Intestinal Blautia Is Associated with Reduced Death from Graft-versus-Host Disease.

Abstract:

The relationship between intestinal microbiota composition and acute graft-versus-host disease (GVHD) after allogeneic blood/marrow transplantation (allo-BMT) is not well understood. Intestinal bacteria have long been thought to contribute to GVHD pathophysiology, but recent animal studies in nontransplant settings have found that anti-inflammatory effects are mediated by certain subpopulations of intestinal commensals. Hypothesizing that a more nuanced relationship may exist between the intestinal bacteria and GVHD, we evaluated the fecal bacterial composition of 64 patients 12 days after BMT. We found that increased bacterial diversity was associated with reduced GVHD-related mortality. Furthermore, harboring increased amounts of bacteria belonging to the genus Blautia was associated with reduced GVHD lethality in this cohort and was confirmed in another independent cohort of 51 patients from the same institution. Blautia abundance was also associated with improved overall survival. We evaluated the abundance
of Blautia with respect to clinical factors and found that loss of Blautia was associated with treatment with antibiotics that inhibit anaerobic bacteria and receiving total parenteral nutrition for longer durations. We conclude that increased abundance of commensal bacteria belonging to the Blautia genus is associated with reduced lethal GVHD and improved overall survival.