



Evaluation of the Side Effects of COVID-19 Vaccines

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Dear Editor,

The coronavirus disease 2019 (COVID-19) originated in Wuhan, Hubei province, China, and soon spread as a pandemic throughout China and many other countries until March 11, 2020.¹ The spread of the disease worldwide was so rapid that it became the biggest public health threat in 2020.² COVID-19 has a wide variety of symptoms such as high fever, dry cough, body aches, shortness of breath, and high transmission power, and it has affected the physical health and psychological states of many people in the world.³ The COVID-19 pandemic has caused fear, stress, and anxiety in many parts of the world.⁴

The lack of effective treatment for COVID-19 has posed a difficult challenge to all countries across the world. In this regard, several solutions were proposed, including home quarantine, social distancing, masking, closure of schools, universities, and high-risk jobs by governments to control and prevent the outbreak of COVID-19, but provided that a significant number of people around the world are vaccinated, one cannot expect the global COVID-19 pandemic to decrease dramatically.⁵ Finally, after much effort, the Food and Drug Administration licensed Pfizer-BioNTech vaccines from December 11 and Moderna from December 18. According to studies, these two vaccines are 95% effective against COVID-19 for people over 16 years of age.⁶

However, sometimes after the vaccination process, notice various side effects may be noticed in the body. In fact, all vaccines challenge a person's immune system and increase inflammatory markers within a few hours of vaccination. A comprehensive study has shown that allergic reactions to vaccines generally occur at a rate of 1.31 per million doses of vaccine with no fatalities.⁷ Preliminary studies have evidenced that the Fires-BioNTech vaccine can also cause mild to moderate side effects after the first and second doses, including muscle pain, redness, or swelling at the injection site, fatigue, headache, joint pain, and fever. Of course, these symptoms can indicate the struggle and effort of the immune system to fight the virus.⁸ In this regard, the reports of the Centers for Disease Control and Prevention indicate that anaphylactic reactions to Pfizer-BioNTech vaccines (11 cases per million doses) and Moderna (2.5

cases per million doses) compared to other similar vaccines are less common.⁹

The success of the global vaccination process depends in part on people's perceptions of the benefits and risks of the vaccine. Researchers believe that the refusal or delay of vaccination is due to the lack of knowledge and awareness of people about the safety of the vaccination process.¹⁰ This situation has been defined by the World Health Organization in the field of immunization as vaccine resistance, which has been identified as one of the most important public health threats in 2019 in the world.¹¹

In general, it can be said that each vaccine has its own consequences and side effects, and we should consult our doctor before getting the vaccine. However, studies have demonstrated that vaccination significantly reduces the risk of hospitalization and death from COVID-19. As two years have passed since the COVID-19 pandemic in the world, and the virus is still mutating, it is necessary for people, especially high-risk groups, to participate in the COVID-19 vaccination process to witness the end of this epidemic.

Conflict of Interests Disclosure

The author declares that there is no conflict of interests.

Ethical Approval

Not applicable.

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