KSN 2019
Seoul, Korea · May 23 - 26

Abstract Type : Poster
Abstract Submission No. : PO-1603

Dual induction with anti-thymocyte globulin and rituximab in sensitized kidney transplant patients.

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Objectives: The secondary immune response that is expected to occur in sensitized kidney transplant(KT) recipients having memory cells is characterized by the development of donor-specific plasmablasts and subsequently circulating secondary-memory B cells during a short-time frame of days to weeks after transplantation. Rituximab(RTX) can deplete plasmablasts, which retain CD20 on surface before the maturation to long-lived plasmacytes, and circulating memory cells. Rabbit antithymocyte globulin(rATG) can abrogate T cell help for germinal-center B response and may diminish the genesis of secondary memory cells and plasmacytes. Peritransplant administration of these depleting-induction agents may be a reasonable way to efficiently reduce the number of donor-specific clonal cells, albeit not abolish the clones.

Methods: We use both rATG and RTX as induction in KT patients having donor specific anti-HLA antibodies(DSA).
Since Feb. 2014, 18 patients were treated with dual induction. To reduce the infectious risk, rATG dose was limited to 3 or less daily dose of 1.5mg/kg. RTX dose was 100~300mg/body. CDC- and flowcytometry (FC)- crossmatch (XM)+ was in 8, CDCXM- but FCXM+ in 1, and pre-KT DSA without positive XM in 9. Eight also had ABO incompatibility. Both class I and II DSAs were detected in 6. class I only in 7, and class II only in 5. Plasmapheresis was implemented for desensitization

Results: Six(33.3%) patients developed acute AMR, which were all recovered by standard treatment. DSA, measured by single bead assay, became undetectable after KT in 7, and persisted although significantly reduced in MFI(immunodominant, 7,564±5.663 to 1,600±2,520) in 11. Five patients developed infections that required hospitalization. No patients developed CMV or BKV nephropathy. No patient or graft was lost.

Conclusions: Although our study lacks control patients, we feel that the dual induction with a moderate dose of rATG and RTX is a safe and effective strategy for sensitized KT patients, and worth for further studies.