# Clinical impact of donor specific antibodies in living donor kidney transplantation

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## BACKGROUND

TIn the last decades new immunological discoveries and techniques have allowed the desensitization of patients with HLA and AB0 incompatibility. These strategies have increased the chance of transplantation from living donor, which is the best choice for uremic patients. However, the literature has shown problems related to HLA incompatible transplantation that have led to poor renal outcomes and increased risk of infections. Purpose of this study was to compare transplant recipients from living donors (LDKTX) and the impact of donor specific antibodies (DSA) on graft outcomes and complications.

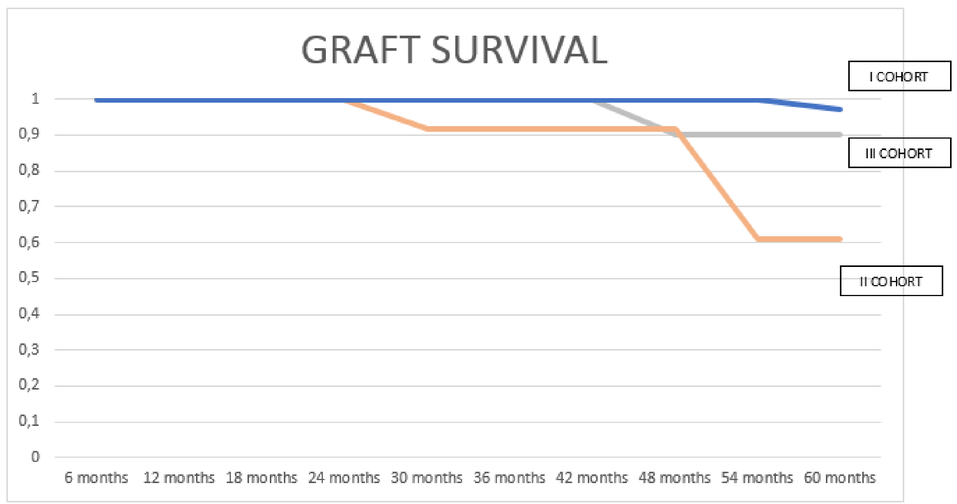
## METHODS

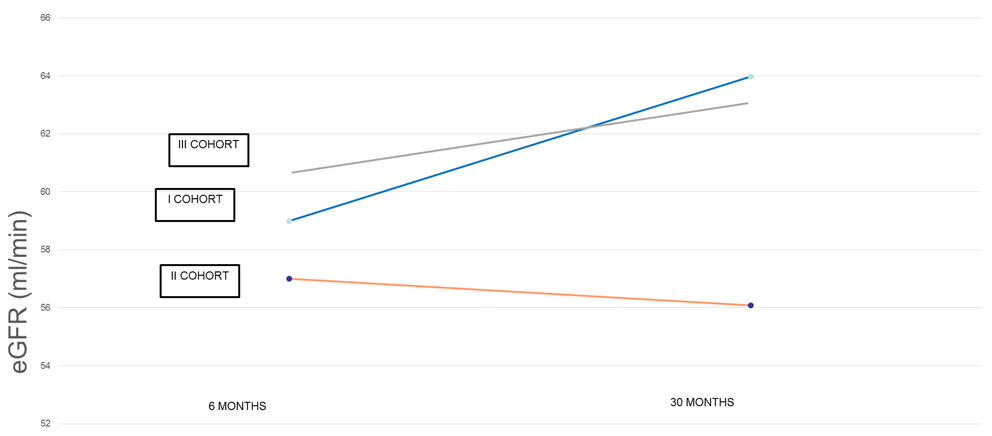
We retrospectively analyzed LDKTX performed at our Center from 2008 (year on which Luminex test was introduced) to 2014. LDKTX were divided in three cohorts: Cohort I, patients negative for DSA before and after transplant. Cohort II, patients positive for pre transplant DSA and Cohort III, patients who become sensitized after kidney transplantation and manifested DSA (>1000 mean fluorescence index for at least two repeated measurements). Patients belonging to Cohort II were subjected to desensitization protocol with apheresis, immunoglobulin and immunosuppressants. The statistical analysis consisted on: Whitney-Mann Test, repeated measures Anova and Person's correlation ($p<0,05$ was considered statistically significant).

## RESULTS

126 patients were eligible. Eighty-six LDKTX were assigned to Cohort I, 12 and 14 to Cohort II and III respectively. Fourteen patients were excluded because of incomplete data. The Cohorts did not differed for type of dialysis and uremia etiology. Cohort II showed the worse transplant survival at five year post-transplant ( 83,4%) when compared to Cohort I (98,8%) and Cohort III (92,8%). Also in terms of renal function, Cohort II showed the lowest eGFR at five years (56,1±19,4 mL/min) with values of 64±15,6 and 63,1±15,8 in the other two Cohorts. Cohort II showed a greater number of episode of antibodies mediated rejection (25%) if compared with Cohort I (3,5%) (OR=9,22, Cl 1,61-52,64, P=0,012). The incidence of this rejection was alike in I and III cohort of patients, without statistical significance. The number of infectious episodes was similar in all the Cohorts (41,86%, 41,6% and 42,85%). However, the data showed that Cohort II was affected only by viral infections (100% of episodes) whereas the other Cohorts showed a lower percentage of the same complication ( 50% for Cohort I and 33% for Cohort III) . Analyzing the impact of induction with thymoglobulin, Cohort II had a trend to developing more viral infections which however did not reach statistical significance (R=0,96, p=0,078). Probable the overall of the immunosuppression had an impact on the infectious complications.

| | | NEGATIVE | PRE-POST DSA | DE NOVO DSA |
|---|---|---|---|---|
| | PATIENTS | 86 | 12 | 14 |
| | M vs F | 63 - 23 (73,3%) | 9 -3 (75%) | 9 - 6 (64,3%) |
| | AGE AT TRANSPLANT | 41,5±13,5 | 46±10,9 | 43±11 |
| | HD | 56 (65,1%) | 10 (83,3%) | 8 (57,1%) |
| | PD | 8 (9,3%) | 1 (8,3%) | 1 (7,1%) |
| | PRE-EMPTIVE | 22 (25,6%) | 1 (8,3%) | 5 (35,7%) |
| | MONTHS OF DIALYSIS | 25,3±61,2 | 32±29,8 | 17±31,4 |
| UNDERLYNG DISEASE | DIABETES | 2 (2,3%) | 0 (0%) | 0 (0%) |
| | GN/AUTOIMMUNITY | 37 (43%) | 6 (50%) | 6 (42,85%) |
| | POLYCYSTIC KIDNEY | 19 (22,1%) | 3 (25%) | 2 (14,3%) |
| | OTHER | 28 (32,6%) | 3 (25%) | 6 (42,85%) |
| | OTHER TRANSPLANT | 13 (15,1%) | 4 (33,3%) | 1 (6,6%) |




## CONCLUSIONS

LDKTX with pre-transplant DSA had a worse outcome not only when compared to patients without pre transplant DSA but also if compared to patients who developed these antibodies after transplantation. Further studies and data are needed to explaining and defining the etiology and the prognosis of those findings.

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