First reported case of Lactobacillus rhamnosus ventriculitis; likely a probiotic-induced infection

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Probiotics are routinely administered to critically ill patients for many indications including improving GI health, and ventilator-associated pneumonia, however, potential concerns have been raised regarding the safety measurements that may outweigh their potential benefits. Lactobacillus bacteremia induced by probiotics has been well-reported in this high-risk population. However, to the best of our knowledge, there are two reports of Lactobacillus meningitis in immunosuppressed children.

A 69-year-old woman presented with an aneurysmal subarachnoid hemorrhage secondary to a ruptured MCA aneurysm which was managed via clipping. Her 62-day hospital course was complicated by obstructive hydrocephalus requiring an EVD placement. On HD 30, her EVD was replaced in the operating room. The following day, a new fever prompted a CSF culture which grew Lactobacillus rhamnosus. Given the unusual organism, the daily Lactobacillus rhamnosus probiotic started on admission was the presumed source. She was treated with a 3-week course of antibiotics (meropenem narrowed to ampicillin). Ultimately, she required ventriculoperitoneal shunt placement and was discharged to an SNF with a mRS score of 4.

The efficacy and adverse effects of probiotic treatment in ICU patients have conflicting data in the literature. Despite the potential benefits of probiotics in critically ill patients, there are several case reports of systemic infections consistent with probiotic strains, including spontaneous bacterial peritonitis in patients with cirrhosis and on peritoneal dialysis, endocarditis, and bacterial meningitis. A risk-benefit analysis should be performed prior to the use of probiotics in this patient population, and probiotic-induced infections should be included in the differential for infection, particularly among high-risk patients with immunocompromised status, disorders of the gastrointestinal tract, or disrupted blood-brain barrier. Additional randomized controlled trials are necessary to evaluate the safety profile of probiotics in critically ill patients and can inform the optimal probiotic dose, species, formulation, and length of treatment.

GI: Gastrointestinal, MCA: Middle cerebral artery, EVD: External ventricular drain, HD: Hospital day, CSF:

Cerebral spinal fluid, SNF: Skilled nursing facility. mRS: Modified Rankin scale.