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Tackling the challenge of acute rejection prevention in VCA transplantation: A novel approach utilizing T cell and mature B cell depleting induction

Vascularized Composite tissue Allotransplantation (VCA) has become a feasible reconstructive option for patients with severe disfiguring injuries not otherwise amenable to conventional reconstructive techniques. Approximately 200 VCA transplants have been performed worldwide to date, 40 of which have been partial or full-face transplant surgeries. The incidence of rejection exceeds 80% in the face transplant population. This unacceptably high rate of early acute rejection is significantly higher than in abdominal and thoracic transplantation and has been attributed to the increased immunogenicity of skin containing grafts as well as frequent sensitization of the transplant recipient related to treatment of the original injury with allogeneic skin grafts and frequent blood transfusions. In August 2015, our transplant center performed the most extensive full-face transplant in the world to date in a patient with a positive flow crossmatch (negative CDC crossmatch) utilizing a novel induction immune suppression regimen targeting depletion of T cells and mature B cells utilizing rabbit anti-thymocyte globulin and a single dose of anti-CD20 monoclonal antibody. The patient has been maintained on standard triple drug maintenance therapy (Tacrolimus, Mycophenolate and Prednisone). At 35 months post-transplant, the recipient remains free from any rejection episode. Periodic biopsies have been performed to confirming absence of histopathologic evidence of rejection. The same induction regimen has been utilized in a second patient with similar early results. Early acute rejection in VCA transplant occurs at an unacceptably high rate. Prevention of rejection episodes may improve long-term outcomes as has been seen in solid organ transplantation. We are cautiously optimistic that this novel induction strategy targeting B and T lymphocyte depletion, along with conservative tapering of maintenance immunosuppression, may reduce the rate of early rejection in facial VCA.

Biography

Bruce Gelb is an Assistant Professor of Surgery at the NYU Langone Transplant Institute. He performs liver, kidney, pancreas and living donor transplant surgery, as well as he is a key member of the face transplant team, leading the development and management of the immunosuppression regimens for the VCA program. He also serves as the Chair of the Quality Improvement Committee of NYU Langone Health. He serves on the United Network for Organ Sharing (UNOS) Ethics Committee. He is concerned with a variety of issues in bioethics, with interest in the ethics of transplantation. He currently serves as the President of the Board of Directors of the Global Bioethics Initiative, an NGO Member of the United Nations Academic Impact with special consultative status with the UN Economic and Social Council.

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