Tittle: Delayed adverse events following COVID-19 vaccination in patients with systemic sclerosis and other autoimmune diseases: a substudy of the COVAD-2 cohort

Abstract:

This Data on short-term safety of COVID-19 vaccination in patients with systemic sclerosis (SSc) were explored previously in the first COVID-19 vaccination in autoimmune diseases (COVAD) survey conducted in 2021. However, delayed adverse events (ADEs) (occurring > 7 days post-vaccination) are poorly characterized in these patients with SSc. In this study, we analysed delayed COVID-19 vaccine-related ADEs among patients with SSc, other systemic autoimmune and inflammatory disorders (SAIDs) and healthy controls (HCs) using data from the second COVAD study conducted in 2022. The COVAD-2 study was a cross-sectional, patient self-reported global e-survey conducted from February to June 2022. Data on demographics, SSc/SAID disease characteristics, COVID-19 infection history, and vaccination details including delayed ADEs as defined by the Centre for Disease Control were captured and analysed. Among 17,612 respondents, 10,041 participants fully vaccinated against COVID-19 were included for analysis. Of these, 2.6% (*n* = 258) had SSc, 63.7% other SAIDs, and 33.7% were HCs. BNT162b2 Pfizer (69.4%) was the most administered vaccine, followed by MRNA-1273 Moderna (32.25%) and ChadOx1 nCOV-19 Oxford/AstraZeneca (12.4%) vaccines. Among patients with SSc, 18.9% reported minor, while 8.5% experienced major delayed ADEs, and 4.6% reported hospitalization. These frequencies were comparable to those of the ADEs reported by other patients with SAIDs and HCs. However, patients with SSc reported a higher frequency of difficulty in breathing than HCs [OR 2.3 (1.0–5.1), *p* = 0.042]. Patients with diffuse cutaneous SSc experienced minor ADEs [OR 2.1 (1.1–4.4), *p* = 0.036] and specifically fatigue more frequently [OR 3.9 (1.3–11.7), *p* = 0.015] than those with limited cutaneous SSc. Systemic sclerosis patients with concomitant myositis reported myalgia more frequently [OR 3.4 (1.1–10.7), *p* = 0.035], while those with thyroid disorders were more prone to report a higher frequency of joint pain [OR 5.5 (1.5–20.2), *p* = 0.009] and dizziness [OR 5.9 (1.3–27.6), *p* = 0.024] than patients with SSc alone. A diagnosis of SSc did not confer a higher risk of delayed post-COVID-19 vaccine-related ADEs overall compared with other SAIDs and HCs. However, the diffuse cutaneous phenotype and coexisting autoimmune conditions including myositis and thyroid disease may increase the risk of minor ADEs. These patients may benefit from pre-vaccination counselling, close monitoring, and early initiation of appropriate care in the post-COVID-19 vaccination period.