

Abstract

Kidney transplant recipients are one of the most at-risk populations in terms of covid-19-related death. Because of much higher mortality among these patients compared to the general population, it is necessary to expand the current knowledge concerning the immune response to natural SARS-CoV-2 infection as well as covid-19 vaccines. The aim of the study is to analyze factors affecting immunity after infection and vaccination in kidney transplant recipients, to identify individuals at the highest risk of the disease and determine the degree of protection that SARS-CoV-2 vaccines offer to these patients. By measuring IgG antibodies against the spike protein we confirmed preserved humoral response to SARS-CoV-2 infection similar to the general population, which is also dependent on the course of covid-19. Analysis of post-vaccination immune response revealed a significantly reduced humoral response among virus-naïve kidney transplant recipients. On the contrary, a robust antibody response following vaccination was observed in individuals with a history of covid-19. Another group of patients with well-preserved humoral response were those vaccinated while on the waiting list. Immunosuppressive therapy with mycophenolate mofetil, treatment with depleting agents during the last year, older age and frailty syndrome were among the most significant factors negatively associated with antibody production following vaccination. Finally, we confirmed, that despite a reduced post-vaccination immune response, two doses of mRNA vaccines against SARS-CoV-2 were associated with lower infection rates and therefore should be an essential part of preventive measures and offered to all patients.