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Inhaled corticosteroids do not affect the antibody titer against the SARS-CoV-2 spike protein in BNT162b2 mRNA vaccinated patients

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Abstract

Objectives: Oral corticosteroids reduce the antibody titer of the BNT162b2 mRNA vaccine against SARS-CoV-2. To date, the effect of inhaled corticosteroids on antibody titers is unknown.

Study design: The design of this study is retrospective study.

Methods: We analyzed the relationship between the clinical features and total antibody titers against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike protein in 320 subjects who had never been infected with Coronavirus disease 2019 (COVID-19) and were vaccinated the second time with the BNT162b2 mRNA vaccine between October 1 to December 28, 2021.

Results: Of the 320 subjects, 205 were treated with inhaled corticosteroids. The median antibody titer of patients treated with inhaled corticosteroids was 572 U/mL, which was significantly higher than that of patients treated without inhaled corticosteroids (454 U/mL, $P = 0.00258$). The median antibody titers of smokers, men, and patients aged 65 years and over, were 315.5 U/mL, 385 U/mL, and 425.5 U/mL, respectively. These results are significantly lower than those of patients who never smoked, women, and patients aged less than 64 years (582 U/mL [$P < 0.0001$], 682.5 U/mL [$P < 0.0001$], and 717 U/mL [$P < 0.0001$], respectively). The multivariate analysis revealed that females and age were independent antibody titer-reducing factors ($P = 0.0001$ and $P < 0.0001$, respectively).

Conclusions: The use of inhaled corticosteroids did not reduce the antibody titer against SARS-CoV-2 spike protein. Clinicians should continue treatment with inhaled corticosteroids if indicated.

Keywords: Inhaled corticosteroid, SARS-CoV-2, BNT162b2 mRNA vaccine, Asthma