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Inhibition of the Renin Angiotensin System during Autologous Stem Cell Transplant Does Not Impact Time to Engraftment

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ABSTRACT

Background: The renin angiotensin system RAS modulates hematopoiesis via local effects in the bone marrow. Angiotensin converting enzyme inhibitors (ACEi) and angiotensin receptor blockers (ARBs) may adversely impact hematopoiesis and time to engraftment in patients undergoing stem cell transplant (SCT). Our study assesses whether the use of ACEi or ARBs delays time to engraftment in patients with multiple myeloma undergoing a melphalan based autologous SCT. Methods: A retrospective review of 58 patients who underwent autologous SCT with a melphalan 200 mg/m² conditioning regimen for multiple myeloma between January 1 and December 31, 2010 was performed. Results: Of 58 evaluable patients, 47 underwent autologous SCT without an ACEi or ARB (control group), and 11 patients were given ACEi or ARBs (treatment group). Mean time to neutrophil engraftment was 11.5 days in the control group, and 11.3 days in treatment group (p = 0.60). Mean time to platelet engraftment in control group was 13.5 days and 15.1 days in treatment group (p = 0.2). There was no statistically significant difference between groups in time to neutropenic fever and length of hospital stay. Conclusion: Our study demonstrates no significant difference in time to engraftment, incidence of neutropenic fever, or length of hospital stay between patients receiving ACEi or ARBs compared to control subjects. We demonstrate that use of low to moderate dose ACEi or ARB does not lead to prolonged time to engraftment and is safe to use in patients undergoing autologous SCT for multiple myeloma.

KEYWORDS

Multiple Myeloma; ACE Inhibitor; Angiotensin Receptor Blocker; Melphalan; Neutropenia

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