

# Neonatologists' Challenges During COVID-19 Pandemic

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## To the Editor

In the current coronavirus disease 2019 (COVID-19) pandemic situation, the medical community is facing more uncertainty than ever. Neonatologists are no different. We face one of the biggest challenges regarding strains on infrastructure and shortage of trained personnel; in addition, we face larger challenges in the diagnosis and management of the newborns whose mothers are COVID-19 positive, or who got infected postnatally [1].

While current knowledge is that vertical transmission is unlikely [2], it remains a possibility. Choosing the diagnostic tool is a dilemma; if transplacental transmission could occur, then nasopharyngeal swabs might not be reliable, and blood testing might be a better choice. Parallel to this possibility, neonatologists should consider that the infant might have COVID-19-related symptoms at birth, for instance, congenital pneumonia.

If the virus is present in the amniotic fluid, which was not proved until now, then infection might occur through aspiration and ingestion; if it happens perinatally, this means that the incubation period should pass before these infants become symptomatic and might result in a negative early nasopharyngeal swab. This concept should be reflected on the isolation duration of these infants as well. If this hypothesis is correct, early nasopharyngeal swabs might yield a false positive result detecting the virus in the amniotic fluid present in the infant's nasopharynx, especially if swabs are taken immediately after birth. Interpretation of the results in this situation is not an easy task. Follow-up swabs after 2 - 3 days of age are potentially more reliable and measuring the inflammatory markers might help differentiating between false positive results and true infection.

Regarding treatment challenges, data from adult literature showed effectiveness of chloroquine and hydroxychloroquine against COVID-19 infection [3], and a synergistic effect of hydroxychloroquine and azithromycin [4].

The question is whether neonatologists should consider this data when treating sick newborns who are COVID-19 positive, or their mothers are COVID-19 positive.

The use of azithromycin in neonatal population is well-documented [5]. Although there are concerns of developing hypertrophic gastric outlet obstruction [6], many studies have reported safe use of azithromycin in newborn infants. Preven-

tion of bronchopulmonary dysplasia is the most common reported indication. One study reported using a dose of 10 mg/kg daily for 7 days, followed by 5 mg/kg for an additional 5 weeks, starting at the age of less than 72 h [7]. Azithromycin was also used for the treatment of chlamydial conjunctivitis at a dose of 20 mg/kg per day orally for 3 days [8].

Anti-malarial drugs have been reported as a treatment for congenital malaria. Oral quinine was used in the treatment of 32 infants with congenital malaria, with a dose of 10 mg/kg/dose given 8 hourly for 7 days, and no side effects were reported [9]. Another study reported on a newborn baby with congenital malaria who was treated with chloroquine 10 mg/kg, then 5 mg/kg after 6 h, and then 5 mg/kg/day on the second and third days [10], with no side effects reported as well.

Many questions are still without answers, and many others will be raised every day. We are all concerned from the effect of the disease and its treatment modalities on our fragile patients; under such uncertainty, we should be vigilant and realistic.

I believe that the following points should guide our decision making during these difficult times: 1) The protection of our residents, nurses, and respiratory therapists is a priority; 2) Communication between all neonatal health care providers and taking shared decisions are important; 3) In asymptomatic COVID-19 positive infants, infection control measures, and continuous monitoring are the key in their management; isolation of the newborn and separation from COVID-19 positive mother seem to be the best available prophylactic measure; 4) In symptomatic COVID-19 positive infants, management according to the unit practice guidelines, administering broad spectrum antibiotics, respiratory support, and keeping lower threshold for surfactant therapy might be enough since other neonatal morbidities might be the cause of the infant's clinical condition; 5) In the case where the infant's clinical condition is not responding to the conventional therapy, the treating neonatologist might consider adding azithromycin or anti-malaria drugs to the treatment regimen; 6) In case of using anti-malaria drugs or azithromycin, a previously reported dose regimen should guide our treatment to minimize side effects; 7) Before using anti-malaria drugs, parents' consent should be taken; 8) It is worth checking glucose-6-phosphate dehydrogenase (G6PD) level in those infants before giving any anti-malaria medication; and 9) If azithromycin is used, watch for prolonged QT.

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## Conflict of Interest

None to declare.

## Author Contributions

Not applicable.

## Data Availability

The author declares that data supporting the findings of this study are available within the article.

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