Immunogenicity and safety of the BBIBP-CorV vaccine in patients with autoimmune inflammatory rheumatic diseases and immunosuppressive therapy in a monocentric cohort

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Abstract

Introduction: Vaccination plays a fundamental role in mastering the COVID-19 pandemic and protecting vulnerable groups. Persons with autoimmune inflammatory rheumatic diseases (AIIRD), on immunosuppressive therapies, are prioritized for vaccination. However, data concerning immunogenicity and safety of the BBIBP-CorV vaccine in immunosuppressed patients are not found. This study presents data on the efficacy and safety of the BBIBP-CorV vaccine in immunosuppressed patients compared to healthy controls. Methods: Study population consisted of 100 healthy controls and 100 patients with AIIRD. Vaccination was performed according to national guidelines with the BBIBP-CorV vaccine. SARS-CoV2 neutralizing antibody titers were quantified by ELISA before initial vaccination and 1–3 months after secondary vaccination. Adverse events were assessed before study initiation and 7 days after the second dose. Disease activity was studied before entering the study and 3-8 weeks after the second dose. Results: Vaccination-induced positive immunogenic response rates and SARS-CoV2 neutralizing antibody titers were significantly lower in the AIIRD patients than healthy subjects ($P<0.05$). There are significant differences in neutralizing antibody titers among patients suffering from RA, SLE, SSc, and AS ($P<0.01$-0.05). The rates of seropositive vaccine responses were similarly distributed across all diseases. Healthy and AIIRD individuals had a similar profile in adverse events. No significant difference was observed in SARSCoV2 antibody titers between subjects suffering from side effects and those who did not have. SARS-CoV2 neutralizing antibody levels were significantly higher in SARS-CoV2-infected persons than noninfected subjects ($P<0.01$-0.05). Seropositive subjects had a significant increase in the percentage of vaccine-related adverse events compared to seronegative persons ($P<0.05$). Despite a minor change in the disease activity of patients with RA and SLE, disease activity indices were overall stable in the AIIRD patients. Conclusion: The BBIBP-CorV vaccine is effective in the development of neutralizing antibody in immunosuppressed patients without considerable reactogenicity or induction of disease flares.

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