“CLINICAL RESPONSE AND PATTERN OF B CELL SUPPRESSION WITH VARIABLE DOSE OF RITUXIMAB IN RENAL TRANSPLANT.”

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Priyanka Lawangani, Madan Bahadur, Rushi Deshpande, Ashay Shingare, Suddhiranjan Dash, Hinal Rathod, Ankita Metaliya

Department of Nephrology, Jaslok Hospital And Research Centre, Mumbai, India

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Background

- Rituximab is given to prevent B cell mediated rejection post transplant.
- Although the main role of rituximab is to suppress circulating antibodies, additional B cell function will be affected, antigen presentation, and cytokine production.
- Advancements in multiparameter flow cytometry can give us the phenotype and function of T and B cells to see the response of immunosuppressant drugs.
- In our study, we plan to see the clinical response in our patients who received Rituximab along with other immunosuppressant. Also, we will see the phenotypic response of Rituximab by measuring CD19, and CD 20 levels.

Method

- **Study population:** Patients of kidney transplant receiving rituximab in the Department of Nephrology, Jaslok Hospital in the year 2022-2023 after approval from the ethics committee.
- **Inclusion criteria:** Patients with the recipient of 1st or 2nd transplant from a living or deceased donor, age above 18 years, single organ transplant only, patient's giving consent.
- **Exclusion criteria:** Identical siblings, Received prior Rituximab, Active infection.
- **Sample size:** 79 patients. Patients who received Rituximab pre-transplant will be observed for any graft dysfunction, acute rejection, infection, or death till 6 months post-transplant. The patient's CD19 and CD20 counts were done at 3-5 days,6 months of post rituximab dose.
- **Study Designs:** Prospective Observational Study. Study duration: One year recruitment period and 6 months follow-up period.

Results

- A total of 79 patients were taken, 47 patients received rituximab while 32 patients did not receive it.
- Various doses of rituximab were given, a total of 34 patients received 500mg or more of Rituximab while 13 patients received 200mg or less of Rituximab.
- The average age of the donors was 51 years, 76 patients underwent 1st transplant. The average creatinine on discharge was 1.29.
- 18 patients were Donor-specific antibody positive, and 37 patients were ABOi.
- Plasmapheresis was done in 39 patients.
- Follow-up till 6 months was carried out with an average creatinine of 1.5.
- 20 patients developed infections,19 patients developed acute rejection, and 5 patients died.
- CD19 and CD20 levels were done before transplant, immediately post-transplant and after 6 months, the levels were significantly reduced even after 6 months.

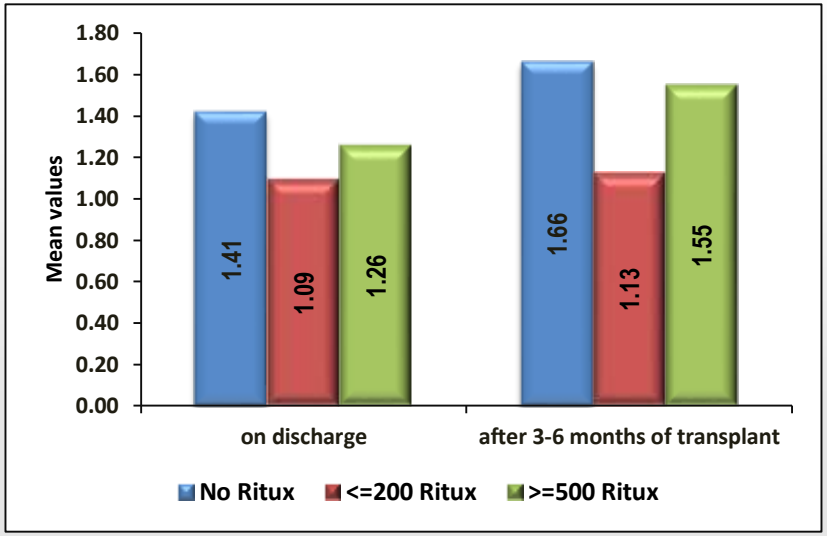

Fig.1: **Comparison of creatinine between no Rituximab,<=200 Rituximab and >=500 Rituximab.** (P=0.541)

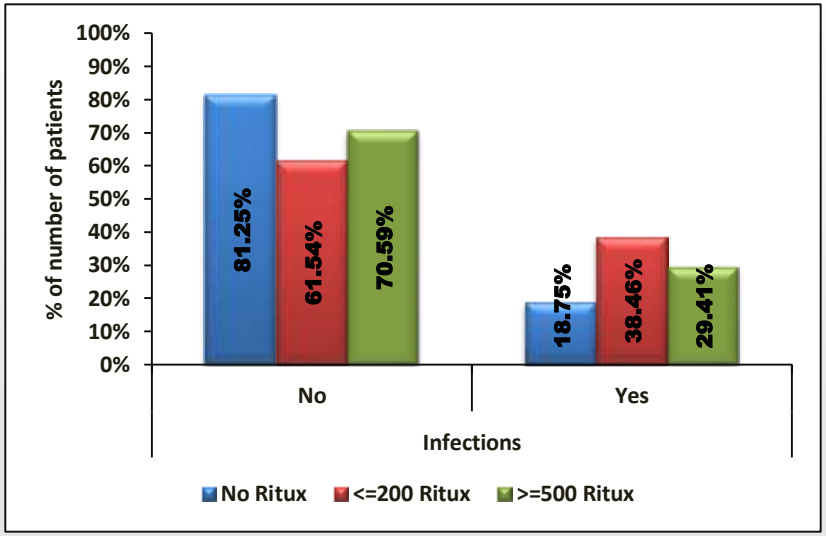

Fig.2: **Comparison of infections between no Rituximab,<=200 Rituximab and >=500 Rituximab.**(P=0.541)

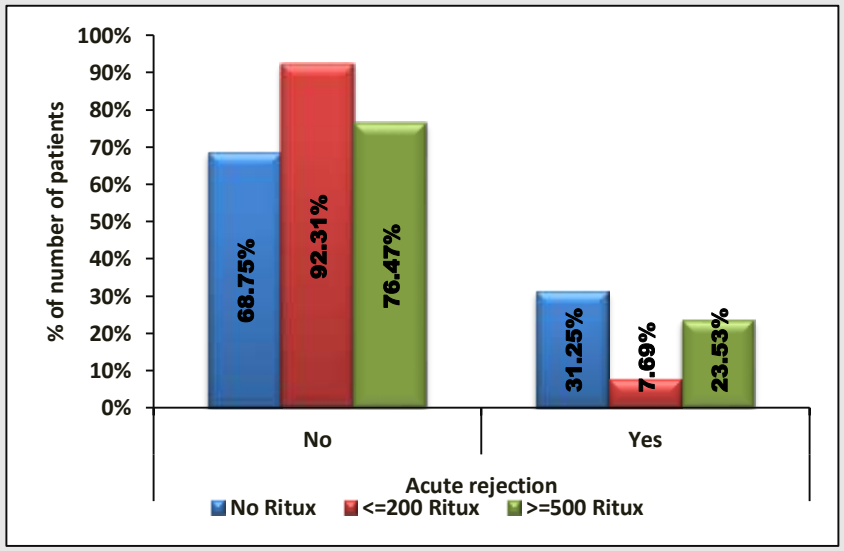

Fig.3: **Comparison of acute rejection between no Rituximab,<=200 Rituximab and >=500 Rituximab.** (p=0.41)

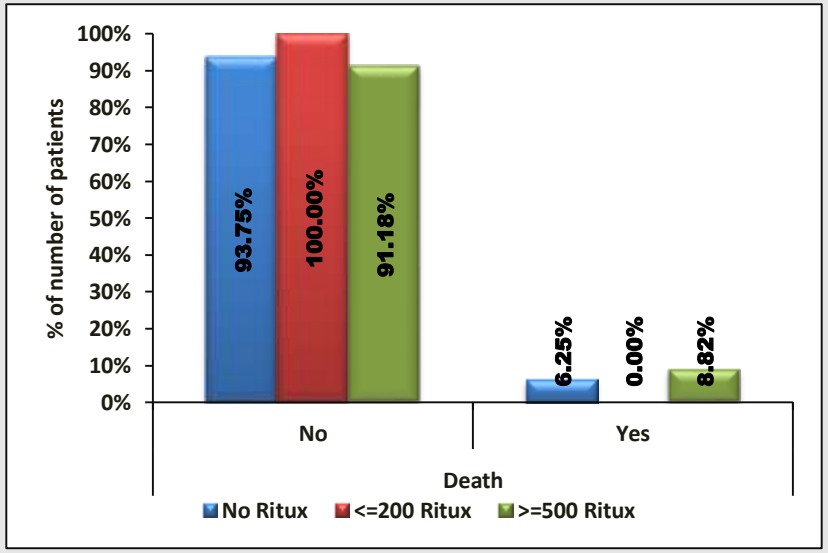

Fig.4: **Comparison of death between no Rituximab,<=200 Rituximab and >=500 Rituximab.(** P=0.55)

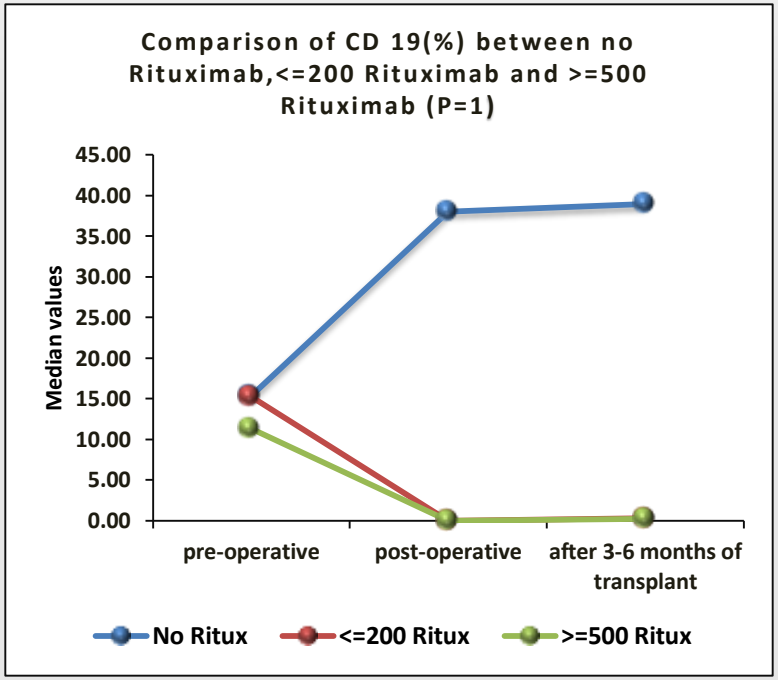

Fig.5: **Comparison of creatinine between no Rituximab,<=200 Rituximab and >=500 Rituximab.** (P=1)

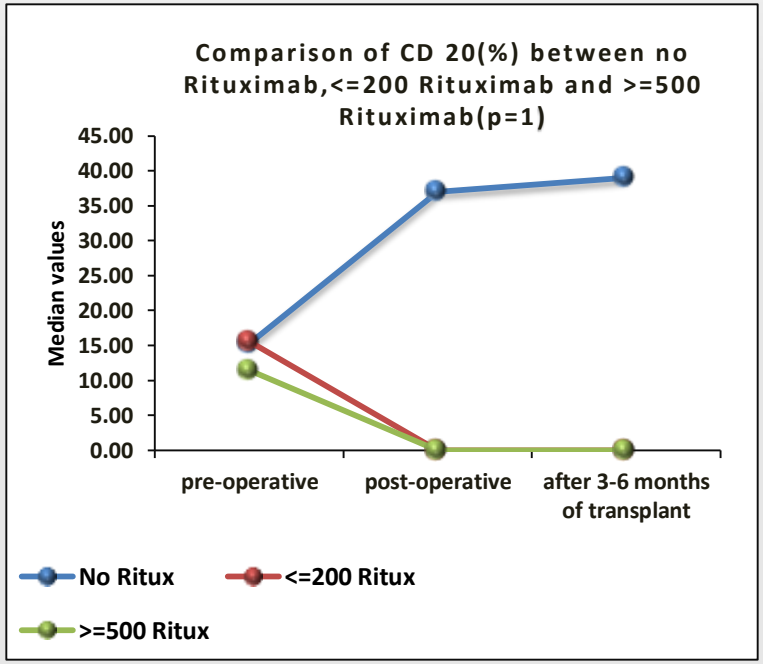

Fig.6: **Comparison of creatinine between no Rituximab,<=200 Rituximab and >=500 Rituximab.** (P=1)

P value calculated between rituximab <=200mg vs >=500mg

Conclusions

- Rituximab administration in kidney transplant recipients, primarily targeting ABO incompatible or DSA positive cases, showed similar graft function compared to those who has not received rituximab i.e. in ABO compatible transplant.
- Hence because of availability of Rituximab, ABOi and sensitized transplants gives comparable results as in ABOc transplants.
- In comparing between no rituximab verses low dose (<=200 mg) versus high dose (>=500 mg) Rituximab in kidney transplant recipients, no significant differences were found in acute rejection rates, infections, or mortality.
- Further studies are needed to refine dosing strategies and evaluate long-term implications on patient outcomes and complications like infection, mortality.