Usage of Foscarnet in the Management of Cytomegalovirus Disease and Reactivation Following Allogeneic Bone Marrow Transplantation: Insights from a Multi-center Study

SERIN, Istemi

University of Health Sciences, Istanbul Basaksehir Cam and Sakura City Hospital, Department of Hematology and Adult Bone Marrow Transplantation Unit

Background: The period following allogeneic hematopoietic stem cell transplantation (allo-HSCT) is characterized by immunosuppression, which predisposes patients to the reactivation of latent viral infections. Among these, cytomegalovirus (CMV) is notably one of the most clinically significant viral pathogens affecting this patient population. Foscarnet serves as a crucial therapeutic alternative, particularly for patients who develop resistance to ganciclovir or for whom ganciclovir is contraindicated due to myelosuppression. However, the administration of foscarnet is complicated by severe side effects, including nephrotoxicity and electrolyte imbalances.

Purpose: This study aims to analyze real-world data concerning the use of foscarnet during CMV reactivation and disease in patients with hematologic malignancies who have undergone allo-HSCT, focusing on identifying risk factors associated with nephrotoxicity and electrolyte disturbances.

Methods: This multi-center study involved adult patients with hematologic malignancies who received allo-HSCT and were treated with foscarnet for CMV infection/reactivation. Retrospective data, including demographic, clinical, and laboratory information, were collected from patient records. Results: The study included 51 patients with hematologic malignancies who had undergone allo-HSCT and received foscarnet. Analysis of the diagnostic distribution revealed that 72.5% (n=37) of the patients were diagnosed with acute leukemia. Foscarnet was predominantly initiated due to ganciclovir resistance (66.7%; n=34). Evaluation of foscarnet-associated side effects indicated nephrotoxicity in 15.7% of cases. An assessment of immunosuppressive therapies administered during foscarnet use showed no statistically significant association between nephrotoxicity and the use of steroids, calcineurin inhibitors, or ruxolitinib. However, the use of mycophenolate mofetil (MMF) was significantly associated with the development of nephrotoxicity ($p<0.05$). Furthermore, no statistically significant association was found between renal, electrolyte, and hematologic toxicities and progression-free or overall survival ($p>0.05$).

Conclusions: Our study observed an increase in foscarnet-associated nephrotoxicity with the use of MMF. Despite the limitations posed by its toxicity profile, foscarnet can be effectively utilized if its side effect profile is carefully considered during administration.