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DOI: 10.17235/reed.2025.11292/2025

Link: [PubMed \(Epub ahead of print\)](#)

Please cite this article as:

Fuentes Gómez Adriana, Fuentes Gómez Adriana. Frequent errors in the interpretation of breath tests in patients with suspected small intestinal bacterial overgrowth (SIBO). Rev Esp Enferm Dig 2025. doi: 10.17235/reed.2025.11292/2025.

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## **Frequent errors in the interpretation of breath tests in patients with suspected small intestinal bacterial overgrowth (SIBO)**

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**Keywords:** Small intestinal bacterial overgrowth. Breath test. Clinical interpretation.

I would like to share a clinical reflection on an increasingly common issue encountered in practice: the misinterpretation of breath test results for the diagnosis of Small Intestinal Bacterial Overgrowth (SIBO), particularly in patients with slow intestinal transit.

In daily clinical practice, an increasing number of cases are observed where SIBO is ruled out based solely on flat curves or delayed rises, without considering critical factors such as transit time, chronic constipation, or advanced colonic fermentation. This overly rigid application of diagnostic cut-off points can lead to clinically relevant false negatives, especially if the entire curve is not interpreted within the patient's clinical context (1).

Moreover, it should be noted that breath tests using lactulose may produce false positives if intestinal transit is accelerated, as the substrate may reach the colon prematurely, causing colonic fermentation before 90 minutes (2). Conversely, the use of glucose as a substrate may result in false negatives, since it is absorbed in the proximal small intestine and may fail to detect distal bacterial overgrowth (3). Regarding the interpretation of hydrogen curves, it is crucial to recognize that, when using lactulose, only the first hydrogen peak within 90 minutes is diagnostically relevant; a second peak is not mandatory and may merely reflect colonic fermentation (4).



Another important consideration is the lack of standardization in testing protocols, encompassing variables such as the amount of substrate administered and the diagnostic time thresholds. This variability can lead to inconsistent results and may reduce the reliability of the breath test if the clinical context is not adequately integrated. Furthermore, recent use of antibiotics, probiotics, prokinetics, or laxatives can significantly alter the intestinal microbiota and affect test outcomes; therefore, these agents should be discontinued sufficiently in advance to ensure an accurate fermentative profile assessment.

Finally, it is important to emphasize that the presence of methane in breath test indicates intestinal methanogen overgrowth (IMO) rather than bacterial overgrowth, and it is a frequent error to confuse these two entities in clinical practice. This distinction is critical, as underscored in the recent consensus statement by the Spanish Association of Neurogastroenterology and Motility (ASENEM) and the Spanish Society of Digestive Pathology (SEPD), which highlights the importance of differentiating between SIBO and IMO for accurate diagnostic and therapeutic approaches (4).

Furthermore, treatment should not be limited exclusively to antibiotics. In specific scenarios, particularly mild cases or patients with high digestive sensitivity, targeted phytotherapy (herbal agents with antimicrobial activity) has shown positive clinical outcomes, with better tolerance and a lower impact on the intestinal microbiota (5,6). These alternatives are not intended to replace validated treatments but may be considered complementary options when appropriate based on the clinical context.

Based on my clinical experience and interpretation of these tests in both private practice and laboratory settings, I believe it is essential to promote a more critical and comprehensive interpretation of breath test results, as well as to encourage more robust training in the use of this diagnostic tool, in order to avoid misdiagnoses and unnecessary



or inappropriate treatments.

Thank you for your consideration. I remain available for any further comments or requirements.

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