

Evaluation of Probiotic Use, SIBO, and Lactatemia in Patients with Brain Fogginess, Gas, and Bloating

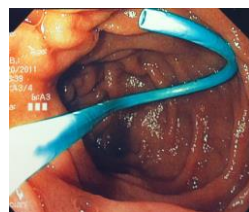


BACKGROUND & OBJECTIVES

- Brain Fogginess (BF) may occur due to lactatemia (increased D/L-lactic acid) and maybe associated with small intestinal bacterial overgrowth (SIBO).
- Aim: To examine the prevalence of probiotic use in patients with unexplained brain fogginess (BF), gas, and bloating and assess its association with SIBO and lactatemia.

MATERIAL & METHODS

- Patients with chronic gas/bloating (>6 months) were assessed for BF using a structured questionnaire and gas/bloating-related symptoms and were recorded using a validated questionnaire along with the use of probiotic use.
- BR symptoms included mental confusion, feeling sleepy, forgetfulness, and difficulty focusing.
- Subjects underwent glucose breath test (GBT) and/or small bowel aspiration/culture for SIBO as well as urine D-lactic acid and serum L-lactic acid during GBT.
- SIBO was diagnosed based on a positive GBT (≥ 20 ppm rise) and/or bacterial count $\geq 10^3$ cfu/mL.
- Lactatemia was defined as ≥ 0.22 mmol/L (D-lactic acid) and/or ≥ 2.2 mmol/L (L-lactic acid).
- Data were compared between patients with and without BF.



RESULTS

- Of 104 patients (f/m = 77/27, mean age: 45 years), 89 (85.6%) reported BF (BF group) and 15 (14.4%) had no BF (non-BF group).
- There was significantly higher prevalence of probiotic use in the BF group compared to non-BF group (85.4% vs 33.3%; $p < 0.0001$). Figure 1
- The prevalence of SIBO was higher in the BF group compared to the non-BF group (53.9% vs 26.7%; $p = 0.05$). Figure 1
- The prevalence of flatulence, bloating, belching, and abdominal pain, were similar between the two groups. Figure 2
- Difficulty thinking (90.4%), difficulty focusing (90.4), feeling sleeping (90.4%), and forgetfulness (88.1%) were the most prevalent BF symptoms.

BRAIN FOG COHORT

- Among BF patients who also took probiotics, 43/76 (56.6%) had SIBO and 45/76 (59.2%) had lactatemia.
- Most non-BF patients did not use probiotics (10/15, 66.7%) and 9/10 (90%) were negative for SIBO.
- In the non-BF group that took probiotics, 3/5 (60%) had SIBO, one with lactatemia.

SUMMARY / CONCLUSION

- Brain Fogginess is significantly associated with probiotic use and persistent gas/bloating and distention.
- Brain Fog patients are significantly more likely to have SIBO and lactatemia (secondary to CHO fermentation in small bowel) compared to those without BF or probiotic use.
- In patients with unexplained gas/bloating, clinicians should, enquire if they have Brain FOG and use probiotics, and if so, assess for lactatemia and SIBO,
- Recognition & Management of BF, SIBO & lactatemia will help many patients

BRAIN FOG vs NON BRAIN FOG

Figure 1. Comparative prevalence of probiotic use and SIBO in BF vs non-BF groups

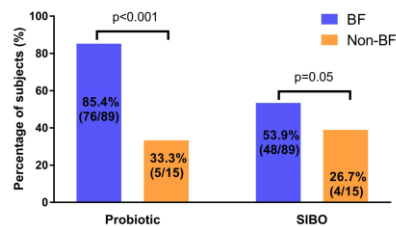
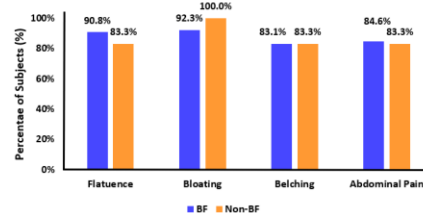


Figure 2. Prevalence of GI Symptoms in BF vs Non-BF



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