



 **CARDIAC FUNCTION AND HEART FAILURE**

DESENSITIZATION OF HIGHLY HLA-SENSITIZED HEART TRANSPLANT CANDIDATES USING HIGH-DOSE INTRAVENOUS IMMUNOGLOBULIN AND RITUXIMAB WITH SUCCESSFUL TRANSPLANTATION

ACC Poster Contributions

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Authors: *Lawrence S. C. Czer, Bernice Coleman, Sinan Simsir, Ernst R. Schwarz, Chih-Hung Lai, Kai Cao, Stanley Jordan, Ashraf Osman, Gina Jamero, Anita Phan, Matthew Rafiei, Nancy Reinsmoen, Cedars-Sinai Medical Center, Los Angeles, CA*

Background: Few patients with high levels of HLA specific antibodies can receive a heart transplant. We developed a desensitization (DS) protocol combining intravenous immunoglobulin and rituximab to decrease strength and breadth of HLA-specific antibodies.

Methods: Of 29 heart transplants performed from 10-08 to 10-09, six (21%) had high levels of HLA specific antibodies (PRA>50%), and underwent DS consisting of 2 doses of intravenous immunoglobulin (2.0 g/kg) given 4 wks apart with rituximab (1g) given on day 14. Changes in the antibody response to class I and class II HLA antigens were measured by a quantitative Luminex Single Antigen Bead (L-SAB) analysis and results were expressed as Standard Fluorescence Intensity (SFI). The L-SAB analysis was performed prior to, during, and after DS. L-SAB with binding SFI >20,000 identified HLA-specific antibodies which were associated with positive flow cytometry crossmatch and were thus considered unacceptable antigens (UAs). Virtual crossmatch was used to determine compatible donors who lacked UAs. Retrospective crossmatch with flow cytometry was performed after transplant.

Results: Two of the 6 pts who had DS underwent transplant. In one of the two patients, L-SAB analysis identified SFI >20,000 with a resultant PRA = 90% and 18 UA prior to DS. After DS, PRA was 67% with 3 UA. A compatible donor (no UA) was identified post DS treatment resulting in negative T and B cell flow crossmatch which would not have been compatible without DS. Of the 4 pts still on the wait list, the mean pre-DS class I PRA=80% and class II PRA= 64%. Post DS, the mean class I = 60% and mean class II = 44%.

Conclusion: Desensitization with intravenous immunoglobulin and rituximab resulted in a significant decrease in class I and class II HLA specific antibodies in highly sensitized heart transplant candidates. These data show promise that desensitization makes transplant more likely due to a reduced number of unacceptable antigens in this difficult population to transplant. More studies are needed to confirm these findings, and to determine rejection rates after transplant.