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Title

SARS-CoV-2 vaccination and Venous Thrombosis – Case Control study using Primary Care routine Electronic Medical Record data

Priority 1 (Research Category)

COVID-19

Presenters

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Abstract

Context

Conflicting results have been reported regarding the risk of a venous thrombotic event (VTE) after SARS-CoV-2 vaccination. Routine electronic medical record (EMR) data from primary care could be helpful in this type of study.

Objectives

To determine the risk of VTE after SARS-CoV-2 vaccination and whether there are subgroups of individuals who are particularly at risk of VTE after vaccination. In addition, we want to reflect on the usability of routine EMR data from Primary Care practices for this type of study.

Study Design and Analysis

We performed a case-control study using routine EMR data. We selected, based on ICPC coding, free text and medication use, patients who had a first VTE in 2021 from Primary Care practices in the region of Leiden/the Hague, the Netherlands. We selected controls from the same datasource, with at least one contact with their physician in 2021, but without VTE in 2021. Both cases and controls were aged 18 years and older.

After matching on calendar date (ratio cases: controls 1:3), vaccination was checked in the 28 days prior to the date of VTE by pseudonymized linkage, or the matched date for their controls. A stratified analysis was performed for the risk of VTE.

Data on demographics, history of VTE, vaccination details (type and date of vaccination) and other VTE risk factors were extracted for both patients and controls.

Setting or Dataset: Routine EMR data from primary care practices, anonymously extracted and linked in Extramural LUMC Academic Network (ELAN) Datawarehouse.

Population Studied: Patients with a first VTE in 2021 found in the ELAN Datawarehouse.

Intervention/Instrument: SARS-CoV-2 vaccination

Outcome Measures: Association between vaccination and VTE (presented as Odds Ratios adjusted for age and sex)

Results: A total of 346 first VTE cases and 1038 controls were identified. Overall, SARS-CoV-2 vaccination was not associated with VTE risk (mRNA aOR 0.78 (CI: 0.5-1.2); Vector aOR 1.6 (CI: 0.7-3.9)). However, vector-based vaccines were associated with an increased risk in patients with high risk for VTE (aOR: 2.8; CI 1.0-7.7).

Conclusions: While overall no association between VTE and vaccination was observed in 28 days after SARS-CoV-2 vaccination, results indicate that vector-based vaccines may increase the risk, particularly in the presence of other VTE risk factors. Routine EMR data from Primary Care can be useful in these research settings.