Autologous Hematopoietic Cell Transplantation for Dialysis-Dependent Myeloma: More Efficient, Less Toxic

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Between 2 and 5% of myeloma patients will require dialysis during the course of their disease [1]. As such, the prognosis of these patients is generally poor, with an overall estimated treatment-related mortality of 15–35%. These patients are often considered to be unfit for high-dose therapy and autologous hematopoietic cell transplant (HCT) [2, 3]. Morbidity during transplantation is also significant and includes mucositis, infection, cardiac arrhythmias, bleeding, and encephalopathy [3, 4]. Nonetheless, high-dose melphalan is recommended for all patients younger than 65 years. Recent studies have shown the impact of this approach also to be beneficial in frail patients and patients older than 65 years [5]. Unfortunately, for patients on hemodialysis, very few studies (mostly retrospective or case reports) have reviewed in detail how significant the transplantation-related mortality actually is, whether dose reduction changes outcomes, or whether patients may even have an improved renal function post-HCT.

One approach aiming to decrease toxicity is to dose-reduce the melphalan in the preparative regimen. Several studies have compared reduced-dose melphalan (100 mg/m², 140 mg/m²) versus high-dose melphalan (200 mg/m²), and in general suggested an increased toxicity without a clear survival benefit among patients given the higher doses [1–3]. A recent single-center retrospective study showed that with improvements in both induction, conditioning, and maintenance therapy, as well as a dose reduction approach (melphalan 140 mg/m²), treatment-

related mortality decreased substantially [6]. Furthermore, in up to a quarter of the patients, HCT may also result in improved renal function [1]. Response to transplant and a shorter duration of dialysis prior to transplant are predictors for later renal recovery [7].

In this issue, Martini et al. [8] summarize their experience of patients with multiple myeloma treated with hemodialysis who underwent autologous HCT. Patients were given a variety of doses of melphalan. The procedure was safe and disease-free survival was comparable to other myeloma patients undergoing HCT. Dialysis was performed before commencement and 24 h after the infusion of melphalan.

This is also our standard practice. We recommend a melphalan regimen of 140 mg/m² for dialysis-dependent patients. Prophylaxis with acyclovir and a fluoroquinolone may impact on the safety of the transplant and decrease the incidence of febrile neutropenia [9, 10]. However, data are scarce in this group of patients. Granulocyte colony-stimulating factor to shorten neutropenia may be also considered; however, should the patient develop engraftment syndrome, we recommend “pre-emptive” dialysis to better control for fluid overload challenges.

In conclusion, dialysis-dependent myeloma patients should not be excluded from HCT therapy per se since lower toxicity profiles have been seen in recent years as well as a safer approach using dose reduction, without necessarily losing survival benefit.

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