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Mini Review

Novel Coronavirus Pandemic among Children and Pregnant Women: Evidence from Recent Reviews

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Abstract

Novel coronavirus is very contagious and belongs to betacoronavirus. The virus has zoonotic potential and transmitted to human through close contact via respiratory droplets. Pregnant mothers and children are very susceptible for any infection, but COVID-19 is reported as mild compared with adult population. The majority of infants and pregnant women didn't develop serious clinical symptoms such as fever, cough, diarrhea, or abnormal radiologic or hematologic evidence. Cesarean section is the optional mode of delivery although professional judgment is needed not to conduct surgery for every woman who could give spontaneous delivery. Based on the known benefits of breast-feeding and limited evidence that the COVID-19 virus is not present in breast milk, they all advocate continuing to breastfeed (regardless of COVID-19 status with strict precautions to prevent transmission.

Further review on the related topic including upcoming studies is crucial for case management and decision-making.

Keywords: *Novel Coronavirus; COVID-19; Pandemic; Children; Pregnant Women*

Introduction

The 2019-novel Coronavirus (COVID-19) or 2019-nCoV belongs to betacoronavirus, but it is divergent from SARS-CoV and MERS-CoV that caused epidemics in the past as of full-genome sequence analysis [1] and molecular analysis suggest that 2019-nCoV could be originated from bats indicating highest zoonotic potential of coronaviruses [2,3] while human to human transmission is via close contact through respiratory droplets [4] and poor hygienic practices among others though further study is needed on this aspect since the virus is very much contagious in its nature. The pandemic has emerged from Wuhan (China) and spread to worldwide [5].

Pregnant women are susceptible to respiratory pathogens and to development of severe pneumonia, which possibly makes them more susceptible to COVID-19 infection than the general population [6] and the history of Severe acute respiratory syndrome coronavirus (SARS) and Middle East respiratory syndrome coronavirus (MERS- CoV) indicated that the case fatality rate appeared higher in pregnant than non-pregnant women [7]. There is no clear report indicating death among pediatric age group who is affected by novel coronavirus [8] although they are much more susceptible to any infection.

Aim of the Study

Thus, this review was aimed to assess overall epidemic estimates of children and pregnant mothers which is valuable for preventive and clinical practices, and for clear understanding of infection on these susceptible population group.

Methods

A review of literatures was conducted using PubMed, Google scholar and Google search. The search is mainly focused on novel coronavirus or COVID-19 pandemic or overall epidemic, neonate, children and pregnant women till the time of finalizing the review. Data were extracted from available paper and there was no need of ethical approval for the given protocol.

Findings and Discussion

Similar to SARS-CoV and MERS-CoV, the novel coronavirus (SARS-CoV-2) less commonly affect children and cause fewer symptoms and less severe disease compared to adults and are associated with much lower case-fatality rates [9]. Pregnant women are the population segment susceptible to COVID-19 and are said to be more likely to have complications and even progress to severe illness [10], though there is no evidence that suggests pregnant women are more susceptible to infection [11]. Infants and preschool-aged children were more likely to have severe clinical manifestations than older children [12]. According to the study indicated among 32 women affected by COVID-19 during pregnancy, 27 of them delivered by Cesarean section with no maternal deaths [7] and no vertical transmission though one stillbirth and one neonatal death was reported [7]. Cesarean section was effective and safe mode of delivery for pregnant women with confirmed and suspected COVID-19 infection [13]. It is apparent that choice of delivery timing should be individualized depending on the week of gestation and maternal, fetal and delivery conditions. This implies that those pregnant mothers who are confirmed cases and had septic shock, acute organ failure or fetal distress are subjected to emergency cesarean delivery [14]. Among four live born infants, born to pregnant women with the COVID-19 infection in the city of Wuhan; two infants had rashes of unknown etiology at birth, one had facial ulcerations and one infant had tachypnea while none of the infants developed serious clinical symptoms such as fever, cough, diarrhea, or abnormal radiologic or hematologic evidence [15]. Another study done by Q. Lu, revealed that three neonates and more than 230 children cases to have mild disease condition [8] with no-evidence of transplacental or vertical transmission of SARS- CoV-2 [8,10,16-19] while it is necessary to enhance the protection during delivery and isolate the newborns immediately after delivery and breastfeeding may not be safe until COVID- 19 is ruled out or until both mother and neonate clear the virus [16,17]. Meanwhile, UNFPA recommends that breastfeeding women should not be separated from their newborns and take all possible precautions to avoid spreading the virus to her infant, including washing her hands before touching the infant and wearing a face mask while feeding at the breast or else someone who is well feed the expressed breast milk to the infant [20,21]. A study from China as of February 11, 2020 showed also that only 416 (0.9%) confirmed cases were less than 10 years of age [22]. Another review also indicated that children have 1 - 5% of diagnosed COVID-19 cases, they often have milder disease than adults and deaths have been extremely rare [23,24].

Conclusion

Pregnant mothers, neonate and children were considered to be susceptible for infections while in the case of COVID-19, the condition was milder and rare than adults. In addition, there is no evidence reported that these group of population were susceptible to this novel outbreak. Although confirmed neonates were reported, there is no evidence for vertical transmission. Cesarean section was effective and safe mode of delivery for confirmed and suspected COVID-19 cases and choice of delivery timing should be individualized depending on the week of gestation and maternal, fetal, and delivery conditions.

Further review needs to be conducted including upcoming studies in this area to strengthen for decision-making and management of pregnant mothers, infants and children.

Contribution of Authors

Agajie Likie (AL): Over all activities from the inception of topic selection to the manuscript write-up including conceptualization of ideas, electronic databases searching, data extraction, writing original draft.

Jemal Haidar (JH) (Professor): Advice on the protocol, review and editing of the manuscript, and final approval.

Competing Interest

The authors declare that there is no any competing interest.

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Ethical Approval

This review is based on previous published articles indicating that there is no need of ethical clearance.

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