Critical Care Medicine
Society of Critical Care Medicine
The Intensive Care Professionals
Wolters Kluwer

Probiotics in Critical Illness : A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Objectives

To determine the safety and efficacy of probiotics or synbiotics on morbidity and mortality in critically ill adults and children

Study Selection

Systematic search for randomized controlled trials (RCTs) that compared enteral probiotics or synbiotics to placebo or no treatment in critically ill patients

Data Synthesis

65 RCTs

8483 Patients

↓ **VAP** RR 0.72 *95% CI,0.59 to 0.89*
6.9% risk reduction *95% CI, 2.7–10.2%*

↓ **HAP** RR 0.70 *95% CI, 0.55–0.89*
5.5% risk reduction *95% CI, 8.2–2.0%*

↓ **MV** mean difference 2.53 days
95% CI, 1.31–3.74 days fewer

↓ **ICU LOS** mean difference 1.38 days
95% CI, 0.57– 2.19 days fewer

↓ **Hospital LOS** mean difference 2.21 days
95% CI, 1.18–3.24 days fewer

↔ **Mortality** RR 0.95
95% CI -2.8 to 0.8%

Serious Adverse Events

Defined differently across trials

- 2 Studies reported any SAEs
- 9 Mesenteric ischaemia
- 15 Probiotic organism isolates from sterile sites
- 2 Lactobacillus culture isolates may be associated with significant morbidity or mortality

Conclusion

Low certainty RCT evidence suggests that probiotics or synbiotics during critical illness may reduce VAP, HAP, ICU LOS and hospital LOS, but probably have no effect on mortality

Data from Sharif, et al: *Crit Care Med* 2022