MINI REVIEW

Can the Vaccines Developed Against COVID-19 Really Save Humans from this Scourge?

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ABSTRACT

All living things are afflicted with diseases (including bacteria). However, human beings are the most fragile living things in the universe. As if their lives were more valuable than those of others, humans have been programmed to eradicate all living things that might harm them. Despite being hardwired for self-protection, humankind may remain desperate and powerless in the face of the smallest organism. Their incapability in this century happens to be the failure to make any significant progress in the struggle against COVID-19 since December 2019. Although human beings have mobilized all their technology and accumulated knowledge against this novel virus, a medication or vaccine that can eradicate COVID-19 has not been developed yet. Vaccines are the most crucial invention of humankind against diseases. Since the emergence of COVID-19, countries around the world have devoted their financial resources to the efforts to eliminate this disease. Vaccines figure prominently in these efforts. Providing the highest level of protection against viruses and bacteria, vaccines are the most important biological molecules humans have. In this paper, we would like to share our concerns about the potential protectiveness of vaccines produced against COVID-19 in the light of available literature data. Our principal concern regarding vaccines is associated with the interferon Type I deficiency in patients who died of COVID-19 and the fact that antibodies formed against the virus attack the host's immune system. This condition coincides with the 10% fraction of patients who are most severely affected by COVID-19. Therefore, if the produced vaccine has a protective character in the concerned 10%, the issue will be resolved. In fact, it is known that 90% of the patients recover from COVID-19, although they may suffer from minor sequels. Irrespective of the technologies used in their production, vaccines have almost no differences between them. Therefore, their protection is similar. Consequently, we believe that the success of the produced vaccines can be indisputably confirmed only when they are able to prevent the death of humans by modifying the antibodies produced by the body against interferon Type I deficiency or COVID-19. Overall we belive that vaccination is the best way to get rid of COVID-19, but someone should take above concerns about vaccines as well.

Key words: COVID-19, Interferon, Vaccine

INTRODUCTION

The new coronavirus has been claiming human lives across all geographical areas of the world since December 2019.[1] At present, it does not have an effective cure. However, efforts toward vaccine production against it have gained speed in all countries. This article aims to briefly describe the vaccines and vaccine production methods and addresses the possible concerns regarding the effectiveness of the vaccines that can probably be produced in COVID-19.

In Ancient Greece (430 BC), it was said that once a person recovers from certain diseases, they would not be stricken with the same diseases again. Thus, the idea of the possibility

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of preventing diseases by vaccines goes back to the Ancient Greek Period and is the most significant invention of humankind in the field of health.[2-4] Vaccines are molecules which provide protection against infections by stimulating an active immunity formed in humoral and cellular character in humans and animals and which lead to the development of an immunity memory.[5] However, it should be noted that active immunity in itself is not sufficient to protect the body against microorganisms, and passive immunity also plays a major role.[6] Viral vaccines generally used in practice are prepared in two different styles, as Live Attenuated Vaccines and Inactivated (Killed) Vaccines. In the modern world, there are vaccines produced by advanced technology (anti-idiotypic antibody vaccines, synthetic peptide vaccines, and subunit vaccines) and vaccines produced by genetic engineering (nucleic acid vaccines [DNA vaccines], recombinant mutant vaccines, subunit vaccines, and marker vaccines).[7-9]

Returning to our focus after a brief discussion of vaccines and vaccine types, it is reported that about 90% of the patients diagnosed with COVID-19 may not have any symptoms experience.[10] However, 10% of the patients may have severe disease, resulting in a fatality. In other words, a re-evaluation of this 10% segment in percentages shows that 80% of patients suffer from severe symptoms and 20% die. Thus, the rough mortality rate of COVID-19 is theoretically 2%. Studies have reported that patients who had severe symptoms or those who died have blocked the activity of interferon Type I levels. It was also noted that the antibodies formed against COVID-19 in severe cases or cases resulting in fatality did not fight against the COVID-19 virus and attacked the body's immune system instead.[11]

An overview of the scientific data above suggests that it will be beneficial to theoretically question the protective role of the vaccines to be produced against COVID-19 or whether they will be effective by attacking the immune system. In other words, independent of the technology used in the production of a vaccine, we are faced with a critical scientific question, which is whether it will be effective given the genetic difference stated above and in patients who do not produce Type I interferon.[12] Another important scientific question is whether plasma administration can be helpful in the 10% portion-mentioned above.

In light of the same information, the statistical possibility of the 10% segment being experimental subjects in Phase 1, Phase 2, and Phase 3 studies of vaccines is 10%. Therefore, it is foreseen that if there is no subject from the said 10% with genetic differences in the group who receive the vaccine, the vaccine might be considered to have 90% protection, which may be misleading. It is extremely difficult to find out the extent to which the vaccine is effective in the 10% fraction and to predict whether the ones who are given the vaccine are really in the problematic 10% in the phase studies. It is anticipated that, in consideration of the concerns stated above, by elevating the amount of interferon I synthesis, we may have a chance to save more lives from COVID-19. That is because there are studies reporting that interferon administration can contribute to recovery from COVID-19.[13,14] In addition, it is among the possible assumptions that the administration of vaccines along with interferon Type I might increase their effectiveness.

The principal treatment against hepatitis is interferon therapy.[15] Considering the reports indicating that 10% of COVID-19 patients cannot adequately synthesize interferon Type I, it will be useful to know whether patients receiving interferon therapy die from COVID-19 or not. However, our broad literature review did not produce any information about whether hepatitis patients die of COVID-19. Besides, it was stated that antihistamine (chlorcyclizine, but cetirizine in the case of COVID-19) was the most inexpensive treatment for hepatitis C.[16] It is anticipated that, as both hepatitis and COVID-19 viruses are RNA viruses and antihistamines discipline the cytokine storm, it can be useful in the treatment of COVID-19.[17]

CONCLUSIONS

In brief, the potential success of vaccines against COVID-19 depends on whether they are protective in interferon Type I deficiency and whether the antibodies produced by the host against COVID-19 attack the immune system or not (our concerns here apply to plasma treatment as well). After leaving above concerns one side our last word is that vaccination could be only remedy to get rid of COVID-19.

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