Abstract #: 08

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Title: Safety & immUnogenicity of COVID-19 vaCcines in systEmic immunE mediated inflammatory Diseases (SUCCEED): Preliminary results

Objective(s): Persons with immune-mediated inflammatory diseases (IMID) often take medications that may dampen vaccine responses. SUCCEED was funded by the Canadian government's COVID Immunity Task Force to study COVID vaccination in IMID. Our primary objective was to describe serological results post-vaccine, safety, and estimated serological evidence of recent COVID infection.

Method(s): From Vancouver, Calgary, Winnipeg, Montreal, Quebec City, Sherbrooke, Toronto, and Hamilton, data and dried blood spots/sera post-COVID vaccination were collected from adults with rheumatoid arthritis, inflammatory bowel disease, ankylosing spondylitis/spondyloarthritis and psoriasis/psoriatic arthritis. We evaluated seropositivity (surpassing 1% false-reporting cut-off) for anti-SmT1/spike or anti-receptor-binding domain (RBD) IgG as indicating successful serologic response to vaccine. Anti-nucleocapsid (N) IgG seropositivity indicated recent infection.

Result(s): About 60% of the first 1031 participants were female; mean age was 54. BNT162b2 (Pfizer) vaccine accounted for 75% of first/second doses, and 66% of third doses. mRNA-1273 (Moderna) was the second most common vaccine. The median time between vaccinations was 59 days between first/second, 143 between second/third; 180 between third/fourth; and 157 between fourth/fifth. Serum samples were collected at a median of 40 days after second, 48 after third, and 21 after fourth dose.

Positive serology for anti-SmT1/RBD IgG was present in 95 percent (95% CI 93-97) post-second-dose, 93% (91-95%) post-third dose, and 95% (74-100%) post-fourth dose. Concordance between anti-SmT1 and anti-RBD IgG was 90.8%. Adverse events post-vaccination were uncommon. Bell's Palsy represented one ED visit, with no confirmed Guillain-Barre or transverse myelitis in our preliminary analyses. Over 2021-2022, anti-N positivity (indicating recent infection) was present in 5.8 % of samples, tending to be more common in the post-Omicron months.

Conclusion(s): The vast majority of individuals with IMID demonstrated positive anti-SmT1/RBD post-second dose, and after additional doses. Relatively few serious adverse events occurred. These data support the potential usefulness of mRNA COVID-19 vaccination in IMID. Ours is the first estimate of the prevalence of recent COVID infections in a large, pan-Canadian IMID sample.