

COVID-19 vaccination in cancer patients receiving chemotherapy: does vaccination increase the risk of hypersensitivity reactions?

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Objectives

Hypersensitivity reactions (HSRs) to chemotherapy are one of the leading causes of death due to drug-induced anaphylaxis. Several studies have described HSRs to the various COVID-19 vaccines. This study aims to determine the risk of a HSR among chemotherapy patients who have received the COVID-19 vaccination, by examining if there is a difference in frequency of HSRs to chemotherapeutic agents among patients who have been vaccinated against COVID-19 compared to patients who have not been vaccinated.

Methods

This was a retrospective cohort study performed via chart review. Inclusion criteria were all patients receiving any type of chemotherapy at a cancer center between 2018 and 2021. Patients less than 18 years old were excluded. The frequency of patients with one or more episodes of HSRs to chemotherapeutic agents were compared between patients who have received at least one dose of vaccination against COVID-19 to patients who did not receive the vaccination. Incidence proportions of HSRs, relative risk of HSR along with 95% confidence limits, and chi-square based two tailed P-value were reported to compare the differences between the two groups.

Results

A total of 1,310 patients were included in the study. There were 531 (41%) patients in the COVID-19 vaccinated group and 778 (59%) in the unvaccinated group. In the vaccinated cohort, the incidence proportion of an HSR after one or more chemotherapy infusions was 1.13%. The incidence proportion in the unvaccinated cohort was 1.03%. Compared to unvaccinated patients, the relative risk of HSR to chemotherapy in vaccinated patients was 1.099 (95% CI = 0.384 - 3.149). These results indicate that there was a non-significant difference in HSRs between the vaccinated and unvaccinated cohorts ($P=0.867$).

Conclusions

COVID-19 vaccination does not appear to increase the risk of HSRs in chemotherapy recipients. It is essential to continue to ensure the safety and tolerance of COVID-19 vaccines among populations at risk of increased mortality from COVID-19 disease, including cancer patients. This study adds to a body of evidence seeking to analyze and understand potential side effects associated with COVID-19 vaccination. A proposed area of further investigation is to analyze the incidence proportion of HSRs to chemotherapy among patients who have been vaccinated with different types of COVID-19 vaccines.