Abstract

A bloodstream infection (BSI) is the most common serious infectious complication of hematopoietic stem cell transplantation (HSCT). BSI promotes an inflammatory state, which exacerbates acute graft-versus-host disease (GVHD). We investigated whether a Gram-negative rod bloodstream infection (GNR-BSI), which develops early after allo-HSCT, affected the onset or exacerbated acute GVHD in 465 patients who underwent allo-HSCT from 1995 through 2015 at a single institution. Eighty-eight patients (19%) developed BSI during the study period. Among the cultures, 50 (57%) were Gram-positive cocci (GPC) and 31 (35%) were GNR. Of the 465 patients, 187 (40%) developed acute GVHD of grade II or higher within the first 100 days post-allogeneic HSCT: 124 (27%) had acute GVHD grade II, 47 (10%) had grade III, and 16 (3%) had grade IV. Multivariate analysis revealed that GNR-BSI was a significant risk factor for grade II–IV acute GVHD (grade II–IV: hazard ratio [HR] 1.75, 95% confidence interval [CI] 1.03–2.97; grade III–IV: HR 2.37, 95% CI 1.03–5.43). These results suggest that GNR-BSI may predict the onset and exacerbation of acute GVHD.

Keywords: bloodstream infection, graft-versus-host disease, gram negative rods