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Factors associated with overall survival after allogeneic and autologous hematopoietic stem cell transplantation in patients with concomitant invasive fungal infection

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Abstract

Background: Invasive fungal infection (IFI) is a leading cause of infection-related mortality following hemopoietic stem cell transplantation (HSCT).

Aim: To evaluate the incidence of IFI, and the risk factors influencing overall survival (OS) in patients undergoing HSCT.

Patients and methods: 88 adult patients (pts) (median age 32 years, range 18–67) underwent either alloHSCT (39 pts) (MRD 16 pts, MUD 21 pts, haploRD 2 pts) or autoHSCT (49 pts) after myeloablative (31 pts) and non-myeloablative (57 pts) conditioning. At the time of HSCT 54 of them were in CR and 34 in relapse of acute leukemia, lymphoma, and other malignancies.

Results: A high incidence of IFI after alloHSCT vs. autoHSCT was observed (56% and 24%, respectively) with a predominance of invasive aspergillosis (91% and 92%) vs. invasive candidiasis (4.5% and 8%). Factors associated with a significant ($p<0.05$) decrease of 12-week OS for allo- and autoHSCT were neutropenia >10 days (61% vs. 100%), lymphopenia >30 days (73% vs. 97%), and disseminated IFI (64% vs. 82%). Steroids 1 mg/kg and relapse at the time of HSCT were associated with a higher risk of mortality for the alloHSCT group ($p<0.05$). Treatment of IFI with voriconazole improved the 12-week OS (95% vs. 57%; $p<0.005$) following alloHSCT, but not following autoHSCT. Five-year OS in pts after alloHSCT with IFI vs. without IFI was 15% vs. 38% and 48% vs. 60% after autoHSCT ($p>0.1$). This was significantly influenced by profound lymphopenia ($p<0.001$) and disseminated IFI ($p<0.001$).

Conclusions: Neutropenia, lymphopenia, disseminated IFI, and voriconazole therapy are among the main risk factors influencing 12-week and 5-year OS in pts who underwent allo- and autoHSCT.

Keywords: allogeneic HSCT, autologous HSCT, invasive fungal infections, overall survival

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