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# A Systematic Review and Meta-Analysis Comparing Everolimus + CNI with MMF+ CNI in Kidney Transplant

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**Introduction:** The ideal immunosuppression for kidney transplant patients has the least incidence of acute rejection with the least occurrence of adverse events. This study aims to compare the everolimus against mycophenolate mofetil/sodium in combination with calcineurin inhibitors (CNI) with or without steroids as maintenance immunosuppression in kidney transplant patients.

**Methods:** Studies, databases and literature were searched in Pubmed, the Cochrane Central Register of Controlled Trials and grey literature to identify relevant studies until August 21, 2022. Assessment of risk of bias was done independently by 2 authors using the revised Cochrane risk of bias assessment tool (RoB 2). Rev-man 5.4 program was used to calculate the risk ratio with corresponding 95% confidence interval for biopsy-proven acute rejection, death and infection. Mean difference was used to compare estimated glomerular filtration rate between two groups.

**Results:** Sixteen (16) RCTs with a total of 5403 patients comparing everolimus (n=2763) with MMF (n=2542) in maintenance immunosuppression post kidney transplant were retrieved and synthesized in the meta-analysis. Results of the study showed no significant difference in the risk for biopsy-proven acute rejection (RR: 1.12; 95% CI: 0.92-1.35; p= 0.13; I2=29%) and death (RR: 0.85; 95% CI: 0.63-1.16; p= 0.57; I2=0%). There is no significant mean difference of the eGFR between two groups (MD: 0.93; 95% CI: -2.25, 4.1; p<0.00001; I2= 84%). There was significant increased risks for any infection in the MMF group compared with the Everolimus group (RR: 0.83; 95% CI: 0.73-0.93; p= 0.0003; I2=66%).

**Conclusion:** This meta-analysis showed that Everolimus and MMF combined with CNI (cyclosporine or tacrolimus) have no difference in the risks for biopsy-proven acute rejection, death and increased in estimated GFR However, the MMF group exhibited a significant increased risks for any infection. They are equally safe and effective for kidney transplantation recipients.