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Editorial

Cellular and Humoral Immune Response in Patients with Kidney Transplantation After COVID-19 Vaccination

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A recent study revealed that SARS-CoV-2 (COVID-19) infection caused acute kidney injury and mortality around 50% and 23% of the infected cases, respectively [1]. With different mRNA COVID-19 vaccination in immunocompromised patients, such as kidney transplant recipients (KTRs), solid organ transplant recipients (SOTRs), etc. binding and neutralizing antibodies measurement clearly revealed lower levels, compared to healthy persons [2-6]. A number of previous studies demonstrated that KTRs or non-KTRs with renal failure markedly reduced vaccine response, whereas adaptive protocols of mRNA COVID-19 vaccination or alternative adjuvant vaccines is now not known yet [7,8]. Whereas protective immunity is further impaired immunosuppressants, thus fully restoring adaptive, cellular immunity and renal function in KTRs cannot occur and increase susceptibility to viral-related malignancies and infections [9-11]. After two doses of mRNA-COVID-19 vaccines, the seroconversion rates in KTRs were relatively low that varied from 4% to 57% [12,13] and decreased with increasing age [13,14]. A recent study demonstrated that everolimus (EVR), a mammalian target of rapamycin (mTOR) inhibitor had a higher seroconversion after mRNA-COVID-19 vaccination among KTRs, in comparison to mycophenolate mofetil (MMF) therapy (Figure 1 and 2) [15].

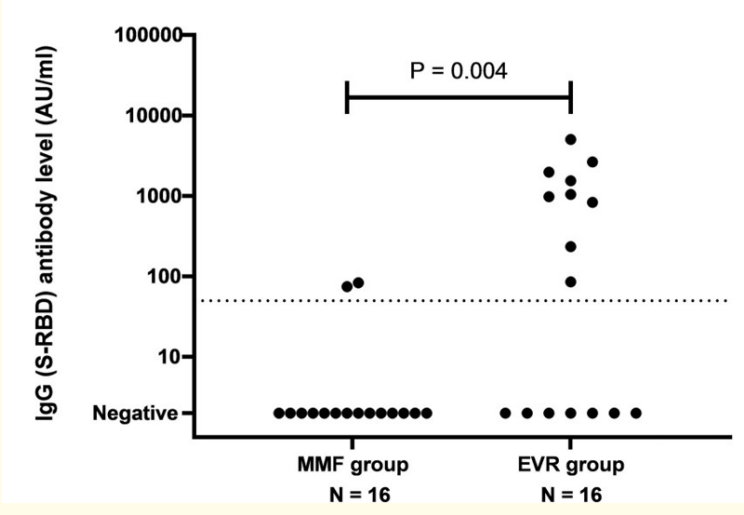

Figure 1: *Demonstrating spike-receptor-binding-domain(S-RBD)-IgG-antibody level after 2 mRNA-COVID-19 vaccinations. The threshold for seroconversion is indicated by dotted line. Maximal threshold of quantification is 40,000 AU/mL (AU: Arbitrary Units; EVR: Everolimus; MMF: Mycophenolate Mofetil) [15].*

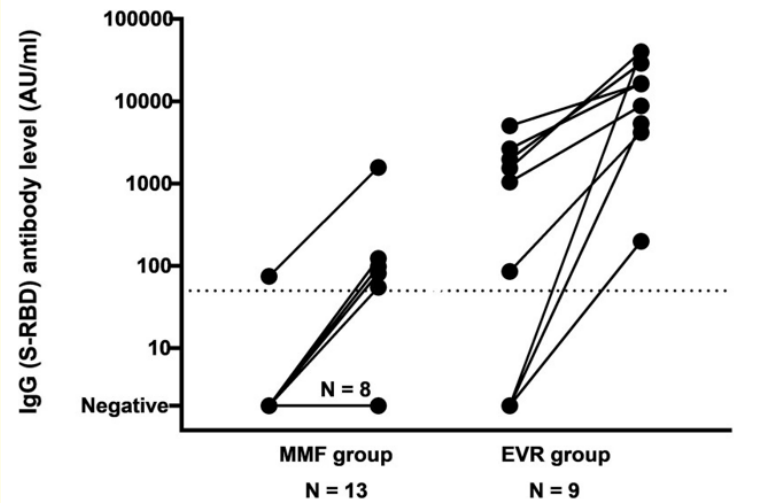

Figure 2: *Demonstrating spike receptor-binding domain [S-RBD])-IgG-antibody-level changes between second and third mRNA-COVID-19 vaccination. The threshold for serocoversion is indicated by dotted line. Maximal threshold of quantification is 40,000 AU/mL (AU: Arbitrary Units; EVR: Everolimus; MMF: Mycophenolate Mofetil) [15].*

In conclusion, immune response, particularly humoral immunity in elderly-post-transplant KTRs after COVID-19 vaccination was associated with EVR treatment and higher seroconversion. mRNA-COVID-19 vaccines may not predict protection against infection, whereas vaccines can prevent KTRs-fatal-disease progression and decrease the COVID-19-death risk.

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