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Mini Review

Should not we vaccinate the public against seasonal influenza all over the year in COVID-19 era?

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Abstract: The pandemic of the SARS-CoV2 (COVID-19) that was declared by the World Health Organization (WHO) on 11 March 2020 is still ongoing. One of the early recommendations from CDC and other international agencies is the seasonal influenza vaccination to decrease the effects and burden of COVID-19 pandemic. This review suggests that during COVID-19 pandemic vaccination against seasonal influenza should be conducted all over the year, even for young age groups, because of several reasons. First, the complications of seasonal influenza, especially pneumonia, could increase the burden on the saturated healthcare systems worldwide. Second, the resemblance of symptoms and signs of both seasonal influenza and COVID-19 will difficult diagnosing and isolation of COVID-19 patients. Third, it has been postulated that there is a cross immunity between seasonal influenza and COVID-19.

Keywords: Coronavirus, COVID-19, Influenza, Vaccine, Review

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The pandemic of the SARS-CoV2 (COVID-19) that was declared by the World Health Organization (WHO) on 11 March 2020 is still ongoing. Saturday the 30th January 2021 marked the end of one year since WHO announced the declaration of the global public health emergency of international concern [1,2].

By July 2023, the case number has reached nearly 768 million cases worldwide and almost 6.95 million deaths in 223 countries, areas or territories with cases [2].

Today with no proven specific antiviral treatment and the slow progression of specific vaccination for COVID-19, the world has no measures against the disease except those lessons learnt from the 21st century previous epidemics (2003 SARs CoV, 2009 H1N1 pandemic, and 2013 MERS CoV) [2,3].

Currently, several clinical trials are conducted for developing a safe and efficacious vaccine against COVID-19. Worldwide, there are extraordinary efforts that have generated over 200 candidates in various stages of development, with over 50 candidate vaccines in human clinical trials and 18 in efficacy testing [4]. However, there are a lot of doubts about the effectiveness of the available vaccines and possible adverse effects [5].

One of the early recommendations from Centers for Disease Control and Prevention (CDC) and other international agencies is the seasonal influenza vaccination to decrease the effects and burden of COVID-19 pandemic [6,7].

We suggest that during COVID-19 pandemic vaccination against seasonal influenza should be conducted all over the year, even for young age groups, because of the next reasons:

First, seasonal influenza vaccine will protect against influenza virus complications, especially pneumonia. Viral pneumonias during autumn and winter, mainly due to seasonal influenza, were important cause of deaths before COVID-19 [8]. Healthcare facilities especially intensive care units cannot assume viral pneumonias and respiratory failures due to seasonal influenza and COVID-19 at the same time.

Second, symptoms of seasonal influenza are quite similar to COVID-19. It is very difficult to differentiate clinically between them. It is not easy to conduct RT-PCR COVID-19 for every patients with common symptoms of seasonal influenza and COVID-19; feasibility, logistics and costs. Also, it is not logic to isolate every patient with common symptoms of seasonal influenza and COVID-19 for 10 to 14 days [9].

Third, recent studies suggest that there could be a cross immunity between seasonal influenza and COVID-19. The possible cross immunity between seasonal influenza vaccine and coronavirus is explained by that the pathogenesis of both requires a hemagglutinin estrase proteins, they share spike protein features of class 1 viral fusion proteins and lastly viral A influenza link to ACE2 receptors in the lungs [9,10,11].

Several epidemiological studies suggested that seasonal influenza vaccination could ameliorate or avoid COVID-19 complications. A recent ecological study done in 20 Italian regions indicated that protective effect of seasonal influenza vaccine against spread, severity and death from COVID-19 virus in elderly subjects above or equal 65 years. The latter study showed a significant negative correlation between vaccination rates in the resident areas and the cumulative index rate, cumulative death rates and case fatality rate. The highest correlation was reported for cumulative index rate followed by cumulative index rate and lastly case fatality rate [12].

Another recent Italian study investigated the impact of the newly developed quadrivalent cell based influenza vaccine developed for the first time in Italy and other two forms of influenza vaccine and the COVID-19 mortality. This study also reported a moderate to strong negative correlation between influenza vaccine uptake in the three forms and mortality all over Italy in patients above or equal 65 years of age [13].

Recent ongoing trials explored the protective effect of influenza vaccination in reduction of cardiovascular complications that occur after COVID-19 infection. Preliminary results of observational studies showed that there is a remarkable association between seasonal influenza infection and COVID-19 cardiovascular complications. These observational and interventional studies will lead the way to better understanding of the primary and secondary prevention of cardiovascular complications which is associated with COVID-19 infections [14]. Thus, seasonal influenza vaccine, known by its effectiveness and safety, could prevent against or at least avoid severe manifestations of COVID-19.

A recent study evaluated the response of the Italian population in acceptance of seasonal influenza vaccination after the start of the COVID-19 pandemic. The study showed that 74.8% of the respondents valued the seasonal influenza vaccination and confirmed that the vaccination should be mandatory [15].

Conclusions and recommendations

Labs dedicated on fabrication of seasonal influenza vaccine could continue working all over the year and supply the whole world with that safe and effective vaccine. The implementation of the whole year vaccination plan can work out in real ground.

It is recommended to conduct ecological studies recording places where there is widespread use of seasonal influenza and the spread of infection in the upcoming waves of COVID-19 virus.

References

[1] WHO: Covid-19 one year later - WHO Director-General's new year message. Available at: https://www.who.int/news/item/30-12-2020-covid-19-anniversary-and-looking-forward-to-2021 (last access February 25, 2021).

[2] WHO: Coronavirus disease (COVID-19) pandemic. Available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019 (last access July 15, 2023).

[3] WHO. Global research on coronavirus disease (COVID-19). Available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov (last access July 15, 2023).

[4] Kim JH, Marks F, Clemens JD. Looking beyond COVID-19 vaccine phase 3 trials. Nat Med 2021; 27:205-11.

[5] Remmel A. COVID vaccines and safety: what the research says. Nature 2021; 590(7847):538-40.

[6] CDC. Who Needs a Flu Vaccine and When. Available at: https://www.cdc.gov/flu/prevent/vaccinations.htm (last access July 15, 2023).

[7] WHO. WHO SAGE Seasonal Influenza Vaccination Recommendations during the COVID-19 Pandemic Interim guidance 21 September 2020. Available at: https://www.who.int/publications/m/item/who-sage-seasonal-influenza-vaccination-recommendations-during-the-covid-19-pandemic (last access July 15, 2023).

[8] Moghadami M. A Narrative Review of Influenza: A Seasonal and Pandemic Disease. Iran J Med Sci 2017; 42(1):2-13.

[9] Jones N. How COVID-19 is changing the cold and flu season. Nature 2020; 588(7838):388-90.

[10] Zeng Q, Langereis MA, van Vliet AL, Huizinga EG, de Groot RJ. Structure of coronavirus hemagglutinin-esterase offers insight into corona and influenza virus evolution. Proc Natl AcadSci USA 2008; 105(26):9065-9.

[11] Menachery VD, Eisfeld AJ, Schäfer A, Josset L, Sims AC, Proll S, Fan S, Li C, Neumann G, Tilton SC, Chang J, Gralinski LE, Long C, Green R, Williams CM, Weiss J, Matzke MM, Webb-Robertson BJ, Schepmoes AA, Shukla AK, Metz TO, Smith RD, Waters KM, Katze MG, Kawaoka Y, Baric RS. Pathogenic influenza viruses and coronaviruses utilize similar and contrasting approaches to control interferon-stimulated gene responses. mBio 2014;5(3):e01174-14.

[12] Cocco P, Meloni F, Coratza A, Schirru D, Campagna M, De Matteis S. Vaccination against seasonal influenza and socio-economic and environmental factors as determinants of the geographic variation of COVID-19 incidence and mortality in the Italian elderly. Prev Med 2021; 143:106351.

[13] Marín-Hernández D, Schwartz RE, Nixon DF. Epidemiological evidence for association between higher influenza vaccine uptake in the elderly and lower COVID-19 deaths in Italy. J Med Virol 2021; 93(1):64-5.

[14] Behrouzi B, Araujo Campoverde MV, Liang K, Talbot HK, Bogoch II, McGeer A, Fröbert O, Loeb M, Vardeny O, Solomon SD, Udell JA. Influenza vaccination to reduce cardiovascular morbidity and mortality in patients with COVID-19: JACC State-of-the-Art Review. J Am Coll Cardiol 2020; 76(15):1777-94.

[15] Domnich A, Cambiaggi M, Vasco A, Maraniello L, Ansaldi F, Baldo V, Bonanni P, Calabrò GE, Costantino C, de Waure C, Gabutti G, Restivo V, Rizzo C, Vitale F, Grassi R. Attitudes and beliefs on influenza vaccination during the COVID-19 pandemic: Results from a representative Italian Survey. Vaccines (Basel) 2020; 8(4):711.