BIOMATRIX
Specialty Infusion Pharmacy

Lung Transplant Success in Sensitized Patients Receiving a Standardized Desensitization Therapy

Introduction

Desensitization in kidney transplant, although uncommon, is done at numerous centers in the world. Desensitization regimens aim to reduce antibodies directed towards human leukocyte antigens (HLA). With each case of a patient with anti-HLA antibodies to his or her donor (i.e. sensitized), there is an immunologic risk of bad outcomes (organ failure) after transplant. However, many of these kidney transplant centers have longstanding experience with this type of transplant and know how to navigate the risks and achieve excellent outcomes. In lung transplant, this is not true today. Very few centers attempt to desensitize patients, and this is an area that needs research. Many lung transplant programs practice avoidance of anti-HLA antibodies. This significantly limits the sensitized candidate's access to a transplant.

With a goal to develop a safe, effective, and consistent approach to desensitization therapy using intravenous immune globulin (IVIG), BioMatrix Specialty Pharmacy has partnered with the University of Southern California lung transplant program. Starting in 2013, USC instituted a standard-of-care protocol for desensitization in patients awaiting a transplant with antibodies reactive to HLA antigens present in their serum.

Herein, we report the results showing the impact of desensitization protocol with IVIG in lung transplant candidates. Thirty-six patients received desensitization therapy consisting of IVIG at a weight based dose of 2 grams/kilogram per month (i.e. high dose IVIG). In addition, five patients also received concomitant rituximab therapy. Following transplant, patients were followed per standard-of-care protocols that consist of regular laboratory and biopsy checks.

We are excited to share the details and results of this trial at ATC 2019.

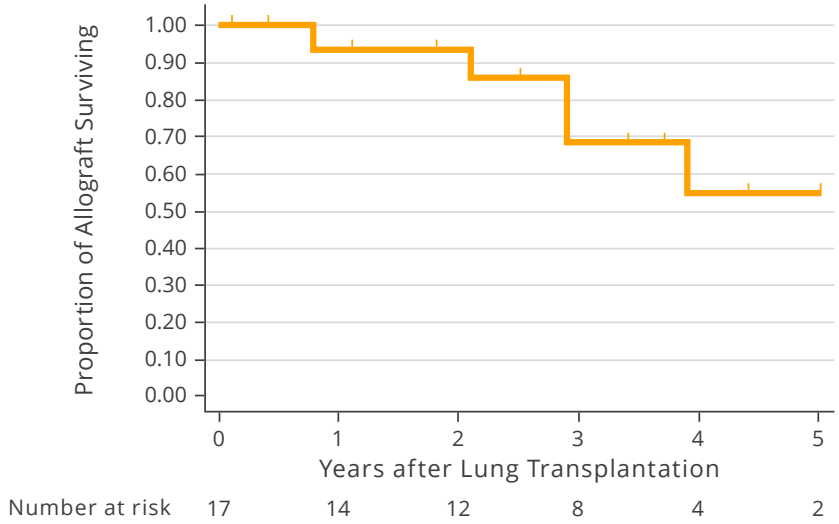
Results

Of the 36 lung transplant patients who received desensitization, 17 were transplanted achieving an effective transplant rate of 47% to date. After lung transplant, 10/17 (59%) patients have experienced a rejection episode within the first post-transplant year. This is slightly higher than the national average (1). However, despite higher acute rejection rates, proper management led to equivalent survival when compared to national averages. Five patients have experienced allograft failure (29%, Fig A). The actuarial survival at 1-, 3- and 5-years was 92%, 69%, and 52%, respectively. Compared to the non-desensitized lung transplant patients that were transplanted at USC between 2013 and 2017, graft survival rates were similar (Fig B). The one year survival rate is similar to what has been reported before with desensitization protocol use in lung transplant (2). This report illustrates that by using one protocol in a large number of lung transplant patients, we feel that we have strong evidence that we can achieve equivalent results for those lung transplant patients who are sensitized and waiting for a transplant.

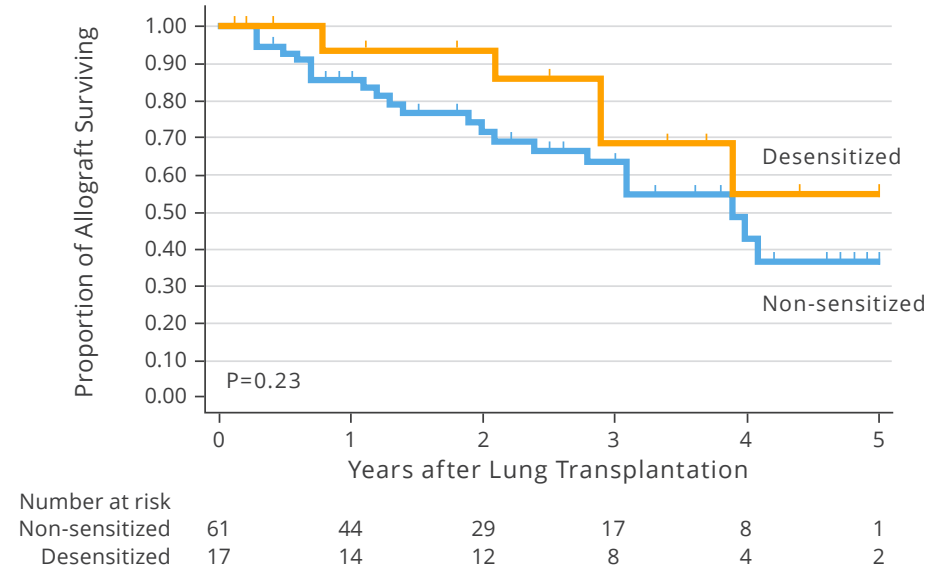
Contributions:

Charlotte Prohaska, RN (BioMatrix Specialty Pharmacy) coordinated data collection with the transplant centers and laboratories. Matthew J. Everly, PharmD, BCPS, FAST (Independent Consultant) analyzed the data and drafted the report.

A. Post-lung transplant graft survival in desensitized patients



B. Survival comparison between non-sensitized (2013-2017) patients and desensitized patients



References

1. Valapour M, Lehr CJ, Skeans MA, Smith JM, Carrico R, Uccellini K, et al. OPTN/SRTR 2016 Annual Data Report: Lung. American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons. 2018;18 Suppl 1:363-433.

2. Tinckam KJ, Keshavjee S, Chaparro C, Barth D, Azad S, Binnie M, et al. Survival in sensitized lung transplant recipients with perioperative desensitization. American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons. 2015;15(2):417-26.