

Symptoms of Gastro-Esophageal Reflux Disease: A Comparative Study between Elderly and Younger Patients in Japan

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Abstract

The difference in gastro-esophageal reflux disease (GERD) symptoms between elderly and younger GERD patients has not been fully studied. Our aim was to examine if there was any difference in the degree of GERD symptoms between elderly and younger patients with reflux esophagitis. Patients who were diagnosed by endoscopic examination as having reflux esophagitis and who answered the questionnaire on the frequency scale for the symptoms of GERD (FSSG) were included. Elderly and younger adult patients were defined as patients aged 65 and over or less than 65, respectively. 596 subjects were included. 184 subjects (mean 71.1 years; 114 males) were classified into the Elderly group, and 412 subjects (mean 51.2 years; 307 males) into the Younger group. The mean FSSG score of the Elderly and Younger groups was 6.7 and 8.4, respectively ($p = 0.0024$). Among those with severe esophagitis, the mean FSSG score of the Elderly and Younger groups was 8.5 and 8.7, respectively ($p = 0.58$). Although elderly patients tended to have less degree of GERD symptoms than younger patients, these findings suggest that there may be no significant age-related difference in complaints of GERD symptoms among severe reflux esophagitis patients.

Keywords

Gastro-Esophageal Reflux Disease, Reflux Esophagitis, Los Angeles Classification, Elderly, FSSG Questionnaire

1. Introduction

Gastro-esophageal reflux disease (GERD) is common in the United States and Western countries, and recently

the incidence of GERD has been increasing in Asia [1]. The percentage of the elderly population has been increasing worldwide. Aging causes anatomical and physiological deterioration of the antireflux mechanisms at the gastro-esophageal junction [2]. Elderly adults also tend to have comorbidities such as cardiovascular and cerebrovascular diseases, and many take low-dose aspirin which may disrupt the normal cytoprotective barrier in the mucosa of the esophagus [3]. With the increase in the elderly population, the incidence of GERD is also assumed to be increased [2]-[5].

Afebrile bacteremia and an increase risk of painless myocardial infarction have been reported in geriatric patients [6] [7]. Thus, elderly patients have a tendency to show on-specific or subtle clinical symptoms, thereby possibly delaying an accurate diagnosis, which may worsen the prognosis. It has been reported that elderly patients with GERD tend to perceive heartburn and acid regurgitation less severely than younger patients [2] [8]. Reduced perception of symptoms in elderly patients may increase the incidence of GERD complications such as bleeding or stenosis, because mucosal injury caused by exposure of the esophagus to stomach contents can occur and continue without warning symptoms.

GERD causes various symptoms such as bloating and feeling of fullness after meals besides typical symptoms such as heartburn and acid regurgitation [9]. The difference in perception of various symptoms caused by GERD between elderly and younger GERD patients has not been fully studied thus far. The present study was performed to examine if there is any difference in the perception of various symptoms caused by GERD with erosive esophagitis, namely reflux esophagitis, between elderly and younger patients and if there is any difference in the perception of symptoms between elderly and younger patients depending on the severity of reflux esophagitis.

2. Subjects and Methods

2.1. Inclusion and Exclusion Criteria of the Subjects

This retrospective study included patients who underwent upper endoscopic examination in the department of Gastroenterology, Juntendo University from April 2008 to March 2013, and who were diagnosed by endoscopic examination as having esophagitis of Los Angeles classification (LA) grade A, B, C, or D. In our department, patients who are scheduled to undergo upper endoscopic examination, are routinely asked to fill out a questionnaire on the frequency scale for the symptoms of GERD (*i.e.*, the FSSG) [9] and they filled it out voluntarily. Patients who had filled out the FSSG completely were included in this study. Patients who had taken any proton pump inhibitor, H₂ receptor antagonist, non-steroidal anti-inflammatory drug (NSAID) or aspirin were excluded. Patients who suffered from organic gastroduodenal diseases except reflux esophagitis and who had undergone gastric resection were excluded. The data were extracted from the endoscopic examination-database.

2.2. Definitions of Elderly and Younger Adults and Mild and Severe Esophagitis

Elderly adults were defined as subjects aged 65 years or over, while younger adults were defined as subjects aged 20 years to less than 65 years. Mild esophagitis was defined as LA grade A or B, and severe esophagitis was defined as LA grade C or D.

2.3. FSSG Questionnaire

The FSSG questionnaire is used to evaluate objectively of symptoms in GERD patients. The questionnaire is comprised of the following 12 questions: Do you get heartburn? Do you sometimes subconsciously rub your chest with your hand? Do you get heartburn after meals? Do you have an unusual (e.g., burning) sensation in your throat? Do some foods get stuck in your throat when you swallow? Does bitter liquid (acid) come up into your throat? Do you get heartburn if you bend over? Does your stomach get bloated? Does your stomach ever feel heavy after meals? Do you ever feel sick after meals? Do you feel full while eating meals? Do you burp a lot? The first 7 questions ask about acid reflux-related symptoms (RS), and the latter 5 questions ask about dysmotility symptoms (DS). The patient was asked to rate the frequency of each symptom as follows: never = 0; occasionally = 1; sometimes = 2; often = 3; always = 4. The FSSG score was the sum of the scores of the 12 items. The cutoff score to define the presence of GERD was set at 8 points, showing a sensitivity of 62%, a specificity of 59%, and an accuracy of 60% [9]. The FSSG-RS score was the sum of the scores of the RS items, and the FSSG-DS score was the sum of the scores of the DS items.

2.4. Statistical Analysis

Statistical analysis was performed using chi-square test, and box plots and Mann-Whitney U test. Statistical significance was set at $p < 0.05$. The data were analyzed using Windows-based Microsoft® Office Excel 2010 and Ekuseru-Toukei® 2010 (Social Survey Research Information Co., Ltd.).

3. Results

Five hundred ninety-six patients met the eligibility criteria. One hundred eighty-four subjects (mean age 71.1 years; 114 males) were classified into the Elderly adult group, and 412 subjects (mean age 51.2 years; 307 males) were classified into the Younger adult group. The clinical and endoscopic features of the subjects are summarized in **Table 1**. A significant difference in sex distribution and the presence of GERD was found between the Elderly and Younger adult groups. A non significant difference in the grade of reflux esophagitis was found.

The mean FSSG score of the Elderly adult group was 6.7, whereas the mean FSSG score of the Younger adult group was 8.4. Box plots of the FSSG scores in the Elderly and Younger adult groups are shown in **Figure 1**. The FSSG score was significantly higher in the Younger adult group than in the Elderly adult group ($p = 0.0026$). Further analysis on the basis of gender indicated that there was no difference in the FSSG score between the male and female patients, and in each gender, the FSSG score was significantly higher in the Younger adult group than in the Elderly adult group. Similar results were obtained with regard to the FSSG-DS scores; however, there was no difference in the FSSG-RS score between the Younger and Elderly adult groups (**Figure 2**). When the severity of esophagitis was examined, among those with mild esophagitis, the mean FSSG scores of the Elderly and Younger adult groups were 6.6 and 8.4, respectively, showing a significant difference ($p = 0.0026$). Among those with severe esophagitis, the mean FSSG scores of the Elderly and Younger adult groups were 8.5 and 8.7, respectively (**Figure 3**). There was no difference in the FSSG-RS score between the Younger and Elderly adult groups according to the severity of esophagitis (**Figure 4**). On the other hand, regarding the FSSG-DS score, the score was significantly higher in the Younger adult group than in the Elderly adult group among those with mild esophagitis ($p = 0.00025$), although the score of the Younger adult group was nearly the same as that of the Elderly adult group among those with severe esophagitis (**Figure 5**).

4. Discussion

Elderly adults tended to have less degree of GERD symptoms than younger adults, and this tendency was brought by not a less degree of RS but a less degree of DS among GERD symptoms. Moreover, this tendency was observed only among patients with mild esophagitis.

It has been well known that elderly patients with GERD are less symptomatic than younger patients; however, there were several reports that contradicted this [10] [11]. Collen *et al.* [10] reported that there were no significant differences in severity of reflux symptoms depending upon age. These conflicting results may have been caused by differences in the characteristics of subjects and symptom assessment. The present study included patients who had not taken NSAIDs to exclude the effect of NSAIDs which often cause upper gastrointestinal symptoms [12]. In the evaluation of symptoms, assessment of the severity of symptoms from mild to severe is often done. Assessment of severity may be inappropriate in Japan, because patients with mild GERD symptoms are relatively common in Japan [9]. Accordingly, the FSSG scale which is a questionnaire developed in Japan, was adopted to assess symptoms. The score of each item depended on the frequency of the symptom. GERD causes various symptoms such as bloating and feeling of fullness besides the typical symptoms of heartburn and acid regurgitation. The FSSG scale can evaluate these various symptoms.

Table 1. Clinical and endoscopic features of the subjects recruited (n = 596).

	Elderly adult group (n = 184)	Younger adult group (n = 412)	p
Mean age (range)	71.1 (65 - 88) years	51.2 (19 - 64) years	
Male:Female	114:70	307:105	p = 0.0019
Mild esophagitis:Severe esophagitis	176:8	398:14	p = 0.57
The presence of GERD	53 (28%)	156 (37%)	p = 0.03

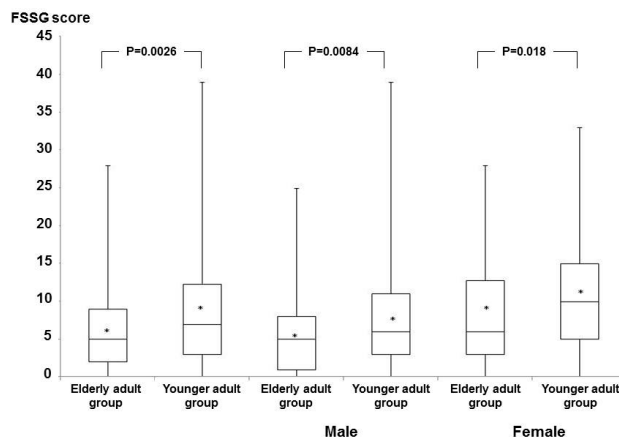


Figure 1. Box plots of the FSSG score in Elderly and Younger adult groups and the FSSG score in male and female patients. * represents the mean FSSG scores.

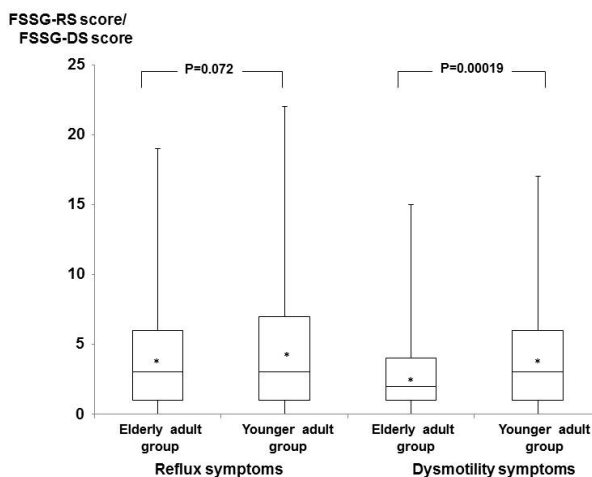


Figure 2. Box plots of the FSSG score of reflux symptoms or dysmotility symptoms in the Elderly and Younger adult groups. * represents the mean FSSG-RS scores or FSSG-DS scores.

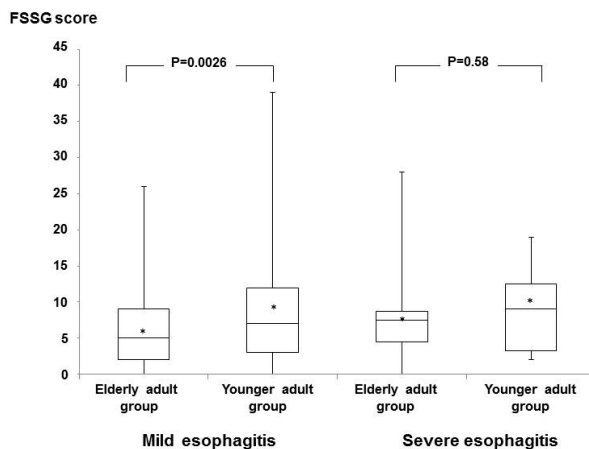


Figure 3. Box plots of the FSSG score according to the severity of esophagitis in the Elderly and Younger adult groups. * represents the mean FSSG scores.

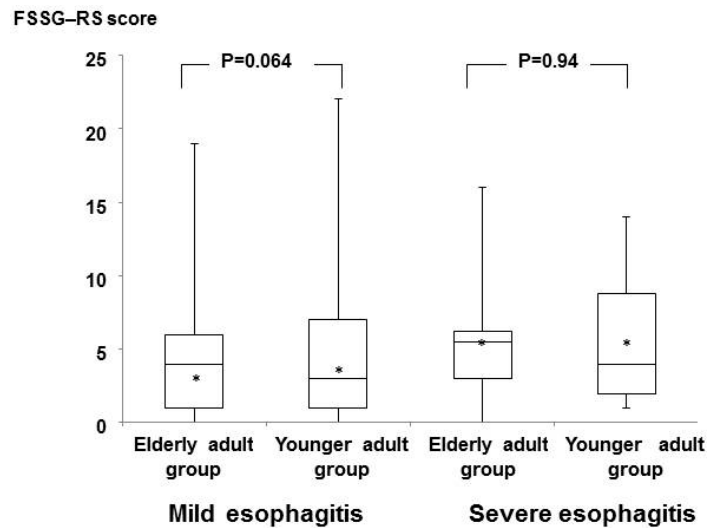


Figure 4. Box plots of the FSSG score of reflux symptoms according to the severity of esophagitis. * represents the mean FSSG-RS scores.

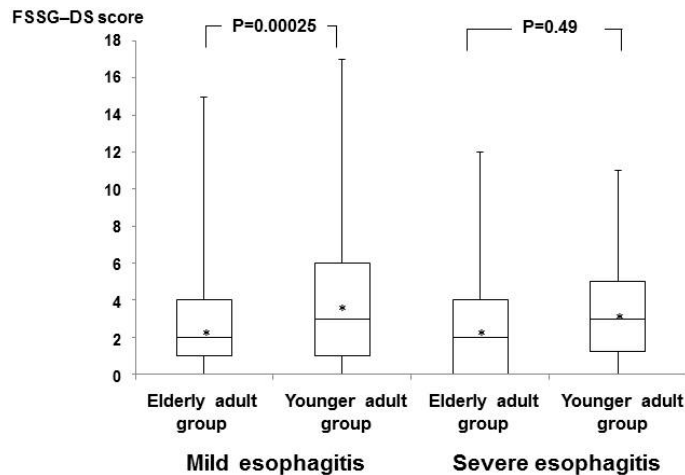


Figure 5. Box plots of the FSSG score of dysmotility symptoms according to the severity of esophagitis. * represents the mean FSSG-DS scores.

5. Conclusion

In conclusion, it was clarified that elderly adults had a tendency to have less degree of GERD symptoms than younger adults. However, GERD symptoms were perceived at similar levels by elderly and younger adults who had severe esophagitis, which often caused GERD with complications such as bleeding or stenosis. This suggests that there may be no significant, age-related differences in complaints of GERD symptoms among adult patients with severe esophagitis.

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