EBMT 2016 - Physicians Abstract (including Data and Quality Management)

Topic area: Disease - specific topics

Topic: 25. Multiple myeloma

EBMT16-PH-1252

The effect of body mass index and melphalan dose adjustments on outcomes in patients undergoing autologous haematopoietic cell transplantation for multiple myeloma: a single-centre retrospective study

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Preferred Presentation Method: Oral or Poster Presentation

Introduction: Despite the introduction of novel therapies, high-dose melphalan followed by autologous haematopoietic cell transplantation (AHCT) remains the standard of care for younger patients with multiple myeloma (MM). There are limited data on the effects of increased body mass index (BMI) on outcomes from AHCT and, in particular, whether or not melphalan dose adjustments should be made in patients with increased BMI. We therefore investigated the effect of increased BMI, and melphalan dose adjustments made for this, on outcomes from AHCT for MM.

Material (or patients) and methods: We conducted a retrospective study on all patients undergoing their first AHCT for MM from 2003-2013, and categorised them according to their BMI (normal weight: BMI 18.5-24.9, overweight: BMI 25.0-29.9, obese: BMI 30.0-34.9 and severely obese: BMI>35.0). We investigated whether BMI group affected CD34+ cell collection, neutrophil/platelet engraftment, transplant-related mortality (TRM), progression-free (PFS) and overall survival (OS) rates. We also investigated, in a subgroup of patients with increased BMI, whether melphalan dose adjustments altered outcomes compared to those in whom no dose adjustments were made.

Results: 320 patients were included: 96 (30%) were normal weight, 143 (45%) overweight, 59 (18%) obese and 22 (7%) were severely obese. There were no significant differences between BMI groups in numbers of CD34+ cells harvested or transplanted. Neutrophil and platelet engraftment times were also not significantly different. The 5-year OS rate was not significantly different between BMI groups (50.7% for normal weight, 60.9% for overweight, 57.2% for obese and 55% for severely obese, p=0.97).

Patients were then divided into two groups according to scheduled melphalan dose (200mg/m^2, n = 223, and all other doses, predominantly 140mg/m^2, n=97). The median age of those scheduled for 200mg/m^2 was lower than for those scheduled to receive lower doses (57 versus 66 years, p<0.0001), and a higher proportion of patients in the lower dose group had renal and cardiac co-morbidities. However, there was no significant difference in 2-year PFS (49% versus 52%, p=0.32) or 5-year OS rates (61% versus 49 %, p=0.26) between these groups.

In 43 patients with BMI>27.8 (33% of a total of 132), the melphalan dose was adjusted by the transplant physicians to 85-96% of that scheduled. Comparison of the dose-adjusted with the non-adjusted group showed no differences in age, sex or co-morbidities. There were no statistically significant differences between these groups in neutrophil (median 14.0 versus 13.0 days, p=0.11) and platelet engraftment (median 16.0 versus 17.0 days, p=0.19), 1-year TRM (0% versus 1%, p=0.81), 2-year PFS (57.1% versus 47.8%, p=0.30) and 5-year OS (61.2% versus 55.3%, p=0.84).

Conclusion: In MM patients undergoing high-dose melphalan with AHCT, increased BMI does not alter CD34+ cell harvest, time to engraftment, 1-year TRM, 2-year PFS or 5-year OS. Melphalan dose reductions in patients with increased BMI do not appear to alter key transplant outcomes.

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Disclosure of Interest: None Declared

Keywords: Autologous haematopoietic cell transplantation, Body mass index, Multiple myeloma, Obesity