Single centre outcomes of allogeneic stem cell transplantation for multiple myeloma.

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Background- The introduction of novel drugs and autologous stem-cell transplantation (SCT) have improved outcomes in multiple myeloma (MM) but most relapse and remain incurable. Allogeneic SCT is potentially curative but high transplant-related mortality (TRM) limits its use. Reduced-intensity transplants have reduced TRM but have higher relapse rates.

Aims- We aimed to evaluate progression free survival (PFS) and overall survival (OS) in MM patients who underwent allogeneic SCT. We also examined the effect of pre-allogeneic SCT disease status, prior autologous SCT and number of treatment lines, in addition to type of conditioning regimen, age and 6 month chimerism on PFS and OS.

Method- A retrospective analysis of all consecutive MM patients that underwent allogeneic SCT at King's and Guy's hospitals between 1999 and 2015.

Results- 29 MM patients underwent allogeneic SCT, median age was 51years and median year of transplant was 2005. Prior to allogeneic SCT a median of 3.6 treatment lines (range 2-9) were administered, including autologous SCT which 79.3% received. The subtype of MM was; IgG 48.3%, IgA 20.7%, plasma cell leukaemia 17.2% and light chain disease 13.8%. Prior to allogeneic SCT 41.2% were in complete remission, 14.8% in very good partial remission (VGPR), 29.2% in partial remission and 14.8% had stable disease. IMiD therapy was used in 51.7% and velcade in 27.6% of patients during induction. A sibling donor was used in 57.1% of cases, the remainder having volunteer unrelated donor transplants. 51.7% of patients received fludarabine, melphalan and alemtuzumab conditioning, 13.8% received fludarabine, busulfan and alemtuzumab and the rest received anti-thymocyte globulin or total body irradiation.

Median PFS and OS were 35 and 56 months respectively. The 10 year PFS was 23% and OS was 49%. Age, pre-allogeneic SCT disease status, 6 month chimerisms and type of conditioning regimen had no significant effect on PFS or OS. Patients achieving ≥VGPR pre transplant had a median PFS of 59 months compared with 14 months in those who achieved P=0.04) and PFS (P=0.015). Those that received 1 autologous SCT (n=16) had longer OS (*P*=0.026) compared to those that received 2 (n=7) or no autologous SCT (n=6), but PFS was not affected.

Acute graft versus host disease (GvHD) occurred in 4 patients and 5 patients experienced chronic GvHD. 9 patients were given donor lymphocyte infusions at a median of 9 months post transplant and 4 received pre-planned maintenance therapy. 13 patients relapsed following allogeneic SCT and were given a median of 1 further treatment line (range 0-5).

Conclusion-

Our data supports performing an allogeneic SCT early in the disease course after less than 4 treatment lines and after 1 autologous SCT. Low disease burden prior to allogeneic SCT (≥VGPR) is associated with improved PFS and OS, although this did not reach statistical significance in our relatively small cohort. Immunomodulation post allogeneic SCT is likely to be key in further improving outcomes and needs to be systematically investigated in prospective trials.