

## **Abstract**

The global pandemic of coronavirus infection 2019 (COVID-19) was an unprecedented public health emergency. Several clinical studies reported that heart disease, lung disease, diabetes, hypertension, dyslipidemia, and obesity are critical risk factors for increased severity of and hospitalization for COVID-19. This is largely because patients with these underlying medical conditions can show poor immune responses to the COVID-19 vaccinations. Diabetes is one of the underlying conditions most highly associated with COVID-19 susceptibility and is considered a predictor of poor prognosis of COVID-19. We therefore investigated factors that influence the anti-SARS-CoV-2 spike IgG antibody titer after three doses of vaccination in patients with type 2 diabetes. We found that obesity was associated with low anti-SARS-CoV-2 spike IgG antibody titers following three-dose vaccination in type 2 diabetics. Obese patients with type 2 diabetes may have attenuated vaccine efficacy and require additional vaccination; continuous infection control should be considered in such patients.