Distributions of Sasang constitutions and six syndromes in patients with functional dyspepsia and healthy subjects

Junghyo Cho, Yochan Ahn, Dongsoo Lee, Changgue Son

Junghyo Cho, Changgue Son, Liver and Immunology Research Center, Daejeon Oriental Hospital of Daejeon University, Daejeon 302-724, Republic of Korea
Yochan Ahn, Department of Health Service Management, Daejeon University, Daejeon 300-716, South Korea
Dongsoo Lee, Department of Internal Medicine, Daejeon St. Mary’s Hospital, The Catholic University of Korea, Daejeon 302-724, Republic of Korea

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Correspondence to: Prof. Changgue Son, Liver and Immunology Research Center, Daejeon Oriental Hospital of Daejeon University, Daejeon 302-724, Republic of Korea. ckson@dju.ac.kr
Telephone: +82-42-229-6723
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Abstract

OBJECTIVE: To investigated the characteristics of patients with functional dyspepsia (FD) in terms of Sasang constitutional medicine.

METHODS: A total of 116 patients with FD were recruited based on diagnosis by gastroscopy and symptomatic measurements. The distributions of Sasang constitutions and six syndromes in terms of TKM theory in the patients was compared with those from 1423 healthy subjects.

RESULTS: The distribution of Sasang constitutions for the patients with FD significantly differed from that for healthy subjects, especially among women; 36.7% vs 45.6% for Taeumin, 28.9% vs 33.9% for Soumin, and 34.4% vs 20.4% for Soyangin. Our results assumed a high prevalence in Soyangin women (around 1.7 folds), and Soumin (45.2%), in particular, had a high prevalence of "deficiency and coldness of spleen and stomach" compared with Taeumin (14.9%) and Soyangin types (15.7%).

CONCLUSION: This study identified a trend for the frequency of FD and the Sasang constitutions. The findings may provide new ideas for the study of prevention and management of FD.

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Key words: Dyspepsia; Sasang constitution; Syndrome differentiation; Medicine, Chinese traditional; Medicine, Korean traditional

INTRODUCTION

Functional dyspepsia (FD) is defined as the presence of dyspeptic symptoms without apparent organic causes that are responsible for the symptoms. The prevalence of FD is high at approximately 11.0%-29.2% worldwide, and FD seriously reduces patients’ quality of life.

However, few effective therapies exist for this disease.

FD is a multifactorial disorder that is associated with various pathophysiological abnormalities such as delayed gastric emptying, hypersensitivity to gastric distension, altered gastrointestinal motility and gastric electrical rhythm, and dysregulation of the autonomic nervous-central nervous system. In addition, genetic predisposition, psychosocial factors, infection from Helicobacter pylori or other organisms, and inflammation are known to be main pathogenetic factors in FD.

Sasang constitution medicine (SCM), a major branch of Traditional Korean Medicine (TKM), stresses the importance of an individual’s hereditary nature in the development of diseases or disorders. SCM classifies people into four groups (Taeyangin, Soyangin, Taeumin, and Soumin) according to the presence of
psychological and physical traits as well as inborn combinations of internal organ function. Several studies have shown susceptibility to diseases in specific constitution types by SCM, such as a high prevalence of ischemic stroke in Taeumin subjects. Accumulated evidence has shown the role of genetics in the susceptibility to FD, whereas no study has been conducted for the relationship between the prevalence of FD and Sasang constitution classification. This study analyzed 116 patients with FD from Korea with respect to Sasang constitutions and the characteristics of the six syndromes in terms of TKM.

METHODS

Subjects
A total of 170 patients (aged 19-70 years) with FD were recruited for this study. The Rome III criteria were used for FD diagnosis, in which patients were free from any significant disease based on endoscopy, physical examination, laboratory (hematological and biochemical) test results, and medical history. A total of 116 patients (26 males and 90 females) were finally enrolled. Informed consent was obtained from each subject, and the Ethics Committee of Daejeon University Hospital approved the study protocol (Authorization number: DJOMC-34-1).

Discrimination of Sasang constitutions
Every patient with FD was classified as one of the four types of Sasang constitutions (Taeumin, Taeyangin, Soyangin, or Soumin). These patients were compared with 1423 Korean adult control subjects (704 healthy males and 719 healthy females) who had been and randomly recruited previously. Both groups of patients with FD and control subjects were classified using the Questionnaire for Sasang Constitution Classification II (QSCC II). The QSCC II was developed in Korea and comprised of 121 items, grouped into psychological dimension (54 items), behavioral dimension (36 items), and physical characteristics dimension (11 items) as well as health and disease dimension (20 items).

Syndrome differentiation
According to the syndrome differentiation in TKM, subjects were diagnosed with one of six syndromes: disharmony of liver and stomach, retention of undigested food, damp-heat in the spleen and stomach, simultaneous occurrence of cold and heat syndromes, deficiency and coldness of the spleen and the stomach, or insufficiency of stomach Yin.

Statistical analysis
Statistical analysis of the data was performed with SAS (SAS Rel.8.02; SAS Institute Inc., Cary, NC, USA). Pearson’s Chi-square test was used to compare the distribution of the Sasang constitutions and the six syndromes in the patients with FD with those of the healthy controls. $P<0.05$ were considered statistically significant.

RESULTS
A total of 116 patients were finally involved in this study. They comprised 26 males and 90 females with a median age of 42.5 years (range, 20-70 years; 43.5 and 22-53 years for males; 42.0 and 20-70 for females). The median height and weight and the mean body mass index (BMI) were 161.0 cm, 58.0 kg, and 23.0±3.0, respectively (Table 1).

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number [n (%)]</td>
<td>116 (100)</td>
<td>26 (22.4)</td>
<td>90 (77.6)</td>
</tr>
<tr>
<td>Median age (years, range)</td>
<td>42.5 (20-70)</td>
<td>43.5 (22-53)</td>
<td>42.0 (20-70)</td>
</tr>
<tr>
<td>Median height (cm, range)</td>
<td>161.0 (149-187)</td>
<td>171.0 (167-187)</td>
<td>158.8 (149-167)</td>
</tr>
<tr>
<td>Median weight (kg, range)</td>
<td>58.0 (46-96)</td>
<td>71.2 (59-96)</td>
<td>55.5 (46-77)</td>
</tr>
<tr>
<td>Mean BMI±SD</td>
<td>23.0±3.0</td>
<td>24.4±2.4</td>
<td>22.6±3.1</td>
</tr>
</tbody>
</table>

Note: BMI: body mass index.
of the six syndromes was significantly different among the three groups according to the Sasang classification ($P<0.05$). Soumin showed the pattern that was most different, compared with the other two Sasang constitutions. For example, syndrome of deficiency and coldness of the spleen and stomach was very high (45.2%), in contrast to 14.9% of Taeumin and 15.7% of Soyangin (Table 3).

**DISCUSSION**

Advancements in genetic science have proved that the inherited genome is a critical factor affecting the complex process of health and disease.\(^\text{14}\) Regarding the development of disease and therapeutic responses, SCM emphasizes inherited characteristics of psychological and physical patterns and the functional imbalance between two internal organs.\(^\text{15}\) Taeyangin individuals are characterized as having excessive lung function and deficient kidney function, while Taeumin show the opposite pattern. Soyangin individuals have excessive spleen function and deficient liver function, while Soumin show the opposite pattern.\(^\text{7}\)

FD is known to result from multiple causes, and genomic or constitution components are closely involved in the disorder.\(^\text{16,17}\) Accordingly, it is thought that each type of Sasang constitutions shows a different susceptibility to FD. In this study, we explored the prevalence and syndromes of FD in relation to the Sasang constitutions.

Among the 116 patients with FD who were voluntarily involved in this study, the female portion comprised 77.6%. FD is generally known to be more frequent in women than in men.\(^\text{18,19}\) Generally, the distribution of the Sasang constitutions in Korea is known to be approximately 46% Taemin, 30% Soyangin, 24% Soumin, and, relatively rarely, Taeyangin.\(^\text{12}\) The distribution of Sasang classifications among the total patients with FD was not statistically different compared with that among the control group ($P>0.05$). Interestingly, Soyangin females (34.4%) were 1.7 folds more frequent among the patients with FD than among the controls (20.4%, $P<0.001$). This result may indicate the high susceptibility to FD in Soyangin females. The difference between males and females may have resulted from the small number of male patients with FD or the sex-dependent gap in FD prevalence, even within the same constitution.

Patients with FD were also classified into one of six syndromes. Syndrome differentiation is a diagnostic method that classically categorizes symptom status into a pattern based on both disease and body aspects in Traditional Chinese Medicine, including TKM.\(^\text{20}\) Disharmony of liver and stomach was the most frequent tendency in the male and female group, and Sasang constitution groups, with the exception of

<p>| Table 2 Distribution of patients with FD according to Sasang constitutions [n (%)] |
|---------------------------------|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>Subject</th>
<th>Taeumin</th>
<th>Soumin</th>
<th>Soyangin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with FD</td>
<td>Total: 116 (100.0)</td>
<td>47 (40.5)</td>
<td>31 (26.7)</td>
</tr>
<tr>
<td>Male: 26 (22.4)</td>
<td>14 (53.8)</td>
<td>5 (19.2)</td>
<td>7 (26.9)</td>
</tr>
<tr>
<td>Female: 90 (77.6)(^a)</td>
<td>33 (36.7)</td>
<td>26 (28.9)</td>
<td>31 (34.4)</td>
</tr>
<tr>
<td>Healthy subjects</td>
<td>Total: 1423 (100.0)</td>
<td>667 (46.9)</td>
<td>342 (24.0)</td>
</tr>
<tr>
<td>Male: 704 (49.5)</td>
<td>339 (48.2)</td>
<td>98 (13.9)</td>
<td>267 (37.9)</td>
</tr>
<tr>
<td>Female: 719 (50.5)</td>
<td>328 (45.6)</td>
<td>244 (33.9)</td>
<td>147 (20.4)</td>
</tr>
</tbody>
</table>

Notes: FD: functional dyspepsia. \(^{a}P<0.010,\) Pearson’s Chi-square test was used to compare the distributions of patients with FD and healthy subjects according to the Sasang constitutions.

<p>| Table 3 Distribution of patients with FD according to syndromes [n (%)] |
|---------------------------------|-----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>Subject</th>
<th>Disharmony of liver and stomach</th>
<th>Retention of undigested food</th>
<th>Damp-heat in the spleen and stomach</th>
<th>Simultaneous occurrence of cold and heat syndromes</th>
<th>Deficiency and coldness of the spleen and stomach</th>
<th>Insufficiency of stomach Yin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total: 116 (100)</td>
<td>42 (36.2)</td>
<td>12 (10.4)</td>
<td>13 (11.2)</td>
<td>16 (13.8)</td>
<td>27 (23.3)</td>
<td>6 (5.2)</td>
</tr>
<tr>
<td>Male: 26 (22.4)(^c)</td>
<td>8 (30.8)</td>
<td>6 (23.1)</td>
<td>7 (26.8)</td>
<td>2 (7.7)</td>
<td>1 (3.9)</td>
<td>2 (7.7)</td>
</tr>
<tr>
<td>Female: 90 (77.6)</td>
<td>34 (37.8)</td>
<td>6 (6.7)</td>
<td>6 (6.7)</td>
<td>14 (15.5)</td>
<td>26 (28.9)</td>
<td>4 (4.4)</td>
</tr>
<tr>
<td>Taeumin:47 (40.5)(^c)</td>
<td>18 (38.3)</td>
<td>5 (10.6)</td>
<td>8 (17.0)</td>
<td>7 (14.9)</td>
<td>7 (14.9)</td>
<td>2 (4.3)</td>
</tr>
<tr>
<td>Soumin: 31 (26.7)</td>
<td>9 (29.0)</td>
<td>5 (16.1)</td>
<td>0 (0.0)</td>
<td>1 (3.2)</td>
<td>14 (45.2)</td>
<td>2 (6.5)</td>
</tr>
<tr>
<td>Soyangin: 38 (32.8)</td>
<td>15 (39.4)</td>
<td>2 (5.3)</td>
<td>5 (13.2)</td>
<td>8 (21.1)</td>
<td>6 (15.7)</td>
<td>2 (5.3)</td>
</tr>
</tbody>
</table>

Notes: FD: functional dyspepsia. Pearson’s Chi-square test was used to compare the distributions of syndromes in patients with FD according to sex ($^{c}P=0.010$) and Sasang constitutions ($^{c}P=0.025$).
Soumin. This pattern of syndrome is a very commonly shown in patients with FD, and this status can be improved by herbal medicines or acupuncture treatment.27 Patients with a Soumin constitution showed the most frequent rate of deficiency and coldness of the spleen and stomach, and the physical characteristic of deficiency and the coldness pattern of Soumin is well known in SCM.22 Sasang constitutions may reflect macro-level genetic distinctions among patients, while syndromes represent individual phenotype of body-disorder characteristics.23 Our study showed that the quantitative distribution of syndromes in patients with FD was significantly different according to the Sasang constitution classification (P<0.05). Patients with FD have reduced quality of life and impaired vitality. In addition, they are often troubled by heavy economic burdens due to the extensive medical care required and inability to work.24 However, no gold standard for therapeutics exist because of the heterogeneity of the pathophysiology of FD. Therefore alternative treatments are an important choice alongside conventional treatment.25 The present study first reports a characteristic of patients with FD in terms of both Sasang constitutions and syndrome differentiation. Although our study has limitations such as the relatively small sample size and the single site, the findings would be a reference for other studies. In conclusion, our results provide possible evidence showing association between Sasang constitutions and the six syndromes in patients with FD. Further studies in larger populations are necessary to verify the findings.

REFERENCES


