

عنوان مقاله:

Comparative Analysis of SARS-CoV-2 Antibodies in Diabetic and Non-Diabetic Healthcare Workers Post-Infection and Vaccination

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خلاصه مقاله:

**Introduction:** The COVID-19 pandemic has significantly impacted global health, and vaccines have been crucial in mitigating severe outcomes. However, the effect of type 2 diabetes on vaccine-induced immune responses is not fully understood. This study aims to analyze SARS-CoV-2 antibody levels in individuals with type 2 diabetes and compare them to individuals without diabetes to elucidate the complex interactions between diabetes and immune responses. **Methods:** At GMC Srinagar, India, a study involving 299 healthcare workers reviewed their vaccination status, SARS-CoV-2 infection history, and diabetes status. Blood samples were analyzed for HbA1c and IgG antibodies using ELISA and chemiluminescence assays. Descriptive and inferential statistics were used to analyze demographic data and compare groups. **Results:** More than two-thirds of the participants had prior COVID-19 infections, and vaccination rates were high. Diabetes significantly impacted antibody levels, with diabetic individuals showing lower IgG titers compared to non-diabetic individuals. Age and gender also influenced antibody levels: individuals aged 41-50 and 51-60 had higher anti-S antibody titers than younger age groups ( $t\text{-test} = 52.603, df = 15, P < 0.001$ ). Males exhibited higher anti-S antibody titers compared to females ( $t\text{-test} = 7.483, df = 5, P = 0.007$ ). Booster doses of the vaccine significantly enhanced antibody responses. **Conclusion:** This study highlights the impact of diabetes, age, gender, and vaccination history on SARS-CoV-2 antibody levels in healthcare workers. Diabetic individuals had lower antibody titers, while age and gender differences also affected antibody responses. These findings suggest the need for personalized vaccination strategies, especially for diabetic healthcare workers, to optimize COVID-19 prevention and ensure effective immunity.

کلمات کلیدی:

COVID-19, SARS-CoV-2 antibodies, Type 2 diabetes, Healthcare workers, Vaccine Efficacy, Antibody titers

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