

LETTERS



Can children of the Sputnik V vaccine recipients become symptomatic?

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ABSTRACT

Sputnik V is one of the most promising vaccines, utilizing an Adenovirus vector to cause immunity against SARS-CoV-2. Concerns existed against Adenovirus infection with this vaccine, although seemed to be a rare event. In this study, we observed that 15/18 (83%) of the children of the Sputnik V recipients became symptomatic and developed transient fever and chills for 1–2 days starting after 2–5 days following the vaccination of their parents that can be related to an Adenovirus infection. To our knowledge, this is the first study reporting such symptoms in the children of Sputnik V recipients, and the results should be validated by larger studies.

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Coronavirus disease-2019 (COVID-19) has caused tremendous burden worldwide since its appearance.⁶ Sputnik V emerged as one of the leading COVID-19 vaccines with an efficacy of 91.6% (95% CI 85.6–95.2) in the interim phase 3 analysis. The vaccine uses two different adenoviruses (Ad5 and Ad25) as carriers of severe acute respiratory syndrome-Coronavirus-2 (SARS-CoV-2) spike protein. Grade 1 adverse reactions were reported in 94% of the patients, and similar rates of severe adverse reactions were reported in the vaccine (0.3%) and placebo (0.4%) groups.¹ We aimed to investigate the adverse events of this vaccine in the healthcare workers of the emergency department of the Imam Khomeini hospital, Khalkhal University of medical sciences.

In total, 30 healthcare workers were analyzed in this study. The age range of the participants was 25–45 years and consisted of 25 females and five males. Fourteen (47%) and 2 (7%) recipients had mild symptoms including fever, chills, myalgia, headache, and cough, all with no serious consequences. Two patients (7%) had syncope after vaccine injection. Interestingly, 18 participants had children aging 1–6 years. Of these, 15 (83%) children had transient fever and chills for 1–2 days, starting from 2–5 days after their parents' vaccination.

The rate of mild symptoms in our study was lower than the reported 94% grade 1 adverse events. Syncope was enlisted as a serious adverse event observed in one patient in the original phase 3 study.¹ However, the observed cases in this study did not seem to be related to the vaccine type, as post-vaccination vasovagal syncope is a well-known phenomenon.² In 2006, the Centers for disease control and prevention (CDC) suggested observing the patients for 15 minutes to avoid complications, as 89% of the post-vaccination syncope cases occur during this period.²

As we have seen, most of the children had symptoms after their parents received Sputnik V vaccination. It is possible that they have contracted the adenovirus from their vaccinated parents, as the observed 2–5 days interval between vaccination

and the children's symptoms concurs with the adenoviral incubation period of 2–14 days.³ Furthermore, the children's age group of 1–6 years also agrees with this hypothesis, as most of the adenovirus infection cases occur in patients under 5 years old.³ As we know, viral vectors are modified in this vaccine and do not continue their regular life cycles, and therefore, usually cannot cause active infections.⁴ Nevertheless, low levels of some adenoviral genes were expressed based on a high-sensitivity analysis of the ChAdOX1 nCoV-19 vaccine, also utilizing an adenoviral carrier.⁵ Adenoviral transmission could be responsible for the observed symptoms in the healthcare workers' children, but the calculated prevalence was substantially higher than the expectations.

To our best knowledge, this is the first study reporting symptoms in children of the recipients of the Sputnik V vaccine, and the results of our relatively small study need to be evaluated by larger studies.

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