

COVID Vaccination in Pregnant Women - Need of Hour

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COVID-19 pandemic has posed distinct challenges in women's health care globally; it calls for immediate attention, creation of just policies for safe guarding this vulnerable set of population.

Ever since the pandemic began, there was dearth of policies, guidelines, treatment protocols for pregnant woman. The American college of obstetricians and Gynecology (ACOG) recommended deferral of elective, non-urgent surgeries to limit infectious exposures in view of high number of COVID-19 cases [1-3] which were apt in initial phases but at the same time had adverse outcome on undesired pregnancies, termination and surgical sterilizations as they lack prioritization [4].

The emerging evidence from medical research is suggesting that COVID-19 has potential for trans placental infection as well as increased morbidity [5-8]. It was earlier proclaimed that the risk of COVID -19 infection to pregnant women and neonates is low with more than half of pregnant women who test positive for SARS-CoV-2 were asymptomatic but the newer research gives a different picture. In particular there is increase in virulence seen in the mutant strains of the SARS-CoV-2 virus, it is seen that this strain affects pregnant women more severely with some requiring ICU admission. The risk of preterm birth is increased two to three fold for women with symptomatic COVID-19, as a result of medical recommendation to deliver early for improved maternal oxygenation. It therefore mandates that pregnancy is considered as a priority group and efforts must be made judiciously, timely backed with scientific evidence in formulating policies and guidelines that will enable health care to provide safe, prudent and timely remedy for this highly vulnerable group.

The availability of data pertaining to COVID-19 and pregnancy is scarce. If we look at policies and strategies to mitigate COVID-19 in pregnancy there is lack of consensus between evidence based medicine and precautionary preventive principles that have negative impact on health outcome in pregnancy. Pregnant woman have been excluded from large clinical trials related to COVID-19 which finds justification as per the international conventions and instruments pertaining to research activities for conducting trials - Nuremberg code, Helsinki declaration, CIOMS guidelines 1982 and ICMR-2002 guidelines as evident from US national Medicine Registry where nearly $\frac{3}{4}$ of the COVID-19 related clinical trials excluded pregnant woman [9]. It however has unjustly sidelined pregnant woman and denied them opportunity to participate in clinical research even with previously studies interventions with steroids and hydroxyl chloroquine which has unfortunately resulted in paucity of research in COVID-19 pregnancy [10].

For every policy and guideline formulation pregnant woman interests have been back seated citing them as 'vulnerable group' but does it justify that the decision to vaccinate or no vaccination is delayed? It is agreed that there is limited data on the safety of vaccine in pregnant women which is largely attributed to their exclusion from clinical trials but definitely it requires a knee jerk response in terms of vaccination now as mutant strains cause severe illness (observed in second and third waves in various countries) especially in pregnant women and not vaccinating these pregnant women pose a great risk both for the women and the growing fetus as already COVID-19 has ribbed apart the health care system of major developing and poor countries. The health care facilities of developed countries are also overwhelmed and if the authorities keep sitting thinking it causes mild illness in pregnant woman it would be insane.

The need of hour is serious deliberations as not only its pregnancy but pregnant women are more likely to have severe COVID-19 infection if they are overweight, obese (BMI more than 40 kg/m²), have co morbidities such as diabetes (gestational diabetes), hypertension, asthma or are 35 years older. These factors put them at high risk category for COVID-19 infection.

Moreover, there are no known risk associated with administering inactivated, recombinant viral or bacterial vaccines or toxoids during pregnancy or while breast feeding. Most vaccines focus on immunization with the spike (S) protein, which is the main target for neutralizing antibodies. Neutralising antibodies that block viral entry into host cells through preventing the interaction between the spike protein Receptor Binding Motif (RBM) and the host cell Angiotensinogen -converting enzyme 2 (ACE2) are expected to be protective. The vaccines targeting the S protein - Pfizer BioNTech COVID -19 mRNA vaccine BNT162B2 and Moderna mRNA-1373 COVID -19 vaccine use mRNA platform, while Astra Zeneca COVID-19 vaccine uses an adenovirus vector. Since inactivated vaccines cannot replicate, they cannot cause infection in either the mother or the fetus. Astra Zeneca vaccine does contain live adenovirus vector but this virus is not replicating and will not cause infection to the mother or the fetus. Developmental and reproductivity testing of all these vaccines in animals have not raised any concerns. Adenovirus vector similar to that used in Astra Zeneca vaccine have been used widely to vaccinate women against Ebola without raising concern.

There is no available data indicate any harm on the use of COVID-19 vaccine during pregnancy, JCVI (Joint committee on vaccination and Immunization UK) [11] has therefore advised that pregnant women should be offered vaccination. Clinicians should discuss the risks and benefits of vaccination with the women. The Federation of Obstetric and Gynecological Societies of India (FOGSI) in their report advocated for vaccinating pregnant woman recently [12].

However, considering the rampant rage of the pandemic cutting all barriers of age and sex, it is prudent that pregnant women and lactating mothers be vaccinated in the best interest of both the mother and the growing fetus. There is dire need of introspection at scientific and political level to formulate ethical just policies pertaining to vaccination of pregnant woman against COVID-19 infection based on personal choice, maximizing benefit, minimizing harm and giving each person what is due for her/him abidance to ethical principles of autonomy, beneficence and justice.

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Conflict of Interest

Nil.

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