Not Equivalent to the Grade of Endoscopic Reflux Esophagitis

Kumiko Yoshihara, Kanako Yamaguchi, Tsukasa Kuroki, Tooru Takashima, Norie Inoue, Hiroyuki Sakata, Seiji Tsunada, Ryosuke Shiraishi, Kotaro Mannen, Takehiro Fujise, Masayuki Nakayama, Ryo Shimoda, Ryuichi Iwakiri and Kazuma Fujimoto

Abstract

Objective This study was aimed to evaluate the correlation between dysphagia, detected by nursing staff in a brief interview and endoscopic findings in reflux esophagitis.

Patients and Methods A total of 8,031 Japanese subjects without medication for gastrointestinal disease were briefly asked about the presence of heartburn, dysphagia, odynophagia, and acid regurgitation by nursing staff before endoscopy for assessment of esophagitis utilizing the Los Angeles Classification.

Results The grade of endoscopic esophagitis was not equivalent to symptoms of dysphagia in 8,031 subjects. We evaluated the characteristics of subjects who complained of only dysphagia. Univariate analysis indicated that non-smoking, and non-drinking females were associated with a higher risk for dysphagia, and multivariate analysis indicated the gender was associated with dysphagia. There was no association of dysphagia with herniation and distribution of age.

Conclusion This study indicated that dysphagia was not equivalent to the endoscopic findings according to a brief interview by nursing staff and that dysphagia might be more common in females and those who do not smoke or drink.

Key words: heartburn, odynophagia, acid regurgitation, Los Angeles Classification, nursing stuff

(DOI: 10.2169/internalmedicine.46.0301)

Introduction

Gastro-esophageal acid reflux causes a variety of clinical symptoms, such as heartburn, acid regurgitation, swallowing dysphagia, and retro- sternal pain. These reflux symptoms show a multiplicity of severity, frequency, and occasion; and heartburn and acid regurgitation are typical symptoms of gastro-esophageal reflux disease (GERD) (1). Endoscopic evaluation is a reliable method for evaluation of esophagitis (1) and the Los Angeles Classification is one of the most accepted grading systems of esophageal mucosal break (2, 3). It is widely accepted that such clinical complaints indicate the existence of reflux esophagitis, but there is little evidence whether the clinical symptoms in daily life correspond with the endoscopic features of GERD.

In addition to typical clinical symptoms, GERD shows atypical symptoms including chest pain, asthma, chronic cough, and pharyngitis (1, 4). Ambulatory 24-h esophageal pH monitoring (1, 5) and use of proton pump inhibitors (6-8) might be more useful for the diagnosis of GERD than endoscopic examination. We previously indicated that symptoms of GERD were not always correlated to the endoscopic features of esophagitis (9). This study focused on subjects who complained of only dysphagia without heartburn, odynophagia (chest pain or irritated on swallowing), or acid regurgitation. The symptoms were detected by nursing staff in a brief interview in 8,031 adult Japanese subjects.

1Department of Internal Medicine and Gastrointestinal Endoscopy, Saga Medical School, Saga, 2Nursing Section of Saga Medical School Hospital, Saga and 3Department of Basic Science for Nursing, Saga Medical School, Saga
Received for publication May 8, 2007; Accepted for publication August 20, 2007
Correspondence to Dr. Kazuma Fujimoto, fujimoto@med.saga-u.ac.jp
Materials and Methods

Subjects

Subjects were recruited from 23 hospitals, including the Saga Medical School, in Saga Prefecture (population: 800,000); and were not randomly selected community samples as in the previous study (9). A total of 8,031 Japanese subjects (4,120 men, 3,911 women; over 30 years of age, mean 59.4) were enrolled in this multi-center study from September 1996 to October 1998. Among the 8,031 subjects, 6,166 were outpatients who visited the 23 hospitals but did not receive medication for gastrointestinal disease, and the other 1,865 were mainly picked up from those receiving secondary examinations from a primary gastroenterological mass survey conducted in Saga Prefecture (50,000/year) or subjects who visited the hospitals for a routine physical examination. The study was conducted according to the provisions of the Declaration of Helsinki, and all subjects were informed about the basic concept of the present study and gastrointestinal endoscopy. Subjects were excluded if they had received medication for gastrointestinal disease, or had had laparotomy. Subjects, who had had a major psychotic episode, or had mental retardation or dementia were also excluded.

Symptom assessment

Before endoscopic examination, each subject was interviewed by associated nursing staff who briefly asked the subjects regarding current clinical symptoms including heartburn, dysphagia (swallowing trouble), odynophagia (chest pain or irritated on swallowing), and acid regurgitation. The subjects simply answered “yes” or “no”. Endoscopists were blinded to the interview results before their evaluation of reflux esophagitis.

Upper endoscopic examination

Upper gastrointestinal endoscopic examination for evaluation of reflux esophagitis was performed in this study. Evaluation of esophagitis was accomplished by experienced endoscopists, certified by the Japan Gastroenterological Endoscopy Society (board-certified endoscopist). The endoscopists were directed to grade esophageal mucosal breaks with esophagitis according to the Los Angeles Classification of Esophagitis in 1996 (2). To reduce interobserver variation in the assignment of esophagitis grading, pretesting and several meetings were held before this study was conducted. The criteria for the diagnosis of esophagitis was: grade A, one or more mucosal breaks, each no longer than 5 mm; grade B, at least one mucosal break more than 5 mm long; grade C, at least one mucosal break continuous between the tops of two or more mucosal folds; grade D, circumferential mucosal break. The endoscopists were also required to check for upper gastrointestinal diseases such as gastric and/or duodenal ulcers, polyps, and cancer, but disorders other than esophagitis were not evaluated in this study.

Statistical analysis

In this study, we analyzed the data focused on subjects who complained dysphagia only. Most of the analyses gave rise to contingency tables by the $\chi^2$ test of independence and the Cochran-Mantel-Haenzel method. We used a logistic regression model to compute the odds ratio (OR) and the 95% confidence interval (CI) in multivariate modeling. Age, sex and other symptoms were adjusted to calculate the OR. Two-tailed p values of <0.05 were considered significant. Statistical analyses were performed with SAS statistical package (version 6.08; SAS Inc., Cary, NC).

Results

The overall proportion of esophagitis in the subjects was 14.9% (1,199/8,031), and there was no difference between outpatients (15.0%, 924/6,166) and subjects in for routine physicals + secondary examination from the primary gastroenterological mass survey (14.7%, 275/1,865). The proportion of esophagitis in male subjects was 15.5%, which was not significantly different from that in female subjects (14.3%). The proportions of the grades of reflux esophagitis as evaluated by endoscopy in all 8,031 subjects were as follows (Fig. 1) (9): grade A: 8.9% (n=717), grade B: 4.2% (n=341), and grade C + D: 1.8% (n=141).
dysphagia. As indicated in Table 2, females, non smoking, and non drinking were associated with a higher risk for dysphagia. There was no association of dysphagia with reflux esophagitis, hiatus herniation, body weight, and distribution of age. As indicated in Table 3, univariate analysis indicated these three factors were correlated to symptom of dysphagia. Multivariate analysis indicated that gender was the only factor that correlated to dysphagia (Table 4).

### Discussion

In this study, we evaluated the characteristics of dysphagia, a symptom of GERD, in subjects who had not been given medication for gastrointestinal disease. Although the subjects were not randomly selected from the general population, the proportion of endoscopic esophagitis in all subjects was around 15%, both in males and females, and there was no difference in the proportion between outpatients (15.0%) and subjects for routine physical examination + secondary examination from a primary gastroenterological mass survey (14.7%). This proportion was equivalent to that in Western countries (10), but the percentage of severe esophagitis with grade C or D was -2%, which was not as high as in Western countries (2, 3, 10).

It is well documented that precise and structured questionnaires regarding reflux symptoms are useful for diagnosis of GERD, and that heartburn and acid regurgitation are specific symptoms and are associated with abnormal manometric and pH results (11-16). It is also shown that a brief and simple questionnaire is reliable for noting changes in reflux symptoms (17, 18). We did not use precise questionnaires in this study, because the purpose was to investigate whether or not the subjects suffered from the reflux symptoms in daily life. Instead of using structured questionnaires, the associated nursing staff briefly asked the subjects about heartburn, dysphagia, odynophagia and acid regurgitation before their endoscopic examinations.

The present focused on subjects who complained dysphagia only. Dysphagia is one of the alarm symptoms for stricture of esophagus and malignant diseases in the upper gastrointestinal tract (1, 10). In this study, there was no relationship between dysphagia and critical diseases in the endoscopic examination (data not shown). Dysphagia was detected by nursing staff with a brief question, and subjects answered “yes” or “no”. The analysis indicated that the prevalence of dysphagia was not related to endoscopic
Table 3. Univariate Analysis

<table>
<thead>
<tr>
<th></th>
<th>odd ratio</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males/Females</td>
<td>0.73</td>
<td>0.62-0.87</td>
</tr>
<tr>
<td>Smoking +/-</td>
<td>0.72</td>
<td>0.58-0.88</td>
</tr>
<tr>
<td>Drinking +/-</td>
<td>0.89</td>
<td>0.68-0.98</td>
</tr>
</tbody>
</table>

Table 4. Multivariate Analysis

<table>
<thead>
<tr>
<th></th>
<th>Odd ratio</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males/Females</td>
<td>0.81</td>
<td>0.66-0.90</td>
</tr>
<tr>
<td>Smoking +/-</td>
<td>0.80</td>
<td>0.64-1.01</td>
</tr>
<tr>
<td>Drinking +/-</td>
<td>0.97</td>
<td>0.79-1.18</td>
</tr>
</tbody>
</table>

Ambulatory pH monitoring is useful to confirm diagnosis of GERD, but provocative tests have a limited usefulness in routine clinical diagnosis (1). Clinical symptoms, especially heartburn and acid regurgitation, and endoscopic examination help with diagnosis of GERD, but there are few studies evaluating the relationship in a large subject population. We performed a large number of routine endoscopic examinations in this study, because upper gastrointestinal endoscopy is an examination routinely performed once a year for patients in Japan due to the high prevalence of gastric cancer and squamous cell cancer of the esophagus in this country. Previous reviews in Western countries have suggested that 20-60% of patients with typical symptoms do not have endoscopic esophagitis (19-21), which is compatible to our data indicating that 24.2% of subjects with heartburn had endoscopic esophagitis.

We previously indicated dysphagia with complaints of heartburn was relatively easily treated with proton pump inhibitors, although dysphagia was not easily treated with medication (22, 23). This study revealed that dysphagia detected by nursing staff with a brief interview was not equivalent to endoscopic esophagitis, and it suggested some characteristics of subjects who complain of dysphagia, which might warrant further investigation as a subsequent stage to determine what is essentially an important factor for the detection of dysphagia.

References


© 2007 The Japanese Society of Internal Medicine
http://www.naika.or.jp/imindex.html