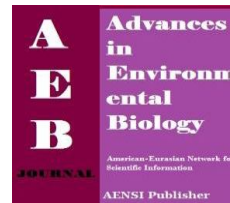




AENSI Journals

Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/aeb.html>

Comparison Between used Herbs for Treatment of Gastroesophageal Reflux Disease [GERD] in Iranian Traditional of Medicine [ITM]

¹Mahdi Borhani, ¹Fariba Khoshzaban, ¹Behzad Jodeiri, ¹Mohsen Naseri, ¹Mohammad Kamlinejad, ²Soghra Faghizade

¹Department of Iranian Traditional of Medicine, Faculty of medicine, Shahed University, Tehran, Iran

¹Department of Internal medicine, Faculty of medicine, Shahed University, Tehran, Iran

¹Iranian Traditional of Medicine research center, Shahed University, Tehran, Iran

¹Department of pharmacognosy, School of Pharmacy Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Faculty of medicine, Tarbiat modarres university, Tehran, Iran

ARTICLE INFO

Article history:

Received 10 April 2014

Received in revised form 17 May 2014

2014

Accepted 20 May 2014

Available online 10 June 2014

Key words:

Iranian Traditional of Medicine [ITM], Gastroesophageal reflux disease [GERD], herbs

ABSTRACT

Objectives: This paper is a collection of plant samples that have been used traditionally in treatment, as it has been mentioned in Iranian old references books. This article contains gastroesophageal reflux disease [GERD] causes in Conventional medicine and a similar disease in Iranian Traditional of Medicine [ITM]. In this paper the most frequent materials for GERD three main etiological factors treatments is grouped. **Methods:** These drugs are scored based on their effects on gastric clearance of wet materials such as mucus [serous or Phlegm], which is according to avicenna is the most stomach dis-temperament. For this search studied 7 old references books **Results:** According to the reflux causes in ITM and Properties listed for medicines in books that can improve the grounds, 70 drug detected and are grouped. It is strongly significant pay attention to ITM therapeutics and herbs instead of GERD treatment in Conventional medicine. **Conclusion:** According to this study, the highest rating among the drugs commonly used in ITM for the treatment of gastric clearance of wet materials was awarded to pistacia atlantica.

© 2014 AENSI Publisher All rights reserved.

To Cite This Article: Mahdi Borhani, Fariba Khoshzaban, Behzad Jodeiri, Mohsen Naseri, Mohammad Kamlinejad, Soghra Faghizade., Comparison Between used Herbs for Treatment of Gastroesophageal Reflux Disease [GERD] in Iranian Traditional of Medicine [ITM]. *Adv. Environ. Biol.*, 8(10), 773-781, 2014

INTRODUCTION

Gastroesophageal reflux disease [GERD] has increased in Europe and the United States over the past decades [1].

GERD symptoms are the most common gastrointestinal symptoms in those regions [2], with prevalence rates of 10-25% reported from population-based studies [3,4].

Several population-based studies from Iran, in West Asia, have reported prevalence rates similar to those in Western countries [5, 6, 7]. The incidence of GERD is increasing in Iran [8], and currently it is the most common outpatient gastrointestinal disease encountered there [9].

Carminative is a herb or preparation that either prevents formation of gas in the gastrointestinal tract or facilitates the expulsion of gas, thereby combating flatulence. Carminatives have been shown to decrease lower esophageal pressure, which on the other hand increases the risk of GERD or 'heartburn'. They are volatile oils usually of vegetable extraction and their names have an old-world ring: cardamon, dill, ginger, peppermint, cinnamon, and cloves [10].

GERD effect on man health & life quality in all parts of the world [11-12].

To control and treatment of GERD and its complications mainly depend on the drugs and fonduplication, that have a range of side effect [13-14].

A brief review on the etiology of heartburn in Conventional medicine:

GERD is defined as the abnormal reflux of gastric contents into the esophagus at least once a week, leading to symptoms such as heartburn and acid regurgitation and damage to the esophageal mucosa [15].

Heartburn is characterized by pain or burning discomfort in the upper part of abdomen and occasionally is radiated behind the sternum. The feeling may be accompanied by symptoms such as increased salivation and

Corresponding Author: Fariba Khoshzaban, Department of Iranian Traditional of Medicine, Faculty of medicine, Shahed University, Tehran, Iran,
E-mail: fkhosh_93@yahoo.com

regurgitation of sour fluid. Symptoms usually become worse with certain foods and changes in body position [۲۳].

Other unusual accompanied symptoms, such as nausea and vomiting, severe heartburn, chest pain, choking sensation, chronic cough, wheezing and hoarseness may be caused by reflux [۲۴].

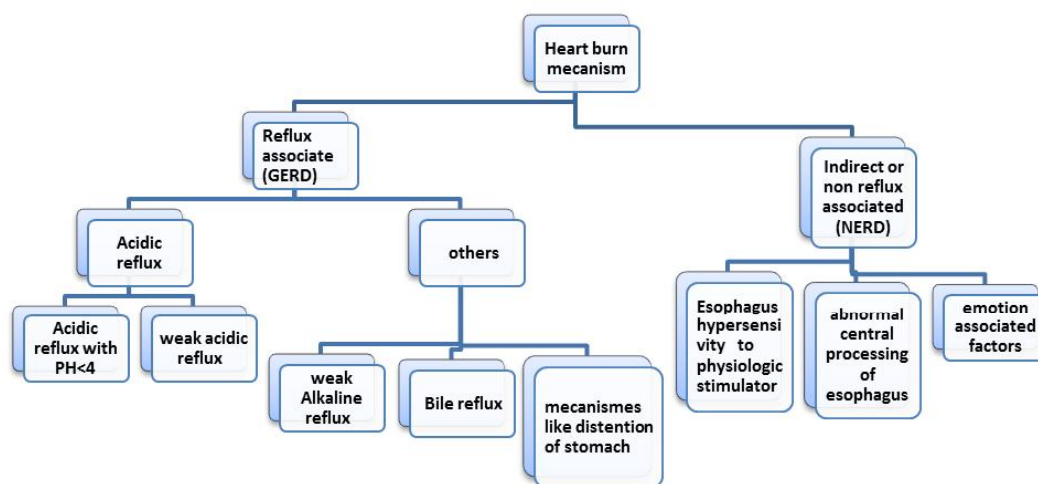


Fig. ۱: The etiologic factors of FHB according to conventional medicine.

Etiology of heartburn in Iranian Traditional of Medicine [ITM]:

Heartburn in ITM has been more frequently reported as stomach burn [HORGHATOLMEDE] and has three main etiological factors [۲۵,۲۷].

A) The first risk factor is indigestion that it is created by eating concentrated food [thick foods] in weak stomach and amended with lifestyle and respected nutritional laws and its drugs named tonic [۲۵,۲۷].

B)The latter is due to the raw moisture in the upper part of the stomach that named phelegmatic dis-temperment and according to avicenna is the most stomach distemperament.[۲۸, ۲۹] Phlegmatic coctive [MONZEJ] are effective for these patients [۲۹].

C) The third category is excessive inset of melancholic humor from spleen to the upper part of stomach that named melancholic dis-temperment [۲۶,۲۸] , which moisturizers are main treatment for these patients [۲۵, ۲۶, ۲۹].

Approach to heartburn symptoms in ITM is shown in Figure ۲.

Methods:

Drugs that are effective in cleansing the stomach of the materials should have these properties: [۳۰].

(۱) Attenuant drug is a drug which, through its moderate heat, greatly attenuates the humour e.g. hyssop, wild thyme and chamomile.

(۲) Dissolving drug is a drug which, by the intensity of its heat, is capable of dispersing the humour by gradually evaporating and dislodging it after a continuous struggle till it eliminates, through its energy, whatever humour is left .e.g. castoreum.

(۳) Detergent drug is a drug which is capable of moving viscous and congealed fluids from the pores of the surface of an organ for their removal e.g. honey water. It may be noted that every detergent drug may serve as a laxative though there is no purgative power in it and naturally every bitter drug is detergent.

(۴) Abluent drug is a drug which serves as a detergent not by its active but passive power which is helped by motion. The passive power here means the passive fluid power and 'motion' means flow. When a rarefied flowing substance flows over the pores of the veins, it removes the superfluous matter with its moisture and flow, such as barley water and the pure water.

(۵) coctive drug is a drug which maturates the humour because of its moderate calorific and astirngent properties which retain the humour till it is ripe and do not dissolve it rapidly. It separates its fluidity from its dryness. The process is called the oxidization of blood.

(۶) Absorbent drug is a drug which, due to its tenuity and heat, stirs the fluids as soon as it comes across them at a place ... e.g. castoreum. A strong absorbing drug which absorbs [matter] from the depth, is very useful in sciatica. Its application in the form of plaster [after purification] is useful in chronic rheumatism. Such a drug helps extrusion and expulsion of thorns and spines.

(۷) Desiccant drug is a drug which destroys fluids through its quality of dissolving and rarefying.

- (۸) Purgative drugs are well-known.
- (۹) Cathartic means strongly laxative in effect.
- (۱۰) Tonic is a drug which moderates the disposition and temperament of an organ to an extent so that it resists the superfluous matter and disorders moving towards it. This action is elicited either by its inherent property, e.g. sealing clay and theriaca or by its moderate temperament which cools what is warm and warms what is cold. Galen explained the action of rose oil on these lines [۳۱].

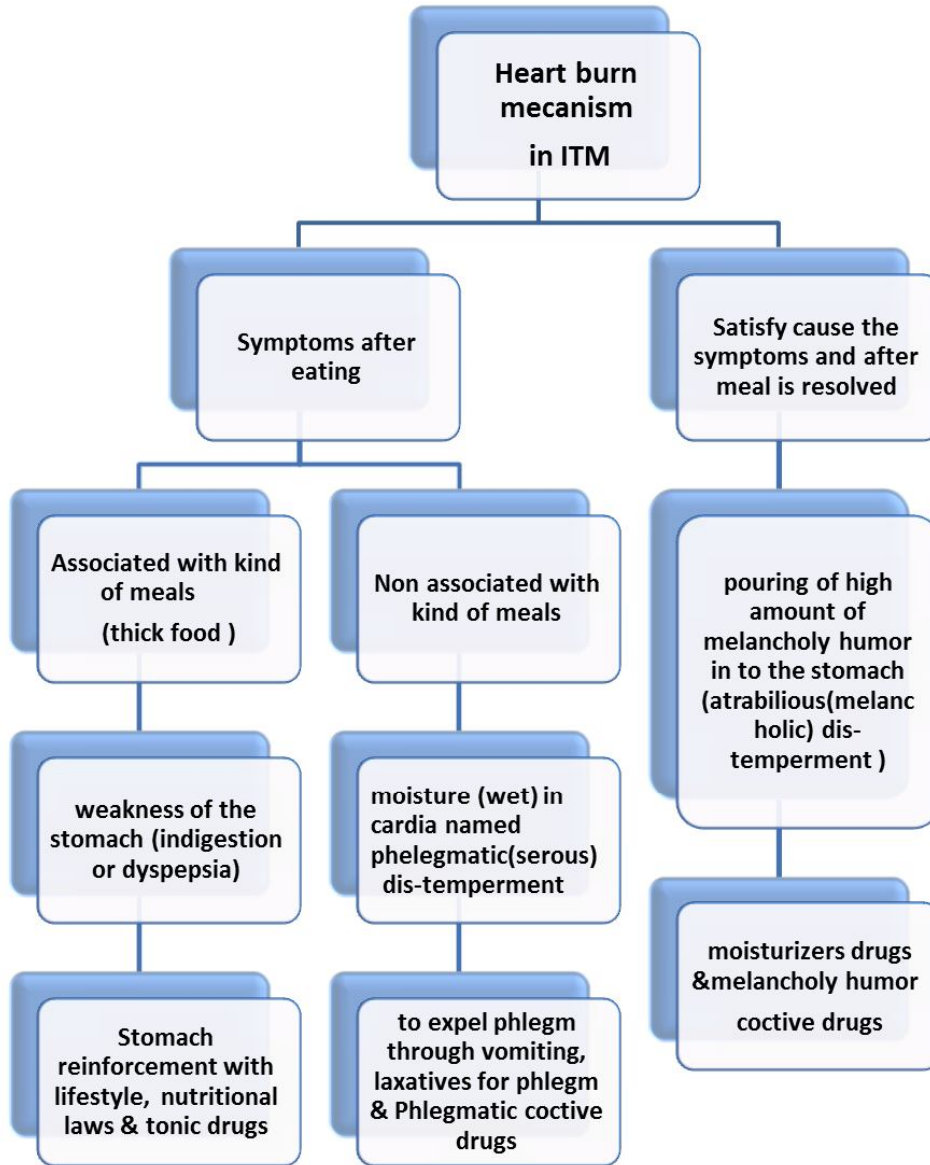


Fig ۳: Algorithm of heartburn [HORGHATOLMEDE] in TIM.

The studied books are:

- Canon medicina [alghanoon fi teb] from fifth Century [۲۹].
- Tohfah ol moamenin from tenth Century [۳۲].
- Makhzan-ol-adviyeh from twelve Century [۳۳].
- Al-jamea le-mofrdt al-adviyeh va al-aghziyeh from seventh Century [۳۴].
- Alhavi Fi teb from third Century [۳۵].
- Al-shamel fi senaate tebbieh from fourth Century [۳۶].

The present table reviews ۶۰ materials, which are commonly used in the ITM and have demonstrated experimental and clinical effective on GERD causes.

In this table:

- ۱) The specificity of the drug for the stomach or gastroesophageal humidity enema has a positive rating

۱] The drugs according to the above-mentioned actions [Ten properties] have a positive rating.

۲] If the drug is harmful, it is considered a negative score.

۳] If the drug should be used with other materials, it is considered a negative score.[۳۷,۳۸]

Results:

According to the above conditions the following results are obtained and the following table is based on the scores obtained by each of the drugs.

NO	Drug	Delegant+1	Absorbent+1	Abluent+1	Desiccant+1	Dissolving+1	Cathartic+1	Tonic+1	Attenuant+1	Purgative+1	Cochive+1	Harmful to other organs or need to other drugs-1	Negative no.	Dedicated to the stomach+1	Total score
۱.	Boswellia Carterii	+۱			+۱						+۱	Need to sugar	-۱		۲
۲.	Carum Carvi	+۱			+۱						+۱	Harmful to lung	-۱	Desorption of stomach moisture	۳
۳.	Allium Sativum	+۱			+۱	+۱						Is very harmful	-۱		۲
۴.	Papaver Somniferum											Harmful to lung	-۱	Desorption of stomach moisture	۰
۵.	Pyrus Malus							+۱						Strengthening the cardia	۲
۶.	Piper Betle													Strengthening the cardia	۱
۷.	Fumaria Parviflora							+۱				Harmful to lung	-۱		۰
۸.	Areca Catechu							+۱				Renal stone Created	-۱		۰
۹.	Rheum Palmatum	+۱			+۱						+۱				۳
۱۰.	Phoenix Dactylifera							+۱						Desorption of stomach moisture	۲
۱۱.	Elletaria Cardamomum	+۱				+۱		+۱	+۱					Desorption of stomach moisture	۵
۱۲.	Eugenia Caryophyllata							+۱				Harmful to kidney	-۱	Useful in stomach disease	۱
۱۳.	Acacia Arabica				+۱			+۱							۲
۱۴.	Pistacia Vera													Strengthening the cardia	۱

NO	Drug	Detergent+1	Absorbent+1	Abluent+1	Desiccant+1	Dissolving+1	Cathartic+1	Tonic+1	Attenuant+1	Purgative+1	Cochive+1	Harmful to other organs or need to other drugs-1	Negative no.	Dedicated to the stomach+1	Total score
۱۵.	Paeonia Officinalis	+۱			+۱	+۱		+۱	+۱						۲
۱۶.	Mentha Pulegium								+۱			Harmful to intestine	-۱		۰
۱۷.	Piper Nigrum	+۱	+۱			+۱		+۱							۴
۱۸.	Honey	+۱						+۱						Fragmentation of mucus	۳
۱۹.	Rubus Fruticosus				+۱			+۱				Harmful to kidney	-۱		۰
۲۰.	Aloexylon Agallocha							+۱	+۱					Resolving stomach atony	۳
۲۱.	Fish							+۱				Harmful to cold stomach	-۱		۰
۲۲.	Iris Florentina							+۱						Strengthening the cardia	۲
۲۳.	Ruta Graveolens							+۱							۱
۲۴.	Lycium Afrum					+۱		+۱				Harmful to spleen	-۱		۱
۲۵.	Zizyphus Spina-Christi							+۱				Harmful to brain	-۱		۰
۲۶.	Carum Copticum				+۱	+۱				+۱					۳
۲۷.	Commiphora Myrrha	+۱												Desorption of stomach moisture	۲
۲۸.	Mentha Piperita							+۱				Need to other drug	-۱	Strengthening the cardia	۱
۲۹.	Teucrium Montanum							+۱						Desorption of stomach moisture	۲
۳۰.	Asperugo Procumbens							+۱	+۱						۲
۳۱.	Styrax Officinalis										+۱	headache	-۱	Resolving stomach atony	۱

NO	Drug	Detergent+1	Absorbent+1	Abluent+1	Desiccant+1	Dissolving+1	Cathartic+1	Tonic+1	Attenuant+1	Purgative+1	Cochive+1	Harmful to other organs or need to other drugs+1	Negative no.	Dedicated to the stomach+1	Total score
۳۷.	Myrtus Communis		+			+	+								۳
۳۸.	Pyrus Communis	+						+		+		Harmful to weak stomach	-		۲
۳۹.	Pyrus Communis							+							۱
۴۰.	Pistacia Lentiscus	+				+		+	+					Resolving stomach atony	۵
۴۱.	Inula Helenium					+		+							۲
۴۲.	Coriandrum Sativum					+		+							۱
۴۳.	Levisticum Officinale							+			+	Harmful to urinary bladder	-		۱
۴۴.	Cuscuta Monogyna							+				Harmful to lung	-		۰
۴۵.	Myristica Fragrans				+	+		+				Harmful to liver	-		۲
۴۶.	Cinnamomum Zeylanicum							+	+			Harmful to urinary bladder	-		۱
۴۷.	Fagonia Arabica						+	+				Harmful to lung	-		۱
۴۸.	Pistacia Atlantica	+				+		+	+	+	+			Strengthening the stomach	۷
۴۹.	Penaea Mucronata		+		+	+				+		D.C. with eating gram	-	Desorption of stomach moisture	۴
۵۰.	Seidlitzia Rosmarinus					+		+		+		Harmful to intestine	-		۲
۵۱.	Dorema Ammoniacum	+	+		+	+	+			+		Harmful to cold stomach	-		۵
۵۲.	Rhus Coriaria							+				Harmful to cold stomach	-		۰
۵۳.	Commiphora Opobalsamum				+			+				Harmful to urinary bladder	-		۱

NO	Drug	Detergent+1	Absorbent+1	Abluent+1	Desiccant+1	Dissolving+1	Cathartic+1	Tonic+1	Attenuant+1	Purgative+1	Cochive+1	Harmful to other organs or lead to other drugs+1	Negative no.	Dedicated to the stomach+1	Total score
۴۹.	Myristica Fragrans						+۱	+۱				Harmful to liver&lung	-۱	Strengthening the cardia	۲
۵۰.	Soil											Creat distemperament	-۱	Strengthening the cardia	۰
۵۱.	Terminalia Chebula						+۱	+۱				Harmful to brain	-۱		۱
۵۲.	Scilla Maritima							+۱				Harmful to nerve	-۱		۰
۵۳.	Andropogon Schoenanthus					+۱		+۱			+۱	Harmful to kidney	-۱	Strengthening the cardia	۲
۵۴.	Phyllanthus Emblica				+۱			+۱				Harmful to spleen	-۱		۱
۵۵.	Ferula Assa-Foetida	+۱			+۱	+۱		+۱	+۱			Harmful to stomach&lung	-۱		۴
۵۶.	Alhagi Camelorum	+۱						+۱				Harmful to brain & kidney	-۱		۱
۵۷.	Berberis Vulgaris							+۱							۱
۵۸.	Arnebia Euchroma Alkanna Tinctoria													Tanned stomach	۱
۵۹.	Albizia Lebbek							+۱	+۱					Desorption of stomach moisture	۲
۶۰.	Vinegar													Tanned stomach	۱

According to the above table the highest rating among the drugs commonly used in ITM for the treatment of GERD was awarded to pistacia atlantica.

Conclusion:

It is strongly significant pay attention to ITM therapeutics and herbs instead of GERD treatment in Conventional medicine.

According to this study, the highest rating among the drugs commonly used in ITM for the treatment of gastric clearance of wet materials such as mucus (serous or Phlegm), which is according to avicenna is the most stomach dis-temperament was awarded to pistacia atlantica.

REFERENCES

[۱] Islami, F., S. Nasser-Moghaddam, A. Pourshams, H. Poustchi, S. Semnani, F. Kamangar, *et al.*, ۲۰۱۴. Determinants of Gastroesophageal Reflux Disease, Including Hookah Smoking and Opium Use—A Cross-Sectional Analysis of ۵۰,۰۰۰ Individuals. *PLoS one*, ۹[۷]: e۸۹۲۵۶.

[۲] Peery, A.F., E.S. Dellon, J. Lund, S.D. Crockett, C.E. McGowan, W.J. Bulsiewicz, *et al.*, ۲۰۱۲. Burden of gastrointestinal disease in the United States: ۲۰۱۲ update. *Gastroenterology*, ۱۴۳[۵]: ۱۱۷۹-۸۷. e۳.

- [٢] Ness-Jensen, E., A. Lindam, J. Lagergren, K. Hveem, ٢٠١٢. Changes in prevalence, incidence and spontaneous loss of gastro-oesophageal reflux symptoms: a prospective population-based cohort study, the HUNT study. *Gut*, ٦١[١٠]: ١٣٩٠-٧.
- [٣] Ludvigsson, J.F., P. Aro, M.M. Walker, M. Vieth, L.Agr us, Talley NJ, *et al.*, ٢٠١٣. Celiac disease, eosinophilic esophagitis and gastroesophageal reflux disease, an adult population-based study. *Scandinavian journal of gastroenterology*, ٤٨[٧]: ٨٠٨-١٤.
- [٤] Ronkainen, J., L. Agr us, ٢٠١٣. Epidemiology of reflux symptoms and GORD. *Best Practice & Research Clinical Gastroenterology*, ٢٧[٣]: ٣٢٥-٣٧.
- [٥] Menon, S.S., ٢٠١١. The influence of gender on the aetiology of gastro-oesophageal reflux, Barrett's oesophagus and oesophageal adenocarcinoma: The University of Birmingham.
- [٦] Sobieraj, D.M., S.M. Coleman, C.I. Coleman, ٢٠١١. US prevalence of upper gastrointestinal symptoms: a systematic literature review. *The American journal of managed care*, ١٧[١١]: e٤٤٩-٥٨.
- [٧] Jung, H.K., ٢٠١١. Epidemiology of gastroesophageal reflux disease in Asia: a systematic review. *Journal of neurogastroenterology and motility*, ١٧[١]: ١٤-٢٧.
- [٨] Fazel, M., A.H. Keshteli, P. Jahangiri, P. Daneshpajouhnejad, P. Adibi, ٢٠١٢. Gastroesophageal reflux disease in Iran: Sepahan systematic review no. ٧. *International journal of preventive medicine*. ٣[Suppl1]: S١٠.
- [٩] Ghajarie Sepanlou, S., H. Khademi, N. Abdollahzadeh, F. Noori, F. Malekzadeh, R. Malekzadeh, ٢٠١١. Time Trends of Gastro-esophageal Reflux Disease [GERD] and Peptic Ulcer Disease [PUD] in Iran. *Middle East Journal of Digestive Diseases [MEJDD]*, ٢[٢]: ٧٨-٨٣.
- [١٠] Ganji, A., F. Malekzadeh, M. Safavi, S. Nassri-Moghaddam, M. Nourie, S. Merat, *et al.*, ٢٠١١. Digestive and liver disease statistics in Iran. *Middle East Journal of Digestive Diseases [MEJDD]*, ١[٢]: ٥٦-٦٢.
- [١١] Ahmed, E.M.S., S.M. Soliman, H.M. Mahmoud, ٢٠١٢. Effect of Peppermint as One of Carminatives on Relieving Gastroesophageal Reflux Disease [GERD] During Pregnancy. *Journal of American Science*, ٨[٤].
- [١٢] Al Talalwah, N., S. Woodward Gastro-oesophageal reflux. Part ١: smoking and alcohol reduction. *British Journal of Nursing*, ٢٠. ٦-١٤[٣]: ٢٢-١٣.
- [١٣] Sha'alan, A., M. Ferwana, S.U. Rahman, I.A. Yaseen, ٢٠١٣. Knowledge and Practice of Primary Care Physicians in Management of Gastroesophageal Reflux Disease. *Middle East Journal of Family Medicine*. ١١[٢].
- [١٤] Sherman, P.M., E. Hassall, U. Fagundes-Neto, B.D. Gold, S. Kato, S. Koletzko, *et al.*, ٢٠٠٩. A global, evidence-based consensus on the definition of gastroesophageal reflux disease in the pediatric population. *The American journal of gastroenterology*, ١٠٤[٥]: ١٢٧٨-٩٥.
- [١٥] Ockelford, J., V. Ganasan, H. Ee, R. Holloway, D. Hillman, P. Eastwood, *et al.* ٢٠١٤. The Relationship Between Gastroesophageal Reflux And Sleep Quality. *Am J Respir Crit Care Med*, ١٨٩: A٥٣٤٨.
- [١٦] Yew, M.S., P.S.D. Yeo, J.L.P. Ong, L.M. Shen, H.H. Ho, F.H. Jafary, *et al.*, ٢٠١٤. CRT-١٣٣ Omeprazole Use is Associated with Increased Cardiovascular Complications in Asian Patients on Aspirin and Clopidogrel After Percutaneous Coronary Intervention. *JACC: Cardiovascular Interventions*, ٧[٢_S]: S١٧-S٨.
- [١٧] Boix, C., M. Ib ez, T. Zamora, J. Sancho, W. Niessen, F. Hern andez, ٢٠١٤. Identification of new omeprazole metabolites in wastewaters and surface waters. *Science of The Total Environment*, ٤٦٨: ٧٠٦-١٤.
- [١٨] Nevado, J.J.B., G.C. Pe alvo, R.M.R. Dorado, V.R. Robledo, ٢٠١٤. Simultaneous Determination of Omeprazole and their main Metabolites in Human Urine Samples by Capillary Electrophoresis using ElectroSpray Ionization-Mass Spectrometry Detection. *Journal of Pharmaceutical and Biomedical Analysis*.
- [١٩] Adkison, K.K., L.S. Jones, Y. Lou, J. Gan, D.A. Wilfret, ٢٠١٤. Effects of omeprazole and ritonavir on absorption and elimination of the hepatitis C virus NS٥A inhibitor GSK٢٣٣٤٨٠٥ in healthy adults. *Clinical Pharmacology in Drug Development*.
- [٢٠] Richter, J.E., ٢٠١٣. Gastroesophageal reflux disease treatment: side effects and complications of fundoplication. *Clinical Gastroenterology and Hepatology*, ١١[٥]: ٤٦٥-٧١.
- [٢١] Festi, D., E. Scaioli, F. Baldi, A. Vestito, F. Pasqui, A.R. Di Biase, *et al.*, ٢٠٠٩. Body weight, lifestyle, dietary habits and gastroesophageal reflux disease. *World J Gastroenterol*, ١٥[١٤]: ١٦٩٠-٧٠١.
- [٢٢] Drossman, D.A., ٢٠٠٦. Rome III: the new criteria. *Chinese journal of digestive diseases*, ٧[٤]: ٣٧٤-٨١.
- [٢٣] Brunnicardi, F.C.A.D., T.R. Billiar, D.L. Dunn, J.G. Hunter, R.E. Pollock, ٢٠١٠. *Schwartz's principles of surgery*. ٩ ed. New York: Mc Graw Hill, pp: ٨٢٧-٤١.
- [٢٤] Arzani Mohammad Akbar, ٢٠٠٨. *Tebbe Akbari* ١th ed. Qom, Iran: Jaleleddin.
- [٢٥] Azam khan, ١٩٩٢. hakim mohammad. horgate mede. *Exir-e-azam*. vol ٢, tehran: iran university, pp: ٥٦١-٦٣.
- [٢٦] Ibn-e-sina, A.H., ٢٠١٠. [avicenna] stomach disease,. In: sharafkandi abdollahrahman ,editor. *alghanoon fi teb[canon medicina]*,. ٤. ١٠th ed. Tehran: soroosh, pp: ١-١٨٢.
- [٢٧] Abu-Asab, M., H. Amri, M.S. Micozzi, ٢٠١٣. *Avicenna's Medicine: A New Translation of the ١١th-Century Canon with Practical Applications for Integrative Health Care: Inner Traditions/Bear & Co.*

- [۲۹] Ibn-e-sina, A.H., ۲۰۱۱. [avicenna]. alghanoon fi teb[canon medicina],. In: hamdard university, editor. vol ۷. Tehran: Iran university.
- [۳۰] [avicenna], A.H., I.E.S. alghanoon fi teb[canon medicina], ۲۰۱۱. In: hamdard university, editor .vol ۷. Tehran: : Iran university, pp: ۱۹-۲۵.
- [۳۱] Ibn-e-sina, A.H., ۲۰۱۱. [avicenna]. alghanoon fi teb[canon medicina],. In: hamdard university, editor. vol ۷,. Tehran: Iran university, pp: ۲۲.
- [۳۲] Hakim mooamen tabrizi. tohfe-al- moamenin, ۲۰۱۲. In: ehyaae tebe tabiee Institution, editor. tohfeye hakime moamen,. qom: noore vahy.
- [۳۳] Aghili Khorasani, M.H., Makhzan-ol-adviyeh, ۲۰۱۲. tehran: tehran university of medicine.
- [۳۴] Ebne beytar, ۲۰۰۸. Al-jamea le-mofrdt al-adviyeh va al-aghziyeh,. Tehran: Iran university.
- [۳۵] Razes Mohammad-Ibn-Zakrya. Contains of Medicine [Alhavi Fi Teb],. In: Scientific Library, editor. Beirut: Esmaeil MM; ۲۰۰۰.
- [۳۶] Ebn - al - nafis. Al-shamel fi senaate tebbieh,. Tehran: Iran university,; ۲۰۰۸.
- [۳۷] Hong-Woo hun, Jaemin Lee, Byung-Yeol Coh, Sung-Wha Hong, ۲۰۱۴. Detection of Technology Opportunities from Patents . Adv. in Nat. Appl. Sci., ۸[۶]: ۷۱۸-۷۲۱.
- [۳۸] Vahid Esmaieelzade, ۲۰۱۴. The effect of Text Reconstruction on Grammar Ability of Iranian EFL Learners. Adv. Environ. Biol., ۸[۹]: ۱۵۳-۱۵۶.