

Title: Evaluation of Thymoglobulin in Allogeneic Stem Cell Transplant

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Introduction: Numerous pharmacological interventions have been investigated for the prevention of Graft-Versus-Host-Disease (GVHD) for those undergoing allogeneic stem cell transplant, but the best approach remains to be defined. Thymoglobulin is an antibody preparation that aids in the prevention of GVHD, but is also associated with viral reactivation. The purpose of this study was to quantify the risks and benefits of using thymoglobulin for GVHD prophylaxis in allogeneic stem cell transplant.

Methods: This single-center, retrospective chart review compared the longitudinal, post-transplant outcomes between unrelated allogeneic transplant recipients who received thymoglobulin and related allogeneic transplant recipients who did not receive thymoglobulin. An internal department list of stem cell recipients and electronic health records were used to collect study data. Ninety-four patients who received an allogeneic stem cell transplant at an urban, academic medical center from January 1, 2012 to April 7, 2019 were assessed. Patients were included in the review if they were at least eighteen years of age and received an allogeneic stem cell transplant. Exclusion criteria included: age greater than or equal to ninety years, autologous stem cell transplant recipients, and those receiving a second allogeneic transplant. The primary endpoint was the incidence of acute and chronic GVHD. Secondary endpoints included EBV and CMV reactivation rates.

Results: The addition of thymoglobulin resulted in a statistically significant decrease in cGVHD (72% vs. 29%, $p = 0.001$, NNT= 2.3) and clinically significant reduction in aGVHD (72% vs. 62%, $p = 0.308$). Thymoglobulin use resulted in a statistically significant increase in EBV rates (30 % vs. 6%, $p = .007$, NNH = 4.2) and clinically significant increase in CMV rates (45% vs. 32%, $p = 0.193$).

Conclusions: The clinical benefit in terms of overall GVHD reduction outweighs the risk of viral reactivation with thymoglobulin's use. Thymoglobulin should be added to the conditioning regimens of related allogeneic transplant recipients.