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Long-term Outcome of Myeloablative Allogeneic Stem Cell Transplantation for Multiple Myeloma

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Allogeneic stem cell transplantation (alloSCT) has been used in the hopes of harnessing the curative potential of the graft-versus-myeloma effect. This study examines the long-term outcomes of a large cohort of patients with myeloma who were treated with myeloablative alloSCT at a single center. Comparisons are made with those who were treated with autologous stem cell transplantation (ASCT). Between January 1989 and February 2002, 158 patients age ≤ 55 years underwent SCT for myeloma.

Seventy-two patients underwent myeloablative alloSCT (58 related; 14 unrelated), whereas 86 patients underwent ASCT.

Most patients received single-agent high dose dexamethasone or VAD (vincristine, adriamycin, dexamethasone) therapy pre-SCT.

Conditioning regimens were melphalan-based for all ASCT patients, whereas the alloSCT patients received melphalan-based (70%), total-body irradiation (TBI)-based (18%), or other (13%). Patients who underwent alloSCT were younger, had a higher Durie-Salmon stage disease, and a shorter median time from diagnosis to transplant. Myeloma subtypes were similar between groups. Other pre-SCT (BMT) characteristics were similar except that ASCT patients had a higher proportion of cases that received palliative radiotherapy pre-SCT.

Disease response pre-SCT was similar. At last follow-up, 61 of 158 patients are alive with a median follow-up of 88.4 months (range: 35.5-208.5). The overall survival (OS) of the alloSCT cohort was 48.1% at 5 years and 39.9% at 10 years compared to 46.2% at 5 years and 30.8% at 10 years for the ASCT cohort ($P = .94$). The event-free survival of the alloSCT cohort was 33.3% at 5 years and 31.4% at 10 years compared to 32.9% and 15.2% for the ASCT cohort ($P = .64$). Treatment-related mortality (TRM) at 1 year was 22% for the alloSCT cohort and 14% in the ASCT cohort ($P = .21$).

Cumulative incidence of grade II-IV acute graft-versus-host disease (aGVHD) was 72% and the cumulative incidence of chronic GVHD (cGVHD) was 68% at 2 years. Neither aGVHD nor cGVHD had an influence on OS or event-free survival, although 5 of 14 patients who have received donor lymphocyte infusions (DLI) have had disease response.

The risk of relapse was reduced in those who developed aGVHD ($P = .02$) but not cGVHD ($P = .23$). In conclusion, although there are patient who are alive without disease >10 years post myeloablative alloSCT, similarly there are long-term survivors post-ASCT. Myeloablative alloSCT should not be considered standard treatment, and should only be considered in the context of a clinical trial.