

READER'S FORUM

Vaccinating children and adolescents against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), updated data from Israel

We read with interest the Letter by Verd et al. commenting on our Editorial regarding vaccination of children and adolescents against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).^{1,2} Indeed, when deciding on vaccination policy against SARS-CoV-2 many considerations need to be examined, including the safety of vaccines, the effectiveness in preventing illness (mainly severe), the impact on transmission of the virus and the effect of vaccination on disease prevention at the community and country level. When vaccination of children and adolescents is contemplated, additional aspects of the disease should also be considered, such as the impact on education, psychosocial effects of illness and isolation, unique manifestations such as multisystem inflammatory syndrome in children (MIS-C), and symptoms of long COVID in the young.

The most recent COVID-19 wave in Israel demonstrated the importance of vaccinating children and adolescents with a two-dose vaccine schedule and the effectiveness of such approach. On 2 June 2021, the Israeli Ministry of Health approved the BNT162b2 vaccine (Pfizer-BioNTech) for the 12- to 15-year-old population as a two-dose regimen, given 21 days apart; as of October 2021, 44% are fully vaccinated. The same vaccination schedule was approved for adolescents, 16–18 years old, at the beginning of 2021; as of October 2021, 74% are fully vaccinated. After a very successful national vaccination campaign at the beginning of 2021, the daily number of new COVID-19 cases in Israel (mostly alpha variant) declined from 10,000 at the peak of the third wave in January 2021 to less than 100 in May. In the middle of June 2021, a new widespread SARS-CoV-2 outbreak occurred, dominated by the B.1.617.2 (delta) variant. This outbreak started among adolescents, 12–15 years old, who were not vaccinated, and spread to the entire country. The 2-dose vaccine regimen was highly effective against the delta variant in recently vaccinated 12- to 15-year-olds, as examined in July 2021.³ After administration of the second vaccine dose, crude vaccine effectiveness against laboratory-confirmed SARS-CoV-2 infection was 55.3% in the first week, and rose significantly to 87.1%–91.2% in subsequent weeks.³ As of 26 August 2021, none of the vaccinated adolescents had been hospitalised, whereas among unvaccinated adolescents, 33 of 9969 SARS-CoV-2-positive patients (0.33%) were hospitalised in severe conditions. Similarly, in the United States, the Centers for Disease Control



and Prevention reported that weekly COVID-19-associated hospitalisation rates among children and adolescents rose nearly five-fold during the circulation of the highly transmissible delta variant during late June–mid-August 2021; hospitalisation rates were 10 times higher among unvaccinated than among fully vaccinated adolescents. Over a quarter of hospitalised adolescents were admitted to intensive care units and 0.7% died.

Myocarditis is associated with the BNT162b2 vaccine. In a recently published national study in Israel, myocarditis cases increased after the receipt of the BNT162b2 vaccine, particularly after the second dose among young male people. However, the incidence was low: 136 cases of probable or definite myocarditis among 5.1 million vaccinated people.⁴ Of note, the clinical presentation was mild in 95% of cases. Importantly, in another national Israeli study evaluating the safety of the BNT162b2 vaccine with matched vaccinated to unvaccinated persons, SARS-CoV-2 infection itself was a very strong risk factor for myocarditis. In fact, the risk ratio of myocarditis was much higher in SARS-CoV-2-infected than in vaccinated patients (18.28 vs. 3.24).⁵

Therefore, in our view, when considering the overall risks and benefits of SARS-CoV-2 vaccination for children and adolescents, and specifically myocarditis, the pendulum is clearly in favour of vaccination.

CONFLICT OF INTEREST

None.

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REFERENCES

1. Verd S, Fernández-Bernabeu M, Cardo E. The controversy surrounding vaccination of young people against COVID-19. *Acta Paediatr.* 2022;111(1):187-188.
2. Glikman D, Stein M, Shinwell ES. Vaccinating children and adolescents against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) – the Israeli experience. *Acta Paediatr.* 2021;110:2496-2498.
3. Glatman-Freedman A, Hershkovitz Y, Kaufman Z, Dichtiar R, Keinan-Boker L, Bromberg M. Effectiveness of BNT162b2 vaccine

in adolescents during outbreak of SARS-CoV-2 Delta variant infection, Israel, 2021. *Emerg Infect Dis.* 2021;27(11):2919-2922. <https://doi.org/10.3201/eid2711.211886>

4. Mevorach D, Anis E, Cedar N, et al. Myocarditis after BNT162b2 mRNA vaccine against COVID-19 in Israel. *N Engl J Med.* 2021. <https://doi.org/10.1056/NEJMoa2109730>
5. Dagan N, Barda N, Kepten E, et al. BNT162b2 mRNA COVID-19 vaccine in a nationwide mass vaccination setting. *N Engl J Med.* 2021;384(15):1412-1423.

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