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GASTROESOPHAGEAL REFLUX DISEASE: DIAGNOSTIC CRITERIA AND CURRENT ASSESSMENT METHODS

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Abstract: Gastroesophageal reflux disease (GERD) is one of the most prevalent gastrointestinal disorders, defined by the retrograde flow of gastric contents that causes uncomfortable symptoms and/or complications. Its pathogenesis is multifactorial, involving not only hydrochloric acid, but also components such as pepsin and bile acids. Diagnosis based solely on typical symptoms, such as heartburn and regurgitation, is considered insufficient and nonspecific, especially in extraesophageal presentations (EER), such as chronic cough and laryngitis, or in specific populations, such as neonates, leading to overdiagnosis and overtreatment. The objective of this review is to summarize the current diagnostic criteria for GERD, with an emphasis on the use of objective assessment methods. This work is based on a narrative review of the literature. Modern diagnostic criteria, consolidated by the Lyon 2.0 Consensus, require objective and conclusive evidence of pathological reflux. Upper gastrointestinal endoscopy is essential, with grade B, C, or D erosive esophagitis (EE) (Los Angeles classification), peptic stenosis, or Barrett's esophagus being conclusive for diagnosis. In patients with normal endoscopy (Non-Erosive Reflux Disease - NERD), outpatient reflux monitoring is essential. The diagnostic approach is stratified between "unproven GERD" (test performed without medication) and "proven GERD" (test performed while on medication). Acid exposure time (AET) > 6% is the gold standard for diagnosis, while an AET < 4% excludes pathological GERD. Impedance-pH monitoring (pH-MII) is crucial for evaluating refractory patients, identifying weakly acidic or non-acidic reflux, and using adjunct metrics such as Mean Nocturnal Baseline Impedance (MNBI) and total number of reflux episodes. Standardization of objective criteria is essential to define "actionable GERD," allowing for personalized management and avoiding unnecessary use of proton pump inhibitors (PPIs).

Keywords: Gastroesophageal Reflux Disease; Diagnosis; Ambulatory pH Monitoring; Esophageal Impedance; Lyon Consensus; Erosive Esophagitis

INTRO

Gastroesophageal Reflux Disease (GERD) is defined as a condition in which the retrograde flow of gastric contents into the esophagus causes uncomfortable symptoms and/or tissue complications (Katz et al., 2022; Iwakiri et al., 2022). It remains one of the most common conditions in gastroenterological and primary care practice, with an increasing prevalence in several regions, including Japan (Katz et al., 2022; Iwakiri et al., 2022).

Although classically associated with symptoms of heartburn and regurgitation (Katz et al., 2022), GERD has a complex and multifactorial pathogenesis that goes beyond simple exposure to hydrochloric acid (Sharma & Yadlapati, 2021). Studies have highlighted the role of non-acidic components of refluxate, such as pepsin and bile acids, as well as failures in the defense mechanisms of the esophageal mucosa and motility disorders (Sharma & Yadlapati, 2021).

This complexity is reflected in diagnostic challenges. The traditional approach based solely on symptomatic response to a therapeutic trial with proton pump inhibitors (PPIs) has proven insufficient. It is estimated that up to 50% of patients with GERD symptoms do not obtain comple-

te relief with prolonged acid suppression, a condition known as Refractory GERD (Sharma & Yadlapati, 2021; Katz et al., 2022). In addition, GERD presents a varied spectrum of manifestations, including extraesophageal forms (EER), such as chronic cough and laryngopharyngeal reflux (LPR), which often occur in the absence of typical symptoms (Chen et al., 2023; Cui et al., 2024).

The absence of a single diagnostic "gold standard" and the low specificity of symptoms have led to the need for more objective criteria (Chen et al., 2023; Katz et al., 2022). The Lyon 2.0 Consensus, a recent update, emphasizes the importance of defining "actionable GERD," in which objective evidence of pathological reflux is robust enough to justify therapeutic escalation, whether long-term medical or invasive (surgical/endoscopic) (Gyawali et al., 2024).

This review aims to synthesize the current diagnostic criteria and assessment methods for GERD, focusing on recent guideline recommendations and the Lyon 2.0 Consensus, addressing diagnostic stratification from endoscopy to advanced reflux monitoring.

METHODOLOGY

This study is a narrative review of the literature, focused on the synthesis and analysis of current scientific evidence on the diagnostic criteria and assessment methods for Gastroesophageal Reflux Disease. A bibliographic search was conducted in the PubMed database, using the descriptors (MeSH terms): 'Gastroesophageal Reflux', 'therapy', and 'diagnosis'. These were combined with the Boolean operators AND and OR to optimize the retrieval of relevant articles. The inclusion criteria defined for the selection of studies were: publications from the last five years (2020-2024), with full text accessible, written in English or Portuguese, and directly addressing the diagnosis or treatment of GERD. The following were excluded from the analysis: articles without direct relevance to the central theme, duplicate publications, and narrative reviews with low methodological rigor. The selection process began with the screening of titles and abstracts, progressing to the full reading of the selected articles to confirm eligibility. Relevant information was extracted and compiled descriptively to compose this article.

RESULTS AND DISCUSSION

The diagnostic evaluation of GERD has evolved from a symptom-based approach to one that requires objective evidence. Modern diagnosis stratifies patients based on the presence of conclusive findings on endoscopy or reflux monitoring (Gyawali et al., 2024).

The Role of Upper Gastrointestinal Endoscopy (UGE)

UAE is often the first test performed in the evaluation of GERD and is mandatory in the presence of alarm symptoms such as dysphagia, weight loss, or gastrointestinal bleeding (Katz et al., 2022). The main function of UAE is to identify complications of GERD and rule out other pathologies.

According to current guidelines, including the Lyon 2.0 Consensus, conclusive evidence of GERD on endoscopy includes (Gyawali et al., 2024; Katz et al., 2022):

- **Erosive esophagitis (EE) Grades C or D** (Los Angeles Classification).
- **Grade B Erosive Esophagitis (EE)** (an update from Lyon 2.0, which now considers Grade B as conclusive evidence) (Gyawali et al., 2024).
- **Barrett's esophagus** confirmed by biopsy.
- **Peptic Stenosis**.

It is crucial to note that Grade A Esophagitis is no longer considered conclusive evidence of GERD, as it can be found in asymptomatic individuals and has low interobserver agreement (Gyawali et al., 2024; Katz et al., 2022). Most patients with typical GERD symptoms will have a normal endoscopy and be classified as having Non-Erosive Reflux Disease (NERD) (Katz et al., 2022; Iwakiri et al., 2022).

To maximize the diagnostic yield of EDA, especially in the investigation of unproven GERD or EER, it is recommended that the examination be performed after discontinuing PPIs for 2 to 4 weeks (Katz et al., 2022; Gyawali et al., 2024).

The Challenge of Symptoms and Special Populations

Failure to recognize the low specificity of symptoms is one of the main causes of overdiagnosis and overtreatment (Gyawali et al., 2024).

Extraesophageal Manifestations (EER): Patients with EER, such as chronic cough, laryngitis, or asthma, often do not experience heartburn or regurgitation (Chen et al., 2023). In these cases, the response to an empirical PPI trial is low and should not be used as a diagnostic tool (Chen et al., 2023; Katz et al., 2022). The Lyon 2.0 Consensus classifies symptoms such as hoarseness, globus, and nausea as having a low probability of association with GERD in the absence of typical symptoms (Gyawali et al., 2024). The investigation of these patients should focus on objectively ruling out GERD, usually with reflux monitoring (Chen et al., 2023).

Neonatal GERD: Diagnosis in neonates is particularly complex. Physiological gastroesophageal reflux (GER) is common in infants (Sawyer et al., 2022). Symptoms such as irritability, crying, and even cardiorespiratory events (apnea) have a low correlation with objectively measured reflux episodes (Sawyer et al., 2022). Notably, in preterm infants, most (up to 73%) reflux episodes are weakly acidic (pH 4-7), which explains the ineffectiveness of acid suppression therapy (PPIs) and the risks associated with its use (such as necrotizing enterocolitis and sepsis) (Sawyer et al., 2022).

Ambulatory Reflux Monitoring

When endoscopy is normal (NERD) or symptoms are atypical/refractory, ambulatory reflux monitoring is necessary to confirm the diagnosis (Katz et al., 2022). The main metric used is *Acid* Exposure Time (AET).

The Lyon Consensus 2.0 established clear thresholds for AET (Gyawali et al., 2024):

- **AET > 6%:** Conclusive for pathological GERD.
- **AET < 4%:** Considered physiological; excludes GERD (in the absence of other findings).

- **AET between 4% and 6%:** Inconclusive, requiring additional metrics to corroborate the diagnosis.

Test Stratification: "Unproven" vs. "Proven" GERD

The approach to reflux monitoring depends on whether or not the patient already has a previous objective diagnosis of GERD (Gyawali et al., 2024; Katz et al., 2022).

1. Unproven GERD (Initial Diagnosis):

In these patients (normal EDA, no previous diagnosis), the goal is to determine whether pathological GERD exists. The test should be performed without medication (PPIs suspended for 7 days) (Katz et al., 2022; Gyawali et al., 2024). The preferred method, when available, is wireless pH monitoring, which allows for prolonged recording (up to 96 hours) and captures daily reflux variability (Gyawali et al., 2024). Conventional pH monitoring or catheter-based pH-impedance (pH-MII) are also options (Katz et al., 2022).

2. Proven GERD (Refractory Symptoms):

In these patients (e.g., previous Grade C EE, previous AET > 6%) who remain symptomatic despite treatment, the goal is to understand why symptoms persist. The test should be performed while therapy is ongoing (ideally PPI at an optimized dose) (Katz et al., 2022; Gyawali et al., 2024).

The only valid test in this scenario is pH-MII. This method is crucial because it allows the detection of not only persistent acid reflux, but also weakly acidic or non-acidic reflux (pH > 4), which are common causes of refractory symptoms in patients under acid suppression (Katz et al., 2022; Sharma & Yadlapati, 2021). The test also allows for symptom association analysis (Symptom Association Probability - SAP), determining whether the patient's symptoms (even if due to non-acid reflux) are temporally linked to reflux episodes (Katz et al., 2022).

Adjunct pH-Impedance Metrics

When AET is inconclusive (4-6%), the Lyon 2.0 Consensus suggests the use of adjunctive pH-MII metrics to increase diagnostic confidence (Gyawali et al., 2024):

- **Mean Nocturnal Baseline Impedance (MNBI):** Reflects the integrity of the esophageal mucosa. A low MNBI (e.g., < 1500 ohms) suggests that the mucosa is compromised, even if the AET is not frankly pathological, supporting the diagnosis of GERD (Gyawali et al., 2024).
- **Number of Reflux Episodes:** A high number (e.g., > 80 episodes in 24 hours) is considered positive adjunctive evidence, while a very low number (< 40) argues against GERD (Gyawali et al., 2024).

CONCLUSION

The diagnosis of Gastroesophageal Reflux Disease has undergone a significant transformation, shifting from symptomatic evaluation and empirical testing to a rigorous approach based on objective evidence. The definition of "actionable GERD" requires confirmation of pathological reflux, established by conclusive endoscopic findings (Grade B, C, or D Erosive Esophagitis LA)

or by ambulatory reflux monitoring (AET > 6%) (Gyawali et al., 2024; Katz et al., 2022).

Diagnostic stratification between "unproven GERD" (requiring testing without medication to establish the diagnosis) and "proven GERD" (requiring testing while on medication to evaluate refractory symptoms) is essential (Gyawali et al., 2024). pH impedance monitoring (pH-IM) has become the essential tool for the latter group, identifying the role of weakly acidic or non-acidic reflux (Katz et al., 2022; Sharma & Yadlapati, 2021).

This diagnostic accuracy is vital not only to confirm GERD but also to identify alternative diagnoses, such as functional disorders, and to avoid overtreatment, especially in vulnerable populations such as neonates and patients with extraesophageal manifestations (Sawyer et al., 2022; Chen et al., 2023).

REFERENCES

CHEN, J. W. et al. AGA Clinical Practice Update on the Diagnosis and Management of Extraesophageal Gastroesophageal Reflux Disease: Expert Review. Clinical Gastroenterology and Hepatology, v. 21, n. 6, p. 1414–1421, jun. 2023.

CUI, N. et al. Laryngopharyngeal reflux disease: Updated examination of mechanisms, pathophysiology, treatment, and association with gastroesophageal reflux disease. **World Journal of Gastroenterology**, v. 30, n. 16, p. 2209–2219, 28 abr. 2024.

GYAWALI, C. P. et al. Updates to the modern diagnosis of GERD: Lyon consensus 2.0. **Gut**, v. 73, n. 2, p. 361–371, fev. 2024.

IWAKIRI, K. et al. Evidence-based clinical practice guidelines for gastroesophageal reflux disease 2021. **Journal of Gastroenterology**, v. 57, n. 4, p. 267–285, abr. 2022.

KATZ, P. O. et al. ACG Clinical Guideline: Guidelines for the Diagnosis and Management of Gastroesophageal Reflux Disease. **American Journal of Gastroenterology**, v. 117, n. 1, p. 27–56, 1 jan. 2022.

SAWYER, C.; SANGHAVI, R.; ORTIGOZA, E. B. Neonatal gastroesophageal reflux. **Early Human Development**, v. 171, p. 105600, ago. 2022.

SHARMA, P.; YADLAPATI, R. Pathophysiology and treatment options for gastroesophageal reflux disease: looking beyond acid. **Annals of the New York Academy of Sciences**, v. 1486, n. 1, p. 3–14, fev. 2021.