Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Coronavirus disease 2019 vaccine in pregnant women: not so far! The importance of counseling and the need for evidence-based data

To the Editors:—We read with interest the recent study of Craig et al[1] on coronavirus disease 2019 (COVID-19) vaccines in pregnancy. The authors concluded that "COVID-19 vaccines should not be withheld from women solely based on their pregnancy or lactation status, when they otherwise meet criteria for vaccination." This strong statement raises several concerns.

The development of drugs and vaccine is a slowly process.[2] An experimental vaccine is first tested in animals to evaluate safety; then it is tested in human clinical trials in 3 phases.

In phase I, the vaccine is given to a small number of volunteers. In phase II, the vaccine is usually given to hundreds of volunteers monitored for side effects and for immune response. In phase III, the vaccine is given to thousands of volunteers. Phase II and phase III studies usually involved a placebo-controlled study design with a control group that randomly received placebo.

Therefore, vaccine development is a process often lasting 10 to 15 years, with an average time of 2 years only for the preclinical stage. For example, the influenza virus was isolated in a laboratory in 1933, and the first flu vaccine was not licensed until 1945. Moreover, after successful completion of phase III studies, postmarketing surveillance studies monitor the vaccine safety and efficacy in the population (ie, phase IV studies).[3]

All the phases involved in a development of drugs and vaccine are necessary to test for safety and efficacy in different subgroups of population. Unfortunately, pregnant women are often underrepresented in clinical research and excluded from trials solely for their pregnancy status. According to a recent review, only 1% of industry-sponsored trials were designed for pregnant women and overall 95% excluded pregnant women.[4] Therefore, it is often problematic to use medication in pregnant women.

Since December 2019, the outbreak of COVID-19 has become a major epidemic worldwide. Therefore, the urgent need for a vaccine against COVID-19 is indisputable. However, among the several vaccines in phase II or phase III, no trials involve pregnant women. Moreover, the real impact of severe acute respiratory syndrome coronavirus 2 infection in pregnant women is still a subject of debate. The infection is associated with less than 1% risk of maternal mortality, and the risk of vertical transmission seems to be negligible.[5] Evidence from nonpregnant populations showed that among critically ill patients, the majority are older men.

Therefore, there are issues we should take into account before that state "COVID-19 vaccines should not be withheld from women solely based on their pregnancy or lactation status, when they otherwise meet criteria for vaccination."

First, we do need for evidence-based data, and therefore, we urgently call for pregnant women to be included in appropriately designed vaccine trials and clinical studies: a fair inclusion of pregnant women in clinical studies means that pregnant women who are eligible are not excluded solely based on their pregnancy or lactation status. Such approach would avoid the implementation of an intervention before adequate testing that may later be found to be ineffective or even harmful.

Second, until we can guarantee, with evidence-based data, the safety of COVID-19 vaccine in pregnancy, healthcare providers should extensively counsel pregnant women balancing the potential risk of severe maternal disease against the unknown risk of fetal exposure, thus offering the possibility of the vaccine only after an autonomous, informed decision or if in the context of a clinical trial or a research protocol.

Finally, we should keep on always protecting pregnant women with face masks and social distancing, an approach associated with 85% reduction in the risk of infection.[6] The risk will be further reduced with vaccination of the nonpregnant population.

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