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## **ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION IN PATIENTS WITH A HISTORY OF PRIOR INVASIVE ASPERGILLOSIS: OUTCOMES AND RISKS FOR POST-TRANSPLANT INVASIVE ASPERGILLOSIS**

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**Background:** Patients with a history of invasive aspergillosis (IA) prior to transplantation may be at high risk for IA recurrence and transplant-related mortality (TRM) after allogeneic hematopoietic stem cell transplantation (HCT). This study was performed to compare the incidence of post-transplant IA, TRM, and overall survival among patients undergoing allogeneic HCT with or without a history of IA, and to identify the risk factors for post-transplant IA and TRM in patients with a history of prior IA.

**Methods:** Data from 2319 patients who underwent first allogeneic HCT at the FHCRC between December 1992 and May 2001 were reviewed. Prospective monitoring by pre-transplant evaluation of the recipients identified 45 patients (1.9%) with a history of IA prior to HCT. In general, patients with a history of IA were treated with antifungals for at least one month prior to HCT.

**Results:** Post-transplant IA occurred earlier (median onset; day 26 vs. day 54,  $p=0.03$ ) and more often (at day 100; 22% vs. 7%,  $p=0.0001$ ) in patients with a prior history of IA compared to those without prior IA. Patients with a history of IA had a higher risk for transplant-related death by day 100 (38% vs. 21%,  $p=0.0001$ ), associated mainly with IA recurrence and other pulmonary complications. Overall survival at day 100 was significantly lower (56% vs. 77%,  $p=0.0001$ ) in patients with a history of IA compared to those without prior IA. Factors that predicted a low risk for post-transplant IA recurrence included receipt of antifungals for greater than one month prior to HCT (6/39 vs. 4/6,  $p=0.001$ ) and resolution of abnormal chest X-ray (1/15 vs. 6/19,  $p=0.06$ ). Cord blood transplantation appeared to be associated with a high risk of IA recurrence (2/2 vs 8/43,  $p=0.001$ ) and TRM (2/2 vs 16/43,  $p=0.008$ ). TBI-containing myeloablative conditioning was associated with an increased risk of day 100 TRM when compared to nonmyeloablative and non-TBI myeloablative conditioning regimens (16/31 vs. 2/14,  $p=0.03$ ).

**Conclusions:** Duration of antifungal therapy, conditioning regimens, and stem cell source are important variables to consider to minimize the risk for IA recurrence after allogeneic HCT.