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ORIGINAL RESEARCH COMMUNICATION

Effects of probiotic therapy in critically ill patients: a randomized, double-blind, placebocontrolled trial 1,2,3

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Background: Multiple organ dysfunction syndrome (MODS) is a major cause of mortality in intensive care units. A breakdown in gut barrier function and immune dysfunction are associated with the onset of MODS. Probiotic bacteria have been shown to modulate intestinal barrier and immune function.

Objective: This study assessed the efficacy of a probiotic compound in a viable and nonviable formulation in modulating intestinal permeability and immune function and preventing the onset of MODS in patients in the intensive care unit.

Design: A double-blind, randomized controlled trial was conducted in the intensive care unit of a tertiary care teaching hospital. Twenty-eight critically ill patients

admitted to the intensive care unit were randomly assigned to receive 1 of 3 treatments daily for 7 d: 1) placebo, 2) viable probiotics, or 3) equivalent probiotic sonicates. MODS scores and systemic concentrations of immunoglobulin (Ig) A and IgG were measured on days -1, 4, and 7, and intestinal permeability measurements were taken daily.

Results: The patients responded to viable probiotics with a significantly larger increase in systemic IgA and IgG concentrations than in the patients who received placebo or sonicates (P < 0.05). MODS scores were not significantly affected by probiotic treatment. Over the study period, intestinal permeability decreased in most patients.

Conclusion: Patients receiving viable probiotics show a greater enhancement in immune activity than do patients receiving either placebo or probiotic bacterial sonicates.

Key Words: Intestine • multiple organ dysfunction syndrome • Lactobacillus sp. • Bifidobacterium • sepsis

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