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REGULAR ARTICLE

Psyllium seed may be effective in the treatment of gastroesophageal reflux disease (GERD) in patients with functional constipation



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Abstract GERD, return of stomach contents into the esophagus, is one of the most common gastrointestinal disorders in medicine. Its common symptoms are heartburn and acid reflux. Usually, patients with GERD history develop clinical signs such as heartburn accompanied by functional constipation. Omeprazole, a proton pump inhibitor (PPIs), is a drug of choice for GERD but all patients do not respond to the drug and long-term use of these drugs leads to infections. According to the same physiopathology mechanisms of chronic constipation and GERD, improvement of functional constipation may be effective in relieving symptoms of GERD. According to the effectiveness of psyllium seeds in chronic constipation symptoms, it is predicted to be effective in treating GERD in patients with chronic constipation.

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Introduction

Gastroesophageal reflux disease (GERD) and common treatment

Gastroesophageal reflux disease (GERD) is one of the most common diseases of the gastrointestinal system. 7% of the

population experiences the disease at least once a day and 44% at least once a month. Its prevalence is increasing in East Asia and especially in Iran. GERD is defined with the return of stomach contents into the esophagus which leads to mucosal damage [1]. Its common symptoms are heartburn and regurgitation [2]. Erosive lesions can lead to ulcers, bleeding and esophagus carcinoma [3,4]. However, many people experience

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asymptomatic reflux. The non-specific symptoms such as angina and respiratory symptoms are present in some patients [5,6]. Due to the increasing incidence of esophageal cancer in Iran in comparison with Western societies, treatment and prevention of its complications have a significant role in reducing patient's morbidity and mortality. In many cases, GERD does not respond well to treatment and is associated with relapses.

Omeprazole is a proton pump inhibitor (PPIs) which is prescribed in different diseases such as GERD, peptic ulcers and dyspepsia. It is widely used worldwide and is also available over the counter in many pharmacies. The main action of this group of drugs (PPIs) is reducing gastric acid production. PPIs are the most potent inhibitors of acid secretion. Omeprazole side effects include headaches, dizziness, cough, diarrhea, nausea, vomiting and constipation. Sometimes neuromuscular, skeletal and dermatologic problems were reported when omeprazole was used. Omeprazole interferes with the absorption of vitamin B₁₂ and iron, so supplement therapies are needed [7–11].

Numbers of these patients also suffered from functional dyspepsia, irritable bowel syndrome (IBS) and chronic constipation [12]. Accompaniment of GERD in patients with functional dyspepsia is known. Some of these patients are resistant to treatment with PPIs and despite of proper treatments, they will experience relapses. In these patients, treatment of bowel symptoms is very effective in the treatment of GERD. This connection is abundantly shown in patients with IBS [13,14]. However, follow-up and treatment of GERD in patients with functional chronic constipation has not been carefully studied [15]. The purpose of this study is introduction of the most effective treatment of GERD in patients with chronic constipation which prevents its recurrences.

The hypothesis

Chronic constipation which is a result of a reduction in bowel motility due to a lack of coordination between nerves and muscles is one of motility disorders of the digestive system. Chronic constipation overlaps a large group of diseases, including functional dyspepsia, IBS and GERD [16]. 29% of patients with functional dyspepsia and 29% of patients with GERD suffer from chronic constipation [17]. This fact shows the relationship between these motility disorders. According to the same physiopathology mechanisms of chronic constipation and GERD, improvement of intestinal motility disorder may be effective in relieving symptoms of GERD. It means that GERD is an extra intestinal symptom of constipation [18]. Other extra intestinal symptoms of constipation such as headache and depression necessitate the treatment of constipation [19,20]. Nowadays most centers are commonly used PPIs such as omeprazole in the treatment of GERD. However, about one-third of patients do not respond to PPIs. On the other hand, long-term use of these drugs can lead to infections (bacteria growth in the small intestine), malnutrition, decreased bone minerals and decreased absorption of some drugs such as clopidogrel [21]. It is better to use active materials which improve the symptoms of constipation in the treatment of GERD.

Plantago plant, belonging to the plantaginaceae family, has about 250 species. Plantago psyllium is one of the most species [22]. This plant is distributed in North, North East, West and

South regions of Iran [23]. Psyllium seeds have been used in Iranian traditional medicine for many years. They are administered in the treatment of constipation, diarrhea, IBS and colon cancer. It can also control the treatment of diabetes, high cholesterol and obesity. This plant is classified as bulk-forming laxative. It means mucilage of psyllium seeds in the presence of water swells and forms a gel layer. Mucilage of this plant increases the peristaltic movements which higher level of stool moisture and ultimately affect the volume and frequency of defecation [24,25].

Due to the effectiveness of psyllium seeds in chronic constipation symptoms, it is expected to be effective in treating GERD in patients with chronic constipation. According to the reports, this method of treatment has not been studied.

Evaluation of the hypothesis and experimental data

In this clinical trial study, Patients with GERD history of 3 years who develop clinical signs such as heartburn and regurgitation accompanied by functional constipation will be studied. After doing upper endoscopy, esophagitis in patients will be graded into A, B, C and D according to Los Angeles classification. Patients included in this study should have no history of GI cancers, IBS, endocrine, psychotic, cardiac, liver and kidney diseases. Also they should not consume the drugs which caused constipation. The patients are randomly divided into 2 groups using the computerized methods. In the first group, omeprazole capsules twice a day, half an hour before breakfast and dinner, will be prescribed. The second group will be given psyllium solved in hot tap water one hour before breakfast and dinner to induce bowel movements and complete sense of defecation. Then GERD clinical symptoms and relapses in these patients based on SPSS software will be evaluated. This method can be used to treat the disease and possibly prevent its relapses.

Discussion

GERD, return of stomach contents into the esophagus, is one of the most common gastrointestinal disorders in medicine [26]. According to epidemiological studies conducted in the context of GERD, its prevalence in Asian countries is less than Western countries [27]. Approximately 10% of Americans experience heartburn once a day [21]. Epidemiological studies also report the high prevalence of the disease in our country [28]. Gastroesophageal reflux is originated from different physiological defects but in general, three main factors which play roles in beginning of the disease including, (1) transient relaxation of lower esophageal sphincter, (2) reduced pressure on the lower esophageal sphincter and (3) anatomic defects [21]. GERD signs and symptoms are consisting of heart burn, dysphagia, chest pain, acid reflux and dry cough [3,4]. Aging is one of the most important risk factors which increase the risk of GERD incidence. It is possibly due to relaxation of lower esophageal sphincter in adults [29–31]. Some studies introduced obesity as the other major risk factors and smoking as an independent risk factor of reflux [32–34]. Usually the drugs used in the treatment of GERD reduce or neutralize stomach acid. H₂ receptor antagonists such as cimetidine, ranitidine and famotidine are prescribed in mild to moderate GERD. In severe cases or patients with erosive esophagitis or

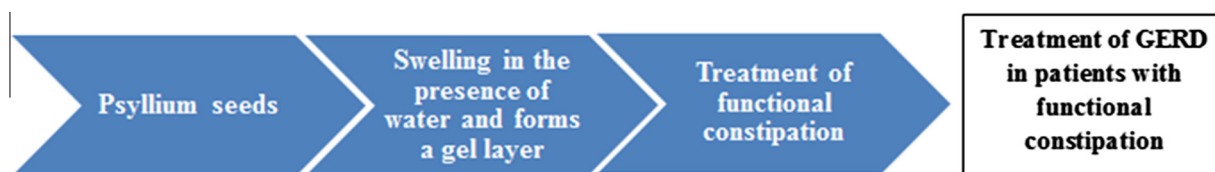


Figure 1 Psyllium seed may be effective in the treatment of GERD in patients with functional constipation.

esophageal ulcers, proton pump inhibitors (PPIs) including omeprazole, lansoprazole are used. These medications are not always satisfactory. Almost 30% of people with GERD do not respond to PPIs [21].

Usually GERD happens with other gastrointestinal motility disorders such as functional constipation. Probably, treatment of functional constipation can be effective in the treatment of GERD and prevents its recurrences (Fig. 1). Treatment of constipation may even remove the resistance of GERD to common drugs. Functional constipation symptoms based on international standards including, (a) the number of defecations less than 3 times a week, (b) Hard stool in at least 25% of defecations, (c) Sensation of incomplete defecations in at least 25% of defecations, (d) Pushing at defecation in at least 25% of defecations. At least, 2 symptoms for at least 3 months are indicative of the occurrence of functional constipation [16]. Psyllium seeds are very effective in motility disorders as treating constipation. The seeds are swollen in the presence of water and are known as effective laxatives. Therefore, it is predicted that use of psyllium seeds might be a new therapeutic strategy for GERD patients with functional constipation.

Conclusion

According to the laxative property of psyllium seeds in the treatment of functional constipation, it might be a drug of choice in relieving GERD which might also reduce its recurrences. Further clinical trial will be carried out to prove this hypothesis.

Conflict of interest

The authors declare that they have no conflict of interest.

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