

Introduction

The Lyon 2.0 Consensus recommends prolonged, 96-hour, wireless pH-studies as the preferred diagnostic tool in unproven GERD when available.¹ This decision was based on the finding that prolonged pH measurements provide a higher diagnostic yield than 24-hr studies. However, the pH sensor may detach early, and 48-hour studies are routine (and cost-efficient) in many centers. This study aimed to determine the optimal duration and analysis for wireless pH-studies.

Method

Data from 944 consecutive patients with >92-hour wireless pH-studies was reviewed. Patients were classified at 24, 48, and 72-hours against the 96-hour reference standard. Acid exposure time (AET) <4% was considered conclusively negative and AET >6% conclusively positive for GERD diagnosis. Esophagitis was as an independent marker of disease. The effect of prolonging pH-measurement on GERD diagnosis was evaluated using average day, worst-day, and dominant pattern analysis (defined by ≥ 2 negative or positive days). Groups defined by 24-hour AET thresholds from 1% to 7% were followed up to 96 hours to assess when 24-hour data were sufficient for conclusive diagnosis.

Results

A stepwise improvement in diagnostic accuracy was observed from 24, 48, and 72-hour measurements compared to the 96-hour reference standard ($p < 0.00001$ for trend). The proportion of patients with inconclusive results (average AET 4-6%) reduced from 113 at 24 hours to 40 at 96 hours (35% of the subgroup; $p = 0.02$), with similar results for dominant pattern analysis, but not for worst-day analysis ($p = 0.2$). 93% of patients with LA grade B esophagitis had AET >6%. 2.6% of patients with a 24-hour AET $\leq 2.0\%$ had a positive GERD diagnosis at 96 hours.

Conclusion

Prolonging pH-studies improves the diagnostic yield for conclusive GERD diagnoses and can resolve inconclusive results based on 24-hour studies. Analysis methods that utilize the full data set are preferred. The optimal duration for pH measurements is >72 hours; however, clearly negative (<2% AET) or positive results (>6% AET) from 24-hour studies are sufficient to exclude or confirm GERD diagnosis.

References

1. Yadlapati R, Masihi M, Gyawali CP, et al. Ambulatory Reflux Monitoring Guides Proton Pump Inhibitor Discontinuation in Patients With Gastroesophageal Reflux Symptoms: A Clinical Trial. *Gastroenterology* 2021;160:174-182.e1.