

Improving Our Understanding of Long-Term Kidney Outcomes after Allogeneic Stem Cell Transplant

By Matthew Abramson and Priya Deshpande

Although allogeneic hematopoietic stem cell transplant (HSCT) is the curative treatment for many patients with hematologic conditions, these patients are at a higher risk of acute kidney injury (AKI) and chronic kidney disease (CKD) as a result of conditioning therapies, exposure to radiation therapy, and chronic treatment with calcineurin inhibitors (Figure 1). CKD and albuminuria increase the risk of hypertension and end stage kidney disease, which ultimately impact mortality (1, 2). Many studies have evaluated the incidence of CKD post-HSCT, and the incidence of CKD ranges from 4% to 66% (3–9). However, some studies have yielded conflicting results regarding overall mortality in patients who develop CKD after HSCT (10–12). In a recent article in the *Clinical Kidney Journal*, Pelletier et al. (6) sought to determine the prevalence and risk factors for developing CKD and assess the impact of CKD on 1-year overall survival, relapse-free survival (RFS), transplant-related mortality (TRM), relapse risk, and graft-versus-host disease (GVHD)-free/RFS (GRFS) in a retrospective single-center analysis of 408 adults with hematologic malignancies who underwent HSCT in Toronto, Ontario, Canada.

Pelletier et al. (6) found that 64% of patients developed AKI (defined and staged based on the Kidney Disease Improving Global Outcomes) at 100 days post-HSCT. Nine percent of patients developed CKD (defined using the CKD-Epidemiology Collaboration equation by an estimat-

ed glomerular filtration rate of <60 mL/min/1.73 m²) 100 days post-HSCT. Nineteen percent of patients developed CKD 1 year post-HSCT. Patients who developed CKD at 1 year experienced AKI within 100 days of transplant, were older, and were female. The patients who developed CKD after 1 year had a twofold increase in mortality as compared with patients who did not, even after adjustment for covariates. CKD at 1 year was associated with worse GRFS but had no effect on RFS, TRM, and relapse risk.

This study highlights the need for a multidisciplinary approach between the oncology and nephrology teams to care for HSCT patients, particularly those who are at higher risk for developing CKD. In the right clinical context, these patients may benefit from renin-angiotensin aldosterone system blockade (13–15). ■

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Figure 1. The interrelationship of patient-related and disease-related risk factors causing AKI and CKD in HSCT patients

