

Title:

Plasma levels of intestinal fatty-acid binding protein (I-FABP), abdominal distension and hydrogen concentration after lactitol small intestinal bacterial overgrowth (SIBO) test

Authors:

Carlos Maroto, Aida Fiz-López, Raquel Pastor, David Bernardo, José Antonio Garrote, Eduardo Arranz, Luis Fernández Salazar

DOI: 10.17235/reed.2023.9578/2023

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

Please cite this article as:

Maroto Carlos, Fiz-López Aida, Pastor Raquel, Bernardo David, Garrote José Antonio, Arranz Eduardo, Fernández Salazar Luis. Plasma levels of intestinal fatty-acid binding protein (I-FABP), abdominal distension and hydrogen concentration after lactitol small intestinal bacterial overgrowth (SIBO) test. Rev Esp Enferm Dig 2023. doi: 10.17235/reed.2023.9578/2023.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

CC 9578

Plasma levels of intestinal fatty-acid binding protein (I-FABP), abdominal distension and hydrogen concentration after lactitol small intestinal bacterial overgrowth (SIBO) test

Carlos Maroto¹, Aida Fiz-López², Raquel Pastor³, David Bernardo^{2,4}, José Antonio Garrote², Eduardo Arranz², Luis Fernández-Salazar^{1,3}

¹Department of Gastroenterology. Hospital Clínico Universitario de Valladolid. Gerencia Regional de Salud (SACYL). Valladolid, Spain. ²Unit of Excellence. Institute of Biomedicine and Molecular Genetics (IBGM). Universidad de Valladolid-CSIC. Valladolid, Spain. ³Medicine, Dermatology and Toxicology Department. School of Medicine. Universidad de Valladolid. Valladolid, Spain. ⁴Centro de Investigación Biomédica en Red de Enfermedades Infecciosas (CIBERINFEC). Madrid, Spain

Correspondence: Luis Fernández-Salazar

e-mail: luisfernals@gmail.com

Conflict of interest: the authors declare no conflict of interest.

Acknowledgements: this work was funded by the Spanish Ministry of Science (PID2019-104218RB-I00) and by the Programa Estratégico Instituto de Biología y Genética Molecular (IBGM), Junta de Castilla y León (CCVC8485). DB is part of the CSIC's Global Health Platform (PTI Salud Global).

Keywords: Lichen planus dysphagia. Squamous cell carcinoma. Membranous lesions.

Dear Editor,

Breath tests with glucose, lactulose or lactitol are useful for the diagnosis of small intestinal bacterial overgrowth (SIBO). Nevertheless, they have suboptimal sensitivity and specificity and in fact, are present in a considerable number of patients with

irritable bowel syndrome (IBS) (1). The complexity in the management of patients with functional intestinal disorders and the availability of these tests are leading to frequent diagnoses of SIBO. Intestinal fatty-acid binding protein (I-FABP) is a protein present in the cytosol of intestinal epithelial cells. Its plasmatic levels have been related to different enteropathies and therefore, could be a marker of early intestinal damage with unconfirmed clinical utility (2). Hence, the plasmatic I-FABP level of patients who had a lactitol test to confirm SIBO were studied and related to clinical and laboratory characteristics and SIBO test results. To that end, plasma samples were obtained from 20 consecutive patients who underwent the lactitol test from November 2022 to January 2023. The plasma I-FABP levels were determined (ELISA) and further compared with clinical data including Rome IV criteria for IBS (3), pain, distension, bowel score and quality of life measured with the IBS severity scale (IBSSS) (4), anxiety and depression (HAD scales) (5), laboratory values up to six months before (hemoglobin, serum iron, folic acid, vitamin B12, C-reactive protein and fecal calprotectin) and the concentrations of hydrogen and methane in expired air after taking 10 g of lactitol. Figure 1 shows the association of I-FABP with gender, abdominal distension and total concentration of hydrogen. Plasmatic I-FABP values were not related with the age, Rome IV criteria, abdominal pain, bowel score and quality of life measured with IBSSS, HAD scales score, laboratory values, diagnosis of SIBO, concentration of hydrogen in the first 90 or methane concentration. Although we are aware of the reduced sample size, the association between I-FABP and abdominal distension must be highlighted. Despite the fact that the 13 patients with a positive lactitol test had high methane production, neither SIBO test positivity nor methane concentrations were associated with higher I-FABP values. In the event these results are confirmed with a larger number of patients, I-FABP could be a marker of abdominal distension, which could help to explain its pathophysiology, characterization and treatment.

References

1. Ghoshal UC, Shukla R, Ghoshal U. Small intestinal bacterial overgrowth and irritable bowel syndrome: a bridge between functional organic dichotomy. Gut Liver

2017;11(2):196-208. DOI: 10.5009/gnl16126

2. Logan M, MacKinder M, Clark CM, et al. Intestinal fatty acid binding protein is a disease biomarker in paediatric coeliac disease and Crohn's disease. BMC Gastroenterol 2022;22(1):260. DOI: 10.1186/s12876-022-02334-6

3. Lacy BE, Patel NK. Rome criteria and a diagnostic approach to irritable bowel syndrome. J Clin Med 2017;6(11):99. DOI: 10.3390/jcm6110099

4. Almansa C, García-Sánchez R, Barceló M, et al. Translation, cultural adaptation and validation of a Spanish version of the Irritable Bowel Syndrome Severity Score. Rev Esp Enferm Dig 2011;103(12):612-8. DOI: 10.4321/s1130-01082011001200002

5. Herrero MJ, Blanch J, Peri JM, et al. A validation study of the hospital anxiety and depression scale (HADS) in a Spanish population. Gen Hosp Psychiatry 2003;25(4):277-83. DOI: 10.1016/s0163-8343(03)00043-4

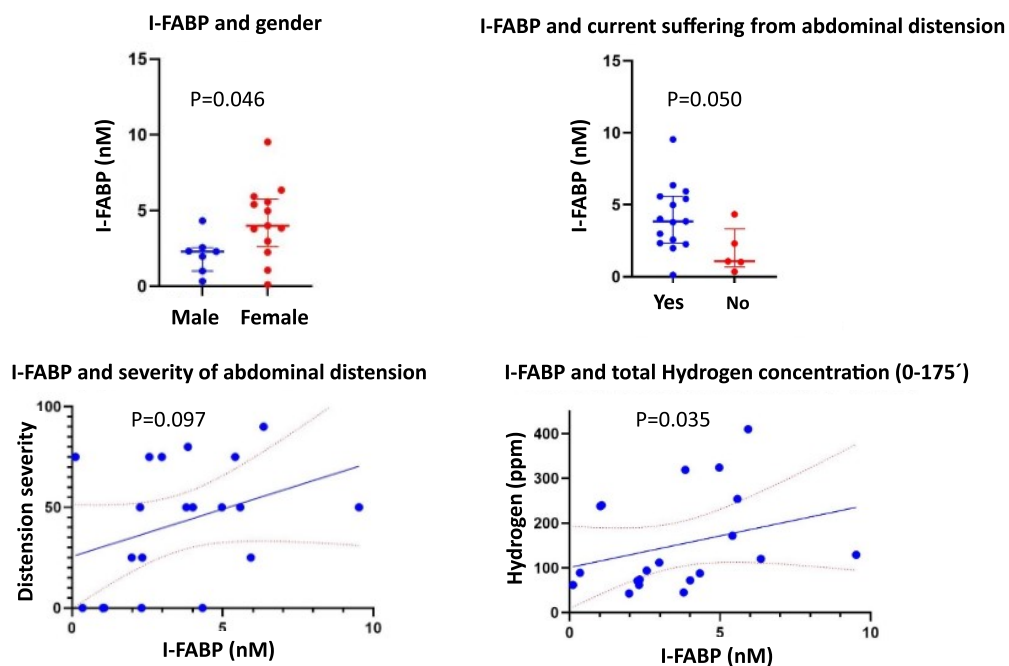


Fig. 1. I-FABP plasmatic level is associated with: A) gender of the patients, 2.3 (2.1) vs 4.0 (3.1), $p = 0,046$; B) current abdominal distension, 3.8 (3.2) vs 1.0 (2.6), $p = 0.050$; C) severity of the distension, $R = 0.381$, $p = 0.097$; and D) sum of the hydrogen concentrations throughout the 175' duration of the SIBO test, $R = 0.481$, $p = 0.035$. Variables are expressed with medians and interquartile range. Mann-Whitney U test and Spearman's correlation.