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Prevalence of Gastroesophageal Reflux Disease in Saudi Arabia

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Abstract

Background

Gastroesophageal reflux disease (GERD) is a condition when stomach acid comes up into esophagus and induce symptoms or complications. Methods: We enrolled 584 in a cross-sectional community-based study to assess the prevalence of GERD symptoms in Saudi Arabia in addition to determine the risk factors associated with GERD occurrence. Data were conducted and randomly distributed through electronic questionnaire translated by the researchers to the Saudi population. We included the Saudi population above age of 18 years old and we excluded population under age of 18 years from our study. The Questionnaire was about 27 Arabic questions to assess the knowledge, prevalence and associated risk factors related to GERD symptoms. Results: A total of 584 subjects participated in the study from different regions in Saudi Arabia. Most of them were between 18 – 51 age group, majority were females and 57.4 from the west region. The mean height of the sample was 158.57 cm with a standard deviation of 58.72 cm, and the mean weight was 68.28 kg with standard deviation 19.21 kg. Most of the participants have no disease. The majority of the sample participants were non-smokers 84.6%, while there were 12 % of participants were smokers and 3.4 were former smokers. Half of the study group has a family member with GERD. Approximately 50% of the sample were experiencing heartburn or bitterness in the throat. 19% of the sample has been diagnosed with GERD. Most of the participants think that taking medications and the type of food alleviates the symptoms of GERD. The most used medications to relieve the symptoms of GERD are Gaviscon, Nexium, and Pantoprazole. Conclusion: Prevalence of GERD is increasing in our society due to the multiple factors we discussed, mainly lifestyle. These modifiable factors should be highlighted by educating the community and rising awareness about this condition before establishing complications.

Keywords: GERD, Saudi Arabia, Esophageal Reflux, Heartburn

Introduction

Definition

Gastroesophageal reflux disease (GERD) is a condition when stomach acid comes up into esophagus and induce symptoms or complications (Antunes and Curtis, 2019).

GERD is a common condition, with a prevalence of approximately 20% of adults in the western culture. Symptoms occur daily in approximately 7% of patients, weekly in 14% and monthly in 15% to 40% of all

patients. Gender does not affect the spread of the disease, but complications are more common in men than women. The rate of esophagitis is 2:1 and the rate of Barrett's is 0:1 in males compared to females; whereas on other study, female gender has been reported as risk factor (Antunes and Curtis, 2019). GERD incidence increases with age, especially after age forty; where in some studies no significant association between age and GERD symptoms (Antunes and Curtis, 2019) (Almadi, et al., 2014). Many studies have agreed that obesity, overweight and smoking increase symptoms of GERD. In a previous study, they found the relation between marital status effect and GERD symptom where it was obvious among divorced/widow approximately 34.9-31.7% and followed by the single approximately 25.1%. Another study has reported the relation between low educational level and GERD (Altwigry, Almutairi, and Ahmed, 2017).

Different studies done in Saudi Arabia to assess the prevalence of GERD among cities communities. A study was done at Riyadh in which GERD prevalence was 45.4% also more significant among older individual, obesity and smoker. There was no difference between male and female (Almadi, at.al., 2014). Also, another study was done in Qassim region among 200 Saudi school-teachers has reported the overall prevalence was 55%, more prevalence between female high school teachers and teachers age group 30-41 years (Altwigry, Almutairi, and Ahmed, 2017). A study conducted in southern Saudi Arabia to diagnose and measure the complications of GERD by using upper gastrointestinal endoscopy in which the GERD prevalence was 15% in Abha and the prevalence of Barrett's oesophagus was 0.003% in Jizan (Alsawat, et al., 2018).

The typical symptoms of GERD are heartburn which is the cardinal feature of GERD and the diagnosis will be easily if present, regurgitation of gastric contents into the oropharynx, difficulty swallowing, excessive salivation, gas and bloating, pain or discomfort in the chest, bad breath or a sour taste in the mouth. In some cases, patients with no history of heartburn may have atypical symptoms such as hoarseness or laryngitis, persistent cough, asthma or asthma-like symptoms, dental erosion and discomfort in the ears and nose. GERD affects quality of life and may cause erosive esophagitis, esophageal strictures, and Barrett esophagus, a precursor to esophageal adenocarcinoma (Andreoli, et al., 2010).

The association between the age or gender with GERD symptoms is not clear until now, but the risk of GERD complications is associated with advancing age, male gender and white race. There are conflicting results about the gender who have high prevalence of GERD symptoms. Also, there is association between tobacco smoking which cause weakness of lower esophageal sphincter or alcohol consumption and GERD symptoms. Obesity and hiatus hernia are a strong risk for GERD and its complications. GERD is common during pregnancy due to decrease lower esophageal sphincter pressure by progesterone hormone. Some of foods as fat, sweets, chocolate and salt may aggravate acid reflex (Granderath, et al., 2006).

Investigations

GERD is one of GI diseases that can be diagnosed clinically based on a good history and physical examination. To confirm the diagnosis or to detect the complication of GERD doctor may request some medical tests.

Mandatory studies in GERD:

1) Upper gastrointestinal endoscopy

BENEFIT	INDICATION
Can demonstrate anatomy of esophagus	Old age (≥ 55 yrs with symptoms {anemia, loss of weight, anorexia, recent onset, melaena and swallowing difficulty})
Can detect GERD complication (Esophagitis, Barretts esophagus and stricture)	Persistent reflux symptoms after therapeutic
Obtain biopsy specimens	Heartburn associated with red flag (bleeding, weight loss)
excludes other diseases (eg, peptic ulcer) that present with similar GERD manifestation	High risk for barretts (male, age ≥ 50 , obese, white, tobacco use, long history of symptoms)

2) Esophageal manometry

BENEFIT	INDICATION
Help in GERD diagnosis when endoscopy is normal	Before surgery to ensure intact esophageal function
	Recurrence of symptoms while or after use of acid-reducing medications
	Diagnose abnormal peristalsis or ↓ LES tone

Optional studies in GERD:

1) 24 h pH monitoring:

Most accurate (96 % specific and sensitive) (Patti, 2019).

Treatment

The goal is to relieve symptoms and to prevent complications. Treatment is divided into:

1) Lifestyle modification:

Weight loss, smoking cessation, reduce hot drinks, alcohol cessation, reduce spicy food, caffeine, raise bed head, avoid sleep immediately after eating (eat 3-4 hrs before bedtime).

2) Medications:

- a. Prokinetic medications and reflux inhibitors: use in mild cases, include metoclopramide
- b. H₂ receptor antagonists and H₂ blocker therapy: use in mild to moderate cases, include ranitidine (Zantac), cimetidine (Tagamet), famotidine (Pepcid), and nizatidine (Axid).
- c. Proton pump inhibitors: used in severe and longtime cases include: omeprazole (Prilosec), lansoprazole (Prevacid), rabeprazole (Aciphex), esomeprazole (Nexium), sodium bicarbonate (zegerid) and pantoprazole (protonix).

NOTE: long term use of antacids is dangerous, it can result in serious side effect, include: Diarrhea, electrolyte imbalance (alter calcium metabolism that causes heart disease, also it ↑magnesium in the body can cause kidney disease) (Patti, 2019).

Objectives

This study was conducted to evaluate the prevalence of GERD symptoms in Saudi Arabia and the causes behind it's prevalence. We will be evaluating and answering questions of whether or not GERD is associated with a certain group of age, the role of gender in association to symptoms and the commonest risk factors in our community population. With our main aim in improving the general health by raising awareness and educating the public before the occurrence of complications.

Methodology

A cross sectional community-based study was conducted and designed to assess the prevalence of GERD symptoms in Saudi Arabia in addition to determine the risk factors associated with GERD occurrence. The study carried out from July to August 2019. The sample size was 584 participants from different regions in Saudi Arabia. Data were conducted and randomly distributed through electronic questionnaire translated by the researchers to the Saudi population. We included the Saudi population above age of 18 years old and we excluded population under age of 18 years from our study. The Questionnaire was about 27 Arabic questions to

assess the knowledge, prevalence and associated risk factors related to GERD symptoms. We included all participants above age of 18 years, and we excluded the participants below age of 18 years from our study population. The questionnaire was formulated and designed based on previous study was done on prevalence of GERD symptoms. The online questionnaire was formed in multiple choice questions and yes – no questions. We started our questionnaire involving 4 questions on the demographic data including the age, gender, nationality and residence area. Also, 2 questions about the Anthropometric measurements length (cm) and weight (kg). In addition to 4 questions about the risk factors such as smoking, drinking caffeine, pregnancy and associated co morbidities. Moreover, we involved 5 questions about positive GERD predictors and its frequency such as heartburn, food regurgitation and sleep disturbances from those symptoms. In addition to 2 questions about the negative GERD predictors such as nausea and epigastric pain. We included 4 questions about the awareness of GERD, aggravating factors, relieving factors and the medication used for decreasing GERD symptoms. Also, we added 2 questions about if the participant is diagnosed with GERD and the duration of symptoms occurrence. Finally, we ended our questionnaire with 3 questions about the presence of family history of GERD symptoms especially the first-degree relatives and one question about the presence of these alarming symptoms such as dysphasia, weight loss and chest pain. The scoring of GERD symptoms was depending on the frequency of these symptoms during the week if its once per week, 2 - 3 times or 4 - 7 times per week respectively. Where the scores ranging from 1 to 3 for the positive GERD predictors. After summation of the scores the patient who got score of 8 or more was considered to have positive GERD symptoms and patients who got less than 8 was less likely to have positive GERD symptoms. Based on our findings we can say that the majority of the participants was preferring to have medical treatment commonly than surgical interventions.

Results

A total of 584 subjects participated in the study from different regions in Saudi Arabia. Table 1 shows the sociodemographic characteristics of the study participants, the mean height of the sample was 158.57 cm with a standard deviation of 58.72 cm, and the mean weight was 68.28 kg with standard deviation 19.21 kg. Table 2 shows that most of the participants have no disease. The majority of the sample participants were non-smokers 84.6%, while there were 12 % of participants were smokers and 3.4 were former smokers, also approximately half of the sample participants were frequent drinkers of caffeine. Figure 1 shows that almost half of the study group has a family member with GERD. Table 3 illustrates the symptoms of GERD, approximately half of the sample were experiencing heartburn or bitterness in the throat, and half of the sample participants who suffer from heartburn or bitterness in the throat experience it one time a week, while 33.5% of the sample feel the symptoms from 2 to 3 times a week, and 16.8% of the sample feel the symptoms from 4 to 7 times a week. According to table 3, almost two-thirds of the sample participants do not suffer from the reflux of food to the throat or mouth. Also, almost one-quarter of the sample have difficulty sleeping due to heartburn and reflux. And almost two-thirds of the sample participants do not suffer from pain in the upper stomach. 19% of the sample has been diagnosed with GERD. Table 4 shows the period of time they have been experiencing it. Participants were asked regarding factors that aggravate the symptoms of GERD from their point of view, most of the participants think that eating fatty or spicy food increases the symptoms, while 21.4% of them think that tea and coffee are the main reasons. According to figure 2, most of the participants think that taking medications and the type of food alleviates the symptoms of GERD, while 13.01% of them thought that position during sleeping alleviates the symptoms. Table 5 illustrates that the most used mediations to relieve the symptoms of GERD are Gaviscon, Nexium, and Pantoprazole, while the less commonly used is Maalox.

Table 1: Demographic characteristics of the study participants (n=584)

	n	Percentage (%)
Age (years)		
18-25	179	30.7
26-34	178	30.5
35-44	132	22.6
45-50	52	8.9
>50	43	7.4
Total	584	100
Sex		
Female	498	85.3
Male	86	14.7
Total	584	100
Residence		
South region	69	11.8
East region	39	6.7
North region	103	17.6
West region	335	57.4
Central region	38	6.5
Total	584	100
Nationality		
Saudi	440	75.3
Non-Saudi	144	24.7
Total	584	100

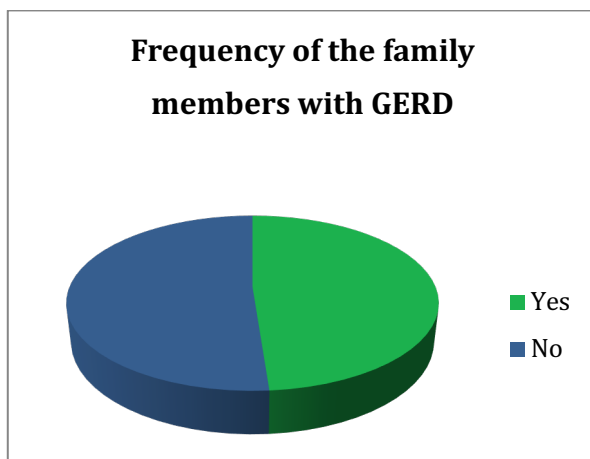


Figure 1: Frequency of family members with GERD.

Table 2: Frequencies and percentages of diseases among the study sample.

	Frequency	Percent
Asthma	48	8.22
Thyroid	46	7.88
Hypertension	40	6.85
diabetic	32	5.48
No disease	414	70.89
Another disease	51	8.73

Table 4: Periods of time that patients felt symptoms of GERD (n =184)

	Frequency	Percent
from two months or less	29	15.8
from 3 to 6 months	18	9.8
from 6 to 12 months	13	7.1
from 2 to 3 years	52	28.3
from 5 years or more	72	39.1
Total	184	100.0

Table 3: Symptoms of GERD (n=584)

Symptoms	n	Percentage (%)
Heartburn or bitterness		
No	289	49.5
Yes	295	50.5
Total	584	100
Reflux of food to the throat or mouth		
No	379	64.9
Yes	205	35.1
Total	584	100
Difficulty sleeping due to heartburn and reflux		
No	424	72.6
Yes	160	27.4
Total	584	100
Pain in the upper stomach		
No	362	62.0
Yes	222	38.0
Total	584	100.0

Table 5: Medications used by the participants to relieve the symptoms of GERD. (n=241)

	Frequency	Percent
Gaviscon	46	19.1
Nexium	45	18.7
Pantoprazole	42	17.4
Zantac	31	12.9
Maalox	3	1.2
None of the above	74	30.7
Total	241	100.0

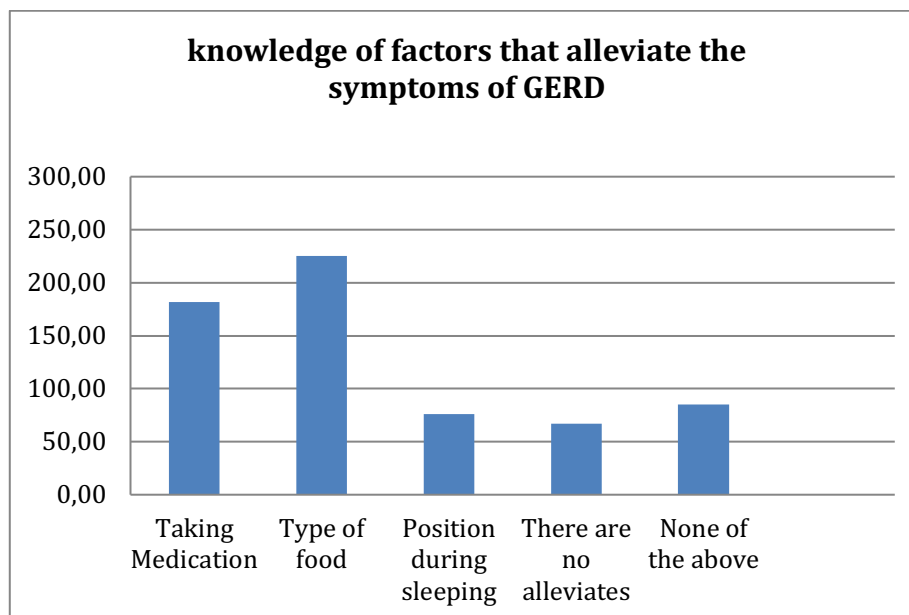


Figure 2: Participants' knowledge of factors that can alleviate the symptoms of GERD.

Discussion

Our study could be considered descriptive in nature. We found that Many factors have shown an association with GERD but still controversial. Nearly all epidemiologic studies have found a relationship between increasing body mass index due to obesity and changes in gastroesophageal anatomy and physiology. But we found that the mean weight was 68.28 kg with standard deviation 19.21 kg. The age group of most our participants is between (18-25) years. Our study has shown a significant correlation with the drinking caffeine in which half of the sample participants were frequent drinkers of caffeine. Also, half of the study group has a family member with GERD symptoms so, we can say it may runs in family. Most of the participants think that taking medications and the type of food alleviates the symptoms of GERD, while 13.01% of them thought that position during sleeping alleviates the symptoms. The most used mediations to relieve the symptoms of GERD are Gaviscon, Nexium, and Pantoprazole, while the less commonly used is Maalox among our study sample.

Conclusion

The prevalence of GERD is increasing in our society due to the multiple factors we discussed, mainly lifestyle. These modifiable factors should be highlighted by educating the community and rising awareness about this condition before establishing complications.

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