

Cardiovascular Events After COVID-19 Vaccination: A Comment

To the Editor,

It has been argued that COVID-19 as a cause of death is overestimated, the role of co-morbidities being undervalued.¹ "Died with COVID-19" is not the same thing as "died of COVID-19." In terms of years of life lost, the current pandemic was predicted to score similarly to 1957 and 1968 influenza.² Excessive anti-epidemic measures and lockdowns are harmful to the economy and public health. In retrospect, an increase in mortality from different causes may be attributed to COVID-19 and subsequent mortality decrease—to anti-epidemic measures including vaccinations. The vaccination with new vaccines entails risks. It can be reasonably assumed that effects of the spike protein (SP), observed in COVID-19, would to some extent appear also after administration of vaccines containing SP or inducing its synthesis. In addition, adverse effects may be caused by adenoviral vectors that may contribute to blood clotting derangements and trigger immune responses. There is evidence of synergism between SP and adenoviral vector. In addition, vaccines may contain various substances of human and viral origin, which depends on the manufacturing standards. Cases of thrombotic thrombocytopenia, encephalitis, transverse myelitis, facial palsy, and Guillain-Barré syndrome after vaccinations have been reported.^{1,3} Statistics are of questionable reliability; adverse effects may be missed, ascribed to other causes, or obfuscated to comply with real or presumed policies discouraging reporting.⁴ Theoretically, the downregulation by SP of angiotensin-converting enzyme 2 (ACE2) can lead to endothelial damage. The SARS-CoV-2 virus uses ACE2 as a cellular receptor, which may lead to ACE2 degradation and angiotensin-II-mediated tissue injury. SP binds to ACE2 receptors of platelets and is presented to the immune system potentially triggering autoimmunity. The endothelial damage together with platelet activation provokes coagulopathy culminating in vaccine-induced thrombotic thrombocytopenia. Moreover, SP binds to T cell receptors thus potentially enhancing immune reactions.^{1,3} Significantly more cases of myo- and pericarditis than expected have been recorded after COVID-19 vaccinations.⁵ The diagnosis is difficult, especially in patients with underlying heart diseases,⁴ that is, the incidence may be underestimated. Tested preparations are not necessarily always equivalent to those administered to the public. Pressures for rapid approval of vaccines can result in the distribution of preparations with unstable quality.⁶ A winner of the "vaccine competition" may end up with a mass vaccination by a suboptimal vaccine. There have been reports from Russia about blood clotting-related, cardiovascular, and other adverse events after vaccinations.^{7,8} The number of unreported/undetected cases is unknown. It remains unclear, which agency is responsible for the registration of adverse events after COVID-19 vaccination.⁸ A promising research direction would be experiments in animals and human volunteers using SP preparations and vaccines, comparing with controls the levels of blood clotting (e.g., D-dimer) and other relevant markers.⁴ In conclusion, healthcare providers should be vigilant for cardiovascular and other adverse events after COVID-19 vaccinations; further research especially of long-term risks is needed.⁹

LETTER TO THE EDITOR

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REFERENCES

1. Jargin SV. COVID-19 Vaccination with special reference to adenoviral vectors, clotting disorders and old age. *J Geriatr Palliat Care*. 2021;7(1):2. [\[CrossRef\]](#)
2. Petersen E, Koopmans M, Go U, et al. Comparing SARS-CoV-2 with SARS-CoV and influenza pandemics. *Lancet Infect Dis*. 2020;20(9):e238-e244. [\[CrossRef\]](#)
3. Kircheis R. Coagulopathies after vaccination against SARS-CoV-2 may be derived from a combined effect of SARS-CoV-2 spike protein and adenovirus vector-triggered signaling pathways. *Int J Mol Sci*. 2021;22(19):10791. [\[CrossRef\]](#)
4. Joob B, Wiwanitkit V. Acute myocarditis after coronavirus disease 2019 vaccination. *Anatol J Cardiol*. 2021;25(11):841-842. [\[CrossRef\]](#)
5. Istampoulouoglou I, Dimitriou G, Späni S, et al. Myocarditis and pericarditis in association with COVID-19 mRNA-vaccination: cases from a regional pharmacovigilance centre. *Glob Cardiol Sci Pract*. 2021;2021(3):e202118. [\[CrossRef\]](#)
6. Greer SL, King EJ, Massard da Fonseca E, Peralta-Santos A. *Coronavirus Politics: the Comparative Politics and Policy of COVID-19*. Ann Arbor: University of Michigan Press; 2021.
7. Denisenko AS, Riess ME, Kropachev IG, Nikitina NN. First cases of coagulation disorders as complications after the Gam-COVID-Vac (Sputnik V) vaccine. *Vestn NovSU Med Sci*. 2021;3(124):61-64. [\[CrossRef\]](#)
8. Independent Medical Association. Available at: <http://expert-doctors.site/>.
9. Cereda A, Conca C, Barbieri L, et al. Acute myocarditis after the second dose of SARS-CoV-2 vaccine: serendipity or atypical causal relationship? *Anatol J Cardiol*. 2021;25(7):522-523. [\[CrossRef\]](#)