LUNG FUNCTION IN POST-TRANSPLANT MULTIPLE MYELOMA PATIENTS


Introduction Chemotherapy followed by autologous stem cell transplant (SCT) is the standard of care for patients with multiple myeloma. However, both conditioning and transplantation increase patient susceptibility to pulmonary complications, a major cause of morbidity and mortality. Pulmonary function tests (PFTs) are routinely performed before and after SCT, providing a means to detect any early decline in pulmonary performance. We report a retrospective analysis of patients undergoing treatment for myeloma at a tertiary London hospital with pre-and post SCT PFTs to assess the impact of transplantation on pulmonary function.

Methods Patients were assessed with serial PFTs pre and post SCT (initially 6 weeks and thereafter 3 monthly). Standardised PFTs were expressed as a percentage of the pre-transplant value (100%). Tests were carried out by the same personnel, to ensure standardisation and eliminate variability in patient performance.

Results 34 patients with myeloma with median age at SCT of 50 years (range 36–69) were analysed. Conditioning therapy utilised high dose melphalan in 14 and TBI in 18. Median follow-up was 12 months (range 1.5–102) and a median of 4.5 PFTs was performed (range 2–21). FEV₁ was reduced by >10% in 14/34 and five of these had >20%. FVC decreased >10% in 7/34 and >20% in 6/34. TLCO was reduced by >10% in 25/34 and >20% in 12/34 patients. KCO decreased in 25/34 (<10%) and 12/34 (>20%) patients. The median time for maximum reduction was between 2.25 and 4 months for all tests. An improvement in PFT to >90% baseline occurred in over 50% of patients who had repeat investigations and this occurred within 24 months of initial PFT reduction. No significant difference was observed between TBI and melphalan based conditioning approaches.

Conclusion Reductions in FEV₁ or FVC were observed in a minority of patients whereas a majority had a reduction in TLCO/KCO—a significant proportion experiencing >20% fall. This reduction occurred early post transplant and improved for many. These changes may reflect possible pulmonary toxicity associated with conditioning therapy, post transplant lung injury or a combination of both and illustrates the necessity for regular prospective monitoring of PFTs following SCT for myeloma.

COMPARISON OF THE ROBD AND THE VENTIMASK METHOD OF PRE-FLIGHT EVALUATION

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Introduction The Ventimask method of HCT is widely used in clinical practice however; a major limitation of this method is that the gas concentration administered during testing cannot be verified. The Reduced Oxygen Breathing Device (ROBD) is a flight simulator developed by the US military and the inspired fraction of oxygen (FiO₂) can be accurately determined.

Aim The aim of this study was to compare the results obtained during HCT, in patients with chronic respiratory disease, using the ROBD compared to the Ventimask method. The relationship of PaO₂ and SpO₂ by both methods was compared to in-flight oxygen saturations.