

SARS-CoV-2 Vaccine-Induced Antibody Response and Reinfection in Persons with Past Natural Infection

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Abstract

Several studies have shown that subjects with a history of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection had significantly higher antibody titers than previously uninfected vaccinees after vaccination with mRNA vaccine. Yet no information is available for other vaccines.

In the current observational cohort study, 105 health care workers who had received Covishield an Adeno associated viral vector-based DNA vaccine were enrolled at Sarojini Naidu Medical College Agra, India. The study included 40 (23 men and 17 women) subjects with a previous history of SARS-CoV-2 infection and 65 participants (39 men and 26 women) who were not infected previously. Both the groups received the adenovirus vector vaccine ChAdOx1-S recombinant vaccines (Covishield, Astra Zeneca). The levels of SARS-CoV-2-anti-spike-IgG-antibodies titer were measured using Electrochemiluminescence immunoassay on Roche platform as arbitrary units per milliliter (AU/ml).

After 28 days of the second dose, subjects with no previous SARSCoV-2 infection showed a significantly lower level of circulating anti-spike-IgG-antibody titers compared to previously infected participants. After the second dose, we also observed a significant increase in SARS-CoV-2 infection in subjects with no prior history of SARS-CoV-2 infection compared to subjects with a previous history of natural infection.

The most important observation of the study is a low percentage of infection in previously infected subjects. The finding of the study also indicates the presence of robust humoral memory response in previously infected patients.



Publications

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