Increase in Renal Transplantation of Sensitized Recipients Following the Introduction of Virtual Crossmatching: One Center’s Experience

Michael J. Moritz MD  
*Lehigh Valley Health Network, Michael.Moritz@lvhn.org*

Lynsey S. Biondi MD  
*Lehigh Valley Health Network, Lynsey_S.Biondi@lvhn.org*

Patricia Kimble BS  
*Lehigh Valley Health Network, Patricia.Kimble@lvhn.org*

Robert Cirocco PhD  
*Lehigh Valley Health Network, Robert.Cirocco@lvhn.org*

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Introduction: Sensitive XM's led to an increasing pool of high PRA, sensitized patients. Between 2002 to 2008, PRA>20% increased from 17% to 21% of the national wait list. For new registrants, PRA>20% increased from 10% to 18%. The patient survival of 92% and 98%.

Results: The incidence of AMR rose. In 2006, 1 of 3 highly sensitized patients had early graft loss from AMR. In 2007, 11 highly sensitized recipients had 4 AMR’s with 1 graft loss. Between 2009-2010, 16 recipients had 6 AMR’s, with 2 graft losses. IVIG prophylaxis was initiated in 2010 for recipients with PRA>80% (adapted from Ref. 2). The next 21 have had 2 AMR episodes, neither with graft loss.

Discussion: SAB dramatically improves anti-HLA antibody definition. It was hoped that this would result in more accurate Virtual XM, predicting compatible final XM's despite very sensitive flow XM's. The data support better Virtual XM with a higher transplant rate and fewer XM's (Ref. 1).

The number of kidney transplants to highly sensitized recipients has risen, and approximates their proportion of candidates, restoring equilibrium. This has been accomplished with fewer XM's, increasing laboratory efficiency. We have seen no decrement in outcome compared to non-sensitized recipients. IVIG prophylaxis against AMR appears to be effective.

Prior for the highly sensitized has been difficult to balance for 2 major reasons. One, the greater the priority, the more final XM's are to be performed. Two, sensitization was associated with poorer outcomes. Lack of enthusiasm for these transplants led to center-based obstacles such as mandating a level of matching. Our data show that these center-based hurdles are no longer necessary, either for logistic (reason #1) or outcome (reason #2) rationale. Final XM’s have a 95%-agreement with Virtual XM, and recipient outcomes (with steroid-free immunosuppression and AMR prophylaxis) appear not different from non-sensitized recipients.

Conclusions:

1. Virtual XM ing an increase in the number of renal transplants in sensitized recipients.

2. The degree of sensitization transplanted has risen.

3. The rejection rate has not risen in sensitized recipients.

4. Post transplant IVIG prophylaxis appears to lower the incidence of AMR.

Abbreviations:

AMR—antibody mediated rejection,
BPAR—biopsy proven acute rejection,
DMM—deceased donor,
IVIG—intravenous immunoglobulin,
SRTR—Scientific Registry for Transplant Recipients,
XM—crossmatch.

References:


Methods:

In 2009, our HLA laboratory adopted SAB. Flow XM technique remained standard. This study observed the numbers of DD XM's, transplants performed, and transplants' PRA to determine the impact of SAB. Post transplant, ACR (acute cellular rejection), AMR (antibody mediated rejection), and graft loss were followed. All kidney only transplants from 2006 through 2011 were included. All transplants were deceased donor, no desensitization. Standard immunosuppression was all was RATG induction (4-5mg/kg in 3-4 doses), methylprednisolone on days 0 and 1 followed by steroid-free drug maintenance with tacrolimus and mycophenolate. Protocol biopsies were at 1, 6, and 12 months. Biopsy proven acute rejection (BPAR) was defined as ACR in the first year post transplant, and includes subclinical rejection (biopsy-proven, histologically normal).

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