



CROSS-SECTIONAL OBSERVATIONAL STUDY ON PREVALENCE OF GASTRO ESOPHAGEAL REFLUX DISEASE (ERI GUNMAM) AND SEQUENTIAL ANALYSIS ON FACTORS INFLUENCING GERD

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ABSTRACT

Gastroesophageal reflux disease (GERD) is a chronic gastrointestinal disease that significantly reduces quality of life and, in some patients, leads to serious complications, such as oesophageal stricture, gastrointestinal bleeding etc. Risk factors for GERD include older age, excessive body mass index (BMI), smoking, anxiety/depression, and less physical activity etc. Despite the high morbidity rate at present, the number of GERD patients is still increasing worldwide. It's become essential to understand the etiology and causative factors that actually influence the GERD, hence the main objective of the present study is to estimate the prevalence of GERD known by its name Eri Gunmam in siddha terminology using Frequency scale (F-scale) scoring among both male and female with age between 20-70 years through cross sectional observational study. Results of the present observational study clearly signifies that the prevalence of GERD was highest in the 50-59 years of age group in both male and female. Further outcome of the study extrapolates that women has higher incidence of GERD than men. Some of the aggravating factors necessitates the GERD in women are identified as improper diet (skipping a meal, fasting often), stress, obesity, pregnancy etc. However, lifestyle changes may be the major reason for women to have GERD. In conclusion GERD is a very common disorder and can be managed effectively in a large number of patients with combination of life style modifications and appropriate medical therapy

KEY WORDS: *Gastroesophageal reflux disease, Eri Gunmam, Risk factors, Frequency scale, Body mass index*

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1. Introduction

GERD is a condition of troublesome symptoms and complications that result from the reflux of stomach contents into the esophagus. Various psychosocial factors, including chronic stress, emotional instability, abnormal acid reflux, and obesity, are associated with GERD manifestation and symptoms [1,2]. In particular, emotional instability, including depression and anxiety, is associated with increased risk of GERD [3].

Most GERD patients presented esophageal syndromes such as heartburn, chest pain, dysphagia, odynophagia, and so on, though it has recently become clear that not a few latent GERD subjects are suffering from extraesophageal syndromes [4]. Esophageal GERD includes two pathophysiological states: reflux esophagitis (RE, diagnosed by endoscopic observation) and non-erosive reflux disease (NERD, mainly diagnosed on the basis of the upper gastrointestinal symptoms).

GERD can manifest in a wide range of symptoms which can be subdivided into typical, atypical and extraesophageal symptoms. In general, symptoms tend to be more common after meals and are often aggravated by recumbency and relieved by acid lowering medications[5]. Typical symptoms include heartburn and acid regurgitation which have high specificity but low sensitivity for GERD[6]. Atypical symptoms such as epigastric pain, dyspepsia, nausea, bloating, and belching may be suggestive of GERD but may overlap with other conditions in the differential diagnosis such as peptic ulcer disease, achalasia, gastritis, dyspepsia and gastroparesis. Lastly, there are various extraesophageal symptoms including chronic cough, asthma, laryngitis and dental erosions[7]. To assess the GERD symptoms, several questionnaires have been proposed, such as QUEST [8], Manterola's Scale [9], FSSG (Frequency Scale for the Symptoms of GERD) [10], Zimmerman's Scale [11], and so forth. Whereas typical symptoms of GERD are heartburn and regurgitation.

Successful treatment of GERD symptoms has been associated with significant improvement in quality of life, including decreased physical pain, increased vitality, physical and social function, and emotional well-being. In healthy individuals, reflux of gastric contents occurs naturally without causing esophageal

damage. However, in susceptible individuals, esophageal exposure to gastric contents causes either microscopic or macroscopic mucosal defects and the symptom of heartburn [12]. The exact pathologic process by which this occurs is complex and yet to be fully characterized, but there are two requirements for heartburn, regardless of a diagnosis of erosive or non-erosive disease: these are high concentrations of acid within the esophageal lumen (reflux) and a damaged esophageal epithelium.

Risk factors for GERD include older age, excessive body mass index (BMI), smoking, anxiety/depression, and less physical activity at work [13,14]. Eating habits may also contribute to GERD, including the acidity of food, as well as size and timing of meals, particularly with respect to sleep. Recreational physical activity appears to be protective, except when performed post-prandially [15]. The main objective of the present study is to estimate the prevalence of GERD known by its name Eri Gunmam in siddha terminology using Frequency scale (F-scale) scoring among both male and female between 20-70 years of age through cross sectional observational study.

2. Materials and Methods

2.1. Study design

Cross- Sectional study executed in patients visiting siddha outpatient department (OPD) of Arignar Anna Government Hospital of Indian Medicine, Arumbakkam, Chennai, Tamil Nadu, India. Ethical approval for this study was obtained from Institutional Ethical Committee of Government Siddha Medical College, Chennai.

2.2. Sampling procedure

Sample size for this study was 200 patients. All the participants were comprehensively explained about the objectives of this study before requesting them for their voluntary participation. Participants were also explained that completion and submission of the questionnaire would be taken as consent to participate in this study. Data were dealt with the high level of anonymity and confidentiality.

2.3. Questioner Pattern

The questionnaire was divided accordingly to cover objective of the study such as age, marital status, occupation, educational qualification and frequency scale scoring to assess the severity index of GERD.

2.4. Statistical Analysis

Collected data were subjected to statistical significance and analyze the probability scale by using SPSS statistics version 26.

3.Results

3.1. Result analysis on general demography of the patients under study

Result analysis of the present study clearly signifies that the positive rate for GERD in male is 45.7% and in female it is 54.3%.The prevalence of GERD was highest in the 50-59 years of age group for both male and female. The lowest prevalence for males are seen in 20-29 & 70-79 age group and the lowest prevalence for females are seen in 20-29 years of age group. Further educational qualification of 12% of the participants belongs to illiterate category, 27% belongs to primary category, 19% were less than high school, 13% belongs to high school or diploma, 22% belongs to under graduate category and 7% of them belongs to post graduate category.Occupation of the study participants is as follows: 40% were housewives, 10.5% were retired officers (men), 16.2% were tailor, driver & carpenter, 9.5% belongs to business category, 7.6% were teachers, 6.7% were software engineers, 3.8% belongs to manager/asst. manager category,1.9% were students, 1.9% were accountants & clerk, 1.9% belongs to agricultural category.Annual income of the participants is categorized as follows: 5.7 % of them earned more than 5 lakhs, 11.4% of them earned more than 3 to 5 lakhs, 22.9% of them earned between 1 to 3 lakhs, 7.6% of them earned between 50,000 to less than 1 lakh, 52.4% of them had no income. In marital status it is seen that 95% of the participants were married and 5% were unmarried. As shown in table 1 and illustrated in figure 1.

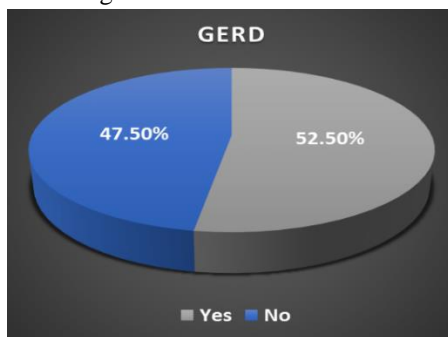


Figure 1: Frequency distribution on percentage prevalence of GERD among the study population

3.2.Result analysis on frequency scale questionnaire in participants identified with GERD

Description questionnaires’ pertains to heartburn, bloating of stomach, bulkiness, regurgitation, unusual sensation, swallowing difficulties, frequency of burp etc have been listed and the response for the same from the study group were been documented. From frequency scale scoring it is seen that most of the people often suffered from symptoms like heart burn, abdominal bloating and burping. Less common symptoms include feeling sick after meals, subconsciously rubbing chest with hand and feeling full while having meals.

4.Discussion

Gastroesophageal reflux disease (GERD) is a common gastrointestinal disorder in the general population, and its prevalence is increasing worldwide [16]. According to the Montreal definition, GERD is diagnosed when the reflux of stomach contents causes troublesome symptoms and/or complications [17], and it is the most common outpatient gastrointestinal disease diagnosed in USA [18]. Reflux from stomach causes symptoms like heartburn and regurgitation, which are the cardinal symptoms of GERD, and other symptoms, such as chest pain, asthma, hoarseness, and sleep disturbance, are also considered as atypical or extraesophageal symptoms of GERD [19]. Troublesome symptoms of GERD have adverse impact on health-related quality of life (HRQL) [20], and patients with more frequent or more severe symptoms have lower HRQL, work productivity, and sleep quality [21]. Chronic reflux is also an important risk factor of esophageal adenocarcinoma [22].

GERD appears to be more common and more severe in the elderly than in younger individuals; in fact, age is an important risk factor for the development of severe forms of GERD [23]. In the primary care setting in the US, as many as 20% of older patients report acid reflux [24], and in a Japanese study, the prevalence of erosive esophagitis in patients aged >70 years was more than triple the prevalence in patients younger than 39 years [25].

Result analysis of the present study clearly signifies that the positive rate for GERD in male is 45.7% and in female it is 54.3%. The prevalence of GERD was highest in the 50-59 years of age group for both male

and female. The lowest prevalence for males are seen in 20-29 & 70-79 age group and the lowest prevalence for females are seen in 20-29 years of age group. Further educational qualification of 12% of the participants belongs to illiterate category, 27% belongs to primary category, 19% were less than high school, 13% belongs to high school or diploma, 22% belongs to under graduate category and 7% of them belongs to post graduate category. Occupation of the study participants is as follows: 40% were housewives, 10.5% were retired officers (men), 16.2% were tailor, driver & carpenter, 9.5% belongs to business category, 7.6% were teachers, 6.7% were software engineers, 3.8% belongs to manager/asst. manager category, 1.9% were students, 1.9% were accountants & clerk, 1.9% belongs to agricultural category. Annual income of the participants is categorized as follows: 5.7 % of them earned more than 5 lakhs, 11.4% of them earned more than 3 to 5 lakhs, 22.9% of them earned between 1 to 3 lakhs, 7.6% of them earned between 50,000 to less than 1 lakh, 52.4% of them had no income. In marital status it is seen that 95% of the participants were married and 5% were unmarried.

Acid suppression is the mainstay of therapy for GERD and proton pump inhibitors (PPIs) are the most potent drug in this regard. Although the use of PPIs is the treatment of choice for GERD, still approximately one-third of patients with GERD fail to respond symptomatically to a standard dose PPI, either partially or completely. Refractory GERD, defined as reflux symptoms either completely or incompletely responsive to PPI therapy, has become an important issue in clinical practice. Treatment options, such as histamine type-2 receptor antagonist (H2RA), TLESR reducers, prokinetic agents, and alginates, could be considered as an add-on to PPI therapy for symptomatic patients after taking PPI. Newer drug and other therapeutic strategies targeting mechanism of GERD, other than acid suppression, are also being developed for patients with incomplete response to PPI [26].

Present study reveals the evidence based data that confirms the presence of heartburn, bloating, bulkiness, regurgitation, unusual sensation, swallowing difficulties, frequency of burp and other symptoms peculiar to confirmation of GERD in the study population. From frequency scale scoring it is

seen that most of the people often suffered from symptoms like heart burn, abdominal bloating and burping. Less common symptoms include feeling sick after meals, subconsciously rubbing chest with hand and feeling full while having meals.

5. Conclusion

Managing GERD is achievable only through proper understanding on root cause of the disease and also by correct way of identifying the aggravating factors. Present study clearly depicts that existence of disease more on women rather than men. High income is positively correlated more with GERD, hence some relaxation techniques may be recommended for reduction of stress and anxiety. As the medication may not be effective in managing the long-term GERD crisis in this case awareness shall be created among both men and women of all age group about food habits and lifestyle modifications which will be a preventive measure for GERD.

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6. References

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Table 1: Demographics of the participants who were identified as having GERD

Variables	Frequency N=105	Percent
Gender		
Male	48	45.7
Female	57	54.3
Age group		
20-29	8	7.6
30-39	15	14.3
40-49	20	19.0
50-59	35	33.3
60-69	17	16.2
70-79	10	9.5
Educational qualification		
Illiterate	13	12.4
Primary	28	26.7
Less than high school	20	19.0
High school or Diploma	14	13.3
Under graduate	23	21.9
Post graduate	7	6.7
Occupation		
Housewives	42	40.0
Retired officers (men)	11	10.5
Student	2	1.9
Manager/Asst Manager	4	3.8
Software Engineer/Call Center	7	6.7
Teacher	8	7.6
Accountant/ Clerk	2	1.9
Business	10	9.5
Tailor, Driver, Carpenter	17	16.2
Agriculture	2	1.9
Income		
No Income	55	52.4
50,000 to less than 1 Lakh	8	7.6
1 To 3 Lakh	24	22.9
More than 3 To 5 Lakh	12	11.4
More than 5 Lakh	6	5.7
Marital status		
Married	100	95.2
Unmarried	5	4.8

Table 2: Frequency, percentage and p-value for frequency scale questionnaire in participants identified as having GERD

Frequency scale questions		Frequency N= 105	Percent	P- value
1. Do you get heartburn?	Never	7	6.7	<0.001**
	Occasionally	14	13.3	
	Sometimes	42	40.0	
	Often	35	33.3	
	Always	7	6.7	
2. Does your stomach feel bloated?	Never	14	13.3	<0.001**
	Occasionally	21	20.0	
	Sometimes	34	32.4	
	Often	30	28.6	

	Always	6	5.7	
3. Does your stomach ever feel heavy after meals?	Never	21	20.0	<0.001**
	Occasionally	40	38.1	
	Sometimes	28	26.7	
	Often	13	12.4	
	Always	3	2.9	
4. Do you sometimes subconsciously rub your chest with your hand?	Never	39	37.1	<0.001**
	Occasionally	38	36.2	
	Sometimes	20	19.0	
	Often	5	4.8	
	Always	3	2.9	
5. Do you ever feel sick after meals?	Never	41	39.0	<0.001**
	Occasionally	42	40.0	
	Sometimes	18	17.1	
	Often	3	2.9	
	Always	1	1.0	
6. Do you get Heartburn After Meals?	Never	16	15.2	<0.001**
	Occasionally	43	41.0	
	Sometimes	34	32.4	
	Often	8	7.6	
	Always	4	3.8	
7. Do you have an unusual sensation in your throat?	Never	33	31.4	<0.001**
	Occasionally	40	38.1	
	Sometimes	22	21.0	
	Often	9	8.6	
	Always	1	1.0	
8. Do you feel full while eating meals?	Never	37	35.2	<0.001**
	Occasionally	38	36.2	
	Sometimes	18	17.1	
	Often	7	6.7	
	Always	5	4.8	
9. Do some things get stuck when you swallow?	Never	41	39.0	<0.001**
	Occasionally	29	27.6	
	Sometimes	24	22.9	
	Often	9	8.6	
	Always	2	1.9	
10. Do you get bitter liquid coming up into your throat?	Never	33	31.4	<0.001**
	Occasionally	35	33.3	
	Sometimes	23	21.9	
	Often	11	10.5	
	Always	3	2.9	
11. Do you burp a lot?	Never	20	19.0	<0.001**
	Occasionally	28	26.7	
	Sometimes	29	27.6	
	Often	22	21.0	
	Always	6	5.7	
12. Do you get heartburn if you bend over?	Never	29	27.6	<0.001**
	Occasionally	41	39.0	
	Sometimes	23	21.9	
	Often	9	8.6	
	Always	3	2.9	