

International Journal of Health Science

Acceptance date: 15/10/2024
Submission date: 02/10/2024

GASTROESOPHAGEAL REFLUX DISEASE AND QUALITY OF LIFE

Giovanna Nato Fiorotto

Barretos Scholl of Health Sciences Dr. Paulo Prata – FACISB; Barretos, São Paulo, Brazil
<https://orcid.org/0000-0003-4148-9124>

Ricardo Filipe Alves da Costa

Barretos Scholl of Health Sciences Dr. Paulo Prata – FACISB; Barretos, São Paulo, Brazil
<https://orcid.org/0000-0002-5988-9890>

João Luiz Brisotti

Barretos Scholl of Health Sciences Dr. Paulo Prata – FACISB; Barretos, São Paulo, Brazil
<https://orcid.org/0000-0002-0606-8271>

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: Background: Gastroesophageal reflux (GER) is defined as the spontaneous passive return of gastric content to the esophagus, regardless of its etiology. When not associated with diseases or complications, it is termed physiological GER. However, when associated with signs and symptoms, it characterizes gastroesophageal reflux disease (GERD), the most common organic disorder of the digestive tract. GERD is defined as a chronic condition resulting from the retrograde flow of gastroduodenal content into the esophagus and/or adjacent organs, leading to a variable spectrum of esophageal and/or extra-esophageal symptoms and/or signs, associated or not with tissue damage. This condition can significantly impair the patient's quality of life (QOL) and interfere with their lifestyle habits. The primary diagnostic method in suspected GERD is upper gastrointestinal endoscopy (UGIE), which also assesses the presence and degree of esophagitis. Typical manifestations (heartburn and regurgitation) predominate, with only 15% to 20% of cases exhibiting predominantly atypical symptoms. **Objective:** To analyze the individual repercussions of this condition on QOL, considering the intensity of endoscopic and anatomopathological manifestations. **Method:** A prospective observational study of consecutive cases of GERD at the Barretos Specialized Outpatient Facility (AME Barretos). Patients referred for endoscopic investigation due to clinical suspicion of the disease were subjected to a questionnaire related to specific symptoms for identification and assessment of the impact of GERD symptoms (Gastroesophageal Reflux Disease Symptom Questionnaire - QS-GERD and Gastroesophageal Reflux Disease Health-Related Quality of Life, validated in Portuguese - GERD-HRQL). The questionnaire was administered to patients after recovery from the anesthesia sedation of upper gastrointestinal endoscopy (UGIE). **Results:** Data were

collected from 123 (patients undergoing gastroscopy with a diagnosis of GERD). The majority of patients were of white ethnicity (67.5%) and female gender (63.4%). The most prevalent symptoms were epigastric pain (90.2%), epigastric burning (90.2%), and regurgitation (75.6%). Regarding the duration of the disease, the majority presented symptoms for less than 1 year (41.5%), with a predominance of proton pump inhibitor (PPI) use for symptom relief (Omeprazole - 76.4% and Pantoprazole - 61.8%). Concerning the relationship between GERD and interference with QOL, 90.2% reported dissatisfaction, and almost all patients (90%) used some medication for symptom control. However, around half of the patients (57.7%) did not report difficulty in performing their daily activities. **Conclusion:** The study shows the evident prevalence of typical GERD symptoms in the evaluated population. When analyzing therapeutic measures, as expected, there is a high proportion of PPI use. The assessment of the impact on QOL demonstrates overall dissatisfaction when analyzing symptomatic repercussions but shows a moderate impact on daily life and work interference. Thus, it can be concluded that GERD is not incapacitating; however, it causes generally acute symptoms that interfere considerably with the patient's QOL. **Keywords:** Gastroesophageal reflux disease; quality of life;

INTRODUCTION

Gastroesophageal reflux disease (GERD) is one of the most common conditions in medical practice, being the most common organic disorder of the digestive tract⁵. In Brazil, the prevalence of GERD was more than 20% in 2014¹, with high rates also observed in countries such as Spain (31.6%), Australia (56%), and Belgium (28%). This high prevalence affects both sexes across all age groups¹⁰. The Brazilian Consensus on Gastroesophageal

Reflux Disease (CBGERD) defines GERD as a chronic condition resulting from the retrograde flow of gastroduodenal content into the esophagus and/or adjacent organs, leading to a variable spectrum of esophageal and/or extra-esophageal symptoms and/or signs, associated or not with tissue damage¹².

Typical symptoms are gastroesophageal, with the main ones being heartburn (referred to by the patient as acidity) and acid regurgitation². Patients who experience symptoms at least twice a week for about four to eight weeks should be considered possible GERD carriers. This condition can cause symptoms of varying intensity, manifesting over an extended period, significantly impairing the quality of life (QOL), and interfering with lifestyle habits such as eating, sleeping position, and other factors influencing GERD progression, according to the Brazilian Federation of Gastroenterology⁴.

GERD has two categories, erosive and non-erosive (NERD). The erosive category is defined by evidence of esophageal mucosal injury, while the NERD category consists of symptoms without endoscopic evidence of esophageal mucosal injury⁵. It is noteworthy that endoscopic esophagitis exists in about 50% of GERD patients, with a predominance of typical manifestations (heartburn and regurgitation) and only 15% to 20% of those with predominant atypical manifestations. Therefore, the absence of esophagitis on endoscopic examination does not exclude the diagnosis of GERD¹³.

Considering the prevalence of GERD in the population, it interferes with the QOL, as demonstrated by different authors. The aim is therefore to analyze the individual repercussions of this pathology on QOL, considering the intensity of the endoscopic and anatomopathological manifestations, and to make it possible to establish primary guidelines⁷ in clinical practice for a therapeutic approach

that encompasses disease control and takes into account QOL, which is essential for treatment adherence.

MATERIALS AND METHODS

This prospective observational study of consecutive cases was conducted at the Barretos Specialized Outpatient Facility (AME Barretos), evaluating patients referred for endoscopic investigation due to clinical suspicion of GERD. Participants underwent a questionnaire regarding specific symptoms of this condition, along with other data focusing on the potential impact on QOL.

Individuals aged 21 years and older with clinical data suggestive of GERD, obtained through targeted medical history, were included in the study. Subsequently, the results of the endoscopic examination were evaluated. Upon confirming the endoscopic diagnosis of GERD, a new questionnaire was administered to assess the potential impact of the disease on the individual's QOL.

The questionnaire characterizing symptoms in GERD - Questionnaire of Symptoms in Gastroesophageal Reflux Disease (QS-GERD) - was administered to patients after recovery from sedation during upper gastrointestinal endoscopy. This questionnaire evaluated heartburn symptoms at different moments and situations in daily life, as well as the occurrence of dysphagia, odynophagia, regurgitation, medication use, and the interference of these symptoms with the patient's satisfaction level regarding their current situation. The GERD-HRQL Questionnaire (GERD-Health Related Quality of Life Questionnaire) was also administered, which, in addition to assessing the interference of heartburn on the patient's QOL, inquired about how the disease affects social, family, and work relationships. It sought to correlate, under different aspects, the degrees of impairment of daily activities and the occurrence and intensity of complaints

related to GERD, also using a graded intensity scale. The duration of symptoms and medication use were also recorded. Pathological data obtained through the same endoscopic examination were considered to support the diagnostic conclusion. The Research Electronic Data Capture (REDCap[®]) software was used for questionnaire data collection and storage¹².

The approach to patients meeting the adopted criteria occurred after a detailed explanation and application of the informed consent process. In situations consistent with the research objectives, data from the medical records were collected post-examination, with emphasis on alignment with the research objectives and criteria. Subsequently, the results of the endoscopic examination were evaluated. In cases where there was no confirmatory diagnosis, the patient was excluded from the analysis.

The study population sample was defined for convenience, with quantitative variables described using mean and standard deviation (SD). Qualitative variables were described using absolute frequencies and percentages. Statistical analysis involved the use of the student's t-test or One-Way ANOVA for normally distributed data to compare groups of numeric variables. For categorical variables, the Chi-square test or Fisher's exact test was used to compare proportions between groups. Data were analyzed using SPSS (Statistical Package for the Social Sciences) version 22.0, with a significance level of 5%.

RESULTS

From the beginning of data collection, 123 patients were evaluated according to inclusion criteria, comprising 78 females (63.4%) and 45 males (36.6%); among ethnicities, 67.5% were white, and 32.5% were black. Considering the analyzed symptoms, the most common were epigastric pain (90.2%), epigastric burning (90.2%), regurgitation (75.6%), retrosternal burning (69.1%), and retrosternal pain (57.7%).

The analysis reveals that the vast majority of patients exhibit dyspeptic symptoms, consistent with those observed in the literature and as seen previously. Most of them use proton pump inhibitors as treatment, primarily omeprazole (76.4%) and pantoprazole (61.8%). The majority reported a disease duration of less than one year (41.5%), while patients with a disease duration between one and three years accounted for 21.1%. For those with a more extended duration, 16.3% had between three and five years, 9.8% between five and ten years, and 11.4% had more than ten years of the disease.

Considering the endoscopic findings, it is relevant to note that the vast majority of cases manifest less complex forms of esophagitis according to the Savary-Miller and Los Angeles Classifications (41.5% and 47.2%, respectively) (Table 1). Additionally, the occurrence of hiatal hernia is not significant, with 85.2% of patients not presenting this alteration.

On the other hand, analyzing the impact on the QOL of GERD patients, considering questionnaire responses, dissatisfaction with health conditions exceeds 90%. Also, respondents reported that "a good part of the time" (14.6%) and "most of the time" (48.8%) found no satisfaction in their diet. Regarding the intensity of discomfort caused by heartburn, patients felt quite (25.2%), extremely (43.9%), or moderately (24.4%) bothered by this symptom.

No statistical significance was observed between different types of medication treatments used (omeprazole, pantoprazole, and domperidone) and the degrees of esophagitis identified by the Los Angeles Classification in endoscopic examination. Also, no association was observed between the characteristics of esophagitis and the use or non-use of any medications. Thus, it can be reported that the use of drugs is not associated with different classifications of esophageal erosion. Similarly, no significant association was found between the most prevalent symptoms and the duration of GERD.

Regarding endoscopic findings based on the Savary-Miller Classification, patients on medication treatment present lower rates of esophageal injury in that classification (Table 2). However, when analyzing data related to the use of common medications (omeprazole, pantoprazole, and domperidone), their symptoms, the duration of the disease, and the degree of impairment according to Savary-Miller, no significant association was observed. Thus, patients with different, more severe impairments in this classification do not show agreement association with GERD symptoms or characteristic duration of symptoms.

There was no association between the endoscopic identification of hiatal hernia or the use of medications with the diagnosis of esophageal erosion (according to the Savary-Miller and Los Angeles Classifications). Furthermore, when relating diagnoses of erosion (by the same endoscopic criteria) with confirmation of hiatal hernia, it was also not possible to establish an association. In addition, in situations of hiatal hernia occurrence without erosive esophagitis, similar to what was observed before, no significance was found regarding the use or type of medications (omeprazole, pantoprazole, domperidone). Therefore, it was not possible to establish an association between hiatal hernia and esophagitis without erosion in cases of those most prevalent GERD symptoms.

In Table 3, we can observe the mean (SD) from the GERD-HRQL questionnaire, related to the duration of symptoms, Savary-Miller, and Los Angeles classifications. Patients with symptoms for less than five years have a lower GERD mean score than patients with symptoms for five years or more.

The items “How much pain did heartburn cause?” and “How satisfied are you with your current condition?” from the GERD-HRQL were evaluated to observe the degree of dissatisfaction caused by heartburn. In this context, for better data analysis and due to the similarity obtained for each of these items, they were grouped. Regarding dissatisfaction with their current condition, 1.8% of patients reported little or slight “pain” due to heartburn. Meanwhile, 26.1% reporting moderate “pain” expressed dissatisfaction, and respectively, 46.8% and 25.22% reported quite and extreme “pain” due to heartburn, characterizing these as the most dissatisfied. Thus, it is identified that heartburn is the most common symptom of GERD, and it was possible to observe that the more intense the heartburn, the greater the dissatisfaction spontaneously expressed by individuals.

DISCUSSION

The study showed a prevalence of female subjects (63.4%), as observed in other studies as well^{5,7,8}. This trend may be attributed to higher sensitivity and perception of symptoms in women, a pattern noted in previous research. In this analysis, the white ethnic group was predominant (67.5%), a fact not commonly described in most previous publications.

The majority of the evaluated population consisted of individuals diagnosed with GERD for less than 1 year (41.5%). Therefore, a comparative assessment of the impact on QOL was made between groups with varying durations of symptoms. This allowed the observation of a greater negative impact on

QOL in the group of patients with symptoms for less than five years compared to the group diagnosed with GERD for more than five years. Hence, there is a suggested tendency for patients to adapt to GERD symptoms, as there was no observed decrease in these typical symptoms, and dissatisfaction with the disease did not diminish.

In contrast, the severity of esophagitis, both in the Savary-Miller Classification and the Los Angeles Classification, did not result in a deterioration of QOL perception. In other words, even in more advanced stages of esophagitis, patients did not necessarily demonstrate a worsening of QOL.

Almost all patients (90%) used some form of medication to control GERD symptoms. However, those with mild esophagitis according to the Savary-Miller Classification (one or more erosions in the longitudinal fold) represented the group with the highest medication usage. From this perspective, it can be observed that individuals undergo an adaptation process to the symptoms, as more severe classifications did not lead to increased medication usage.

Heartburn is classically described as the most relevant symptom of GERD. When evaluating the degree of satisfaction in this study, it was evident that individuals with a higher degree of dissatisfaction (91.1%) coincided with those who reported greater intensity and frequency of heartburn. Thus, correlating the discussed data, it can be concluded that the severity of the symptom has a much more significant impact on the patient-disease relationship than the duration of symptoms and the intensity of esophagitis observed during endoscopic examination.

The present study took place at AME Barretos, a place that has a Digestive Endoscopy

and is a regional reference for the Public Health System (Sistema Único de Saúde – SUS Brasil), with high flow of patients for this exam. However, with the Sars-Cov-2 pandemic, this flow of patients was smaller than usual and in some periods the examination at AME Barretos was interrupted, as one of the outpatient sectors was adapted to hospitalization of patients with COVID-19, resulting in a small interference in the data collection of this research project for a brief period, however it did not limit complete its execution, thus completing the project completely and within the pre-established planning.

CONCLUSION

Therefore, after the analysis and discussion of the obtained data, we can conclude that GERD presents a varied range of symptoms and, consequently, impacts QOL in different ways, which is noticeable. However, it is not possible to establish a relationship between the different grades of endoscopic classifications of GERD and QOL. Furthermore, we conclude that this disease does not incapacitate the patient and primarily interferes with the patient-disease relationship. Most of the patients who feel dissatisfied and use medication for the treatment of the disease are those with a more varied spectrum of symptoms, not necessarily those with a longer duration of the disease.

ETHICAL INFORMATION

This article expresses agreement with ethical standards and with the Informed Consent Form, in addition, the study was approved by Ethics Research Committee

This study was financed, in part, by the São Paulo Research Foundation (FAPESP), Brasil. Process Number 2020/16347-3

REFERENCES

1. do Rosário Dias de Oliveira Latorre M, Medeiros da Silva A, Chinzon D, Eisig JN, Dias-Bastos TRP. **Epidemiology of upper gastrointestinal symptoms in Brazil (EpiGastro): a population-based study according to sex and age group.** *World J Gastroenterol.* 2014;20:17388-98.
2. DOMINGUES G, MORAES-FILHO JPP de. **GASTROESOPHAGEAL REFLUX DISEASE: A PRACTICAL APPROACH.** *Arq Gastroenterol [Internet].* 2021Oct;58(Arq. Gastroenterol., 2021 58(4)):525–33. Available from: <https://doi.org/10.1590/S0004-2803.202100000-94>
3. Eusebi LH, Ratnakumaran R, Yuan Y, Solaymani-Dodaran M, Bazzoli F, Ford AC. **Global prevalence of, and risk factors for, gastro-oesophageal reflux symptoms: a meta-analysis.** *Gut.* 2018;67:430-40.
4. Federação Brasileira de Gastroenterologia (Porto Alegre). Associação Médica Brasileira e Conselho Federal de Medicina. Projeto Diretrizes: **Refluxo Gastroesofágico: Diagnóstico e Tratamento.** *Revista Amrigs, Porto Alegre,* v. 3, n. 50, p.251-263, 21 out. 2003. Trimestral. Disponível em: <<http://www.amrigs.org.br/revista/50-03/diret5003.pdf>>.
5. Hunt R, Chen M, Melo AC, Ford A, Lazebnik L, Lizarzabal M, et al. **Global Perspective on Gastroesophageal Reflux Disease.** *World Gastroenterol Organ Glob Guidel GERD.* 2015;(October).
6. Isshi, K., Furuhashi, H., Koizumi, A., & Nakada, K. (2021). **Effects of coexisting upper gastrointestinal symptoms on daily life and quality of life in patients with gastroesophageal reflux disease symptoms.** *Esophagus : official journal of the Japan Esophageal Society, 18(3),* 684–692. <https://doi.org/10.1007/s10388-020-00801-1>
7. Lee, S. W., Lee, T. Y., Lien, H. C., Peng, Y. C., Yeh, H. J., & Chang, C. S. (2017). **Correlation Between Symptom Severity and Health-Related Life Quality of a Population With Gastroesophageal Reflux Disease.** *Gastroenterology research, 10(2),* 78–83. <https://doi.org/10.14740/gr753w>.
8. Lee, S. W., & Chang, C. S. (2021). **Impact of Overlapping Functional Gastrointestinal Disorders on the Quality of Life in Patients With Gastroesophageal Reflux Disease.** *Journal of neurogastroenterology and motility, 27(2),* 176–184. <https://doi.org/10.5056/jnm19006>
9. MEIRA AT dos S, TANAJURA D, VIANA I dos S. **CLINICAL AND ENDOSCOPIC EVALUATION IN PATIENTS WITH GASTROESOPHAGEAL SYMPTOMS.** *Arq Gastroenterol [Internet].* 2019Jan;56(Arq. Gastroenterol., 2019 56(1)):51–4. Available from: <https://doi.org/10.1590/S0004-2803.201900000-16>
10. Oliveira SS de, Santos I da S dos, Silva JFP da, Machado EC. **Prevalência e fatores associados à doença do refluxo gastroesofágico.** *Arq Gastroenterol [Internet].* 2005Apr;42(Arq. Gastroenterol., 2005 42(2)):116–21. Available from: <https://doi.org/10.1590/S0004-28032005000200010>.
11. Paul A. Harris, Robert Taylor, Robert Thielke, Jonathon Payne, Nathaniel Gonzalez, Jose G. Conde, Research electronic data capture (REDCap) - **A metadata-driven methodology and workflow process for providing translational research informatics support,** *J Biomed Inform.* 2009 Apr;42(2):377-81
12. Pereira GI das N, Costa CD da S, Geocze L, Borim AA, Ciconelli RM, Camacho-Lobato L. **Tradução e validação para a língua portuguesa (Brasil) de instrumentos específicos para avaliação de qualidade de vida na doença do refluxo gastroesofágico.** *Arq Gastroenterol [Internet].* 2007Apr;44(Arq. Gastroenterol., 2007 44(2)):168–77. Available from: <https://doi.org/10.1590/S0004-28032007000200016>.
13. Streets, C. G., & DeMeester, T. R. (2003). **Ambulatory 24-hour esophageal pH monitoring: why, when, and what to do.** *Journal of clinical gastroenterology, 37(1),* 14–22. <https://doi.org/10.1097/00004836-200307000-00007>.

Endoscopic Diagnosis	n	Percentage (%)
Savary-Miller Classification		
Single or isolated erosive lesion(s) affecting only one longitudinal fold	51	41,5
Multiple erosive lesions, noncircumferential, affecting more than one longitudinal fold, with or without confluence	34	27,6
Circumferential erosive lesions	11	8,9
Chronic lesions: ulcer(s), stricture(s) and/or short esophagus. Alone or associated with lesions of grades 1 to 3	2	0,8
Columnar epithelium in continuity with the Z line, noncircular, star-shaped, or circumferential. Alone or associated with lesions of grades 1 to 4	2	0,8
Not applicable	24	19,5
Los Angeles Classification		
One or more mucosal breaks each ≤5 mm in length	58	47,2
At least one mucosal break >5 mm long, but not continuous between the tops of adjacent mucosal folds	27	22
At least one mucosal break that is continuous between the tops of adjacent mucosal folds, but which is not circumferential	9	7,3
Mucosal break that involves at least three-fourths of the luminal circumference	4	3,3
Not applicable	25	20,3

Table 1 - Distribution of endoscopic findings reported according to the classification of esophagitis according to the Savary-Miller and Los Angeles Classifications.

Savary-Miller Classification					
	Single or isolated erosive lesion(s) affecting only one longitudinal fold n (%)	Multiple erosive lesions, noncircumferential, affecting more than one longitudinal fold, with or without confluence n (%)	Circumferential erosive lesions n (%)	Chronic lesions: ulcer(s), stricture(s) and/or short esophagus n (%)	P value
Use of medication					
Yes	50 (54,3%)	29 (31,5%)	11 (12%)	2 (2,2%)	0,015^{*(a)}
No	1 (14,3%)	5 (71,4%)	0 (0,0%)	0 (0,0%)	
Use of Omeprazole					
Yes	39 (51,3%)	26 (34,2%)	9 (11,8%)	2 (2,6%)	0,545 ^(a)
No	12 (52,2%)	8 (34,8%)	2 (8,7%)	0 (0,0%)	
Use of Pantoprazole					
Yes	31 (49,2%)	21 (33,3%)	9 (14,3%)	2 (3,2%)	0,373 ^(a)
No	20 (55,6%)	13 (36,1%)	2 (5,6%)	0 (0,0%)	
Use of Domperidone					
Yes	22 (55,0%)	11 (27,5%)	7 (17,5%)	0 (0,0%)	0,225 ^(a)
No	29 (49,2%)	23 (39,0%)	4 (6,8%)	2 (3,4%)	

Table 2 - Statistical relationship of the Savary-Miller Classification with the use of medication and the most prevalent drugs.

(a) Fisher's exact test

* Statistically significant, P value <0.05

Reflux Symptoms Questionnaire	n	Mean (DP)	P value
Symptom time			0.018^{*(a)}
	< 5 anos	97	23.14 (7.73)
	≥ 5 anos	26	27.00 (5.31)
Savary-Miller classification			0.952 ^(b)
One fold or more erosions in a longitudinal fold	51	24.06 (8.41)	
Multiple erosions in more than one confluent fold or not	34	24.06 (6.20)	
Confluent erosions throughout the circumference	11	24.09 (7.61)	
Ulcer or stricture with or without erosion	2	28.50 (4.95)	
Barrett's epithelium with or without other lesions	1	-	
Los Angeles classification			0.767 ^(b)
One or more erosions smaller than 5mm	58	24.38 (7.52)	
One or more non-continuous erosions greater than 5mm	27	23.00 (8.13)	
Continuous erosions of at least two folds in less than 75% of the organ	9	25.78 (6.40)	
Erosions occupying at least 75% of the organ	4	25.00 (6.16)	

Table 3 – The mean (DP) from the GERD-HRQL questionnaire, related to the duration of symptoms, Savary-Miller, and Los Angeles classifications. Patients with symptoms for less than five years have a lower GERD mean score than patients with symptoms for five years or more.

* Statistically significant, P value <0.05

(a) Student's t-test; (b) One-way ANOVA