

Incidence of Glomerulonephritis after SARS-CoV-2 mRNA Vaccination

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Background

Numerous cases of glomerulonephritis manifesting shortly after SARS-CoV-2 vaccination have been reported, but causality remains unproven.

Methods or Case description

We studied the association between mRNA-based SARS-CoV-2 vaccination and new-onset glomerulonephritis using a nationwide retrospective cohort and a case-cohort design. Data from all Swiss pathology institutes processing native kidney biopsies served to calculate the expected incidence of IgA nephropathy, pauci-immune necrotizing glomerulonephritis, minimal change disease and membranous nephropathy in the adult Swiss population using a Bayesian model. A case-cohort study was used to calculate the risk ratio for the development of new-onset glomerulonephritis.

Results or Learning points

The observed incidence during the vaccination campaign (January to August 2021) was not different from the expected incidence based on the years 2015 to 2019 (incidence rate ratio 0.86, 95%-credible interval 0.73–1.02) and did not cross the upper boundary of the 95% credible interval for any month (Figure 1A). Among 111 patients aged >18 years with newly diagnosed glomerulonephritis between January and August 2021, 38.7% had received at least one vaccine dose before biopsy, compared to 39.5% of the general Swiss population matched for age and calendar-time (Figure 1B). The estimated risk ratio for the development of new-onset biopsy-proven glomerulonephritis was 0.97 (95%-confidence interval 0.66–1.42, $P=0.95$) in vaccinated vs. unvaccinated individuals. Patients with glomerulonephritis manifesting within 4 weeks after vaccination did not differ clinically from those manifesting temporally unrelated to vaccination. Results were consistent across all types of glomerulonephritis.

Conclusions (please write n/a if none)

In these two complementary studies in Switzerland, vaccination against SARS-CoV-2 was not associated with an increased incidence of glomerulonephritis. Most temporal associations between SARS-CoV-2 vaccination and glomerulonephritis are likely coincidental.

