Title: Alemtuzumab, Total Skin Electron Beam Therapy, and Non-Myeloablative Allogeneic Hematopoietic Stem-Cell Transplantation in Advanced Sezary Syndrome

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Abstract

Background: Sezary syndrome (SS) is an aggressive form of cutaneous T-cell lymphoma associated with poor prognosis. Emerging data suggest allogeneic hematopoietic stem-cell transplantation (HSCT) may offer durable remission to a subset of patients with advanced disease. However, the optimal regimen preceding HSCT has not been defined, particularly with regards to targeted agents that have shown independent promise in treating SS, such as low-dose alemtuzumab (anti-CD52 monoclonal antibody).[2,5] We sought to address this gap by characterizing the outcomes of patients who received low-dose alemtuzumab and total-skin electron beam (TSEB) therapy prior to non-myeloablative allogeneic HSCT at our institution.

Methods: SS patients were identified by ICD-10 codes using the Research Patient Data Registry (RPDR) system. Eligibility was subsequently assessed via chart review. Eligible patients included individuals with pathology-proven SS who received low-dose alemtuzumab (10 mg. TIW for 12 wks.) and TSEB followed by non-myeloablative allogeneic HSCT.[4,5] For each eligible patient, we collected data elements characterizing their demographic profile, disease progression, treatment history, transplant course, and clinical outcomes from the electronic medical record. We used descriptive statistics to summarize these demographic and clinical characteristics.

Results: Three women and two men with SS received alemtuzumab-based therapy with TSEB prior to allogeneic HSCT at our institution between 2000 and 2019. All patients presented to care with advanced (stage III or IV) disease and experienced progression or displayed treatment resistance to traditional systemic therapies prior to transplant. Post-transplant, all patients experienced significant, durable decrease in disease to stage IA (60.0%) or IIA (40.0%). Two patients died from infections, a median of 34 months after transplant (range 18-49 mo.). No patients died from their underlying SS. As of November 1, 2019, three patients remained alive with stable stage I or II disease.

Conclusion: Corroborating prior work, our findings underscore the long-term prognostic benefit of reduced-intensity HSCT for SS patients. Notably, post-transplant, all patients experienced significant downstaging of their disease with lower rates of disease-related mortality than previously reported with TSEB preconditioning alone, suggesting potential additive benefits of alemtuzumab meriting further investigation.