Balancing Risks in the Time of COVID-19

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The worldwide coronavirus disease 2019 (COVID-19) pandemic has disrupted people’s lives and livelihoods on the micro level and entire countries and economies on the macro level. Tens of millions of people have been infected, and hundreds of thousands have died. Sadly, as of early September in the United States, it is getting worse, not better.

For all of the disruption, however, the path forward is illuminated by science. Science identified and rapidly sequenced the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus. Science identified its mode of transmission and informed public health measures that, if widely embraced, promise to limit its spread. Science has shown that a new antiviral drug and an old corticosteroid can improve outcomes among severely ill adults. Science holds the promise of developing a vaccine that ultimately may end the pandemic; and yet, in 2017, more than 4 of 5 persons in the United States could not name a living scientist.1 (Of the 19% who could name one, 2% said Anthony Fauci—a percentage that is sure to be higher now!) The scientific method of making observations, testing hypotheses, generating data, and generating new understanding often becomes foreign to us when we leave our school science classes. It is perhaps not surprising, then, that the rapid pace with which recommendations have been made and subsequently changed in recent months often leaves us all tired, confused, and frustrated.

The important work of Dumitriu et al2 provides a good example of how careful observations can improve our understanding of what was previously unknown and can help inform treatment recommendations. The authors report birth hospital and postdischarge outcomes through 2 to 3 weeks of age among 101 neonates born in New York City, New York, to 100 mothers with COVID-19. All the newborns underwent testing at least once by nasopharyngeal polymerase chain reaction testing at 0 to 2 days after birth; 2 infants (2.0%; 95% CI, 0.2%-7.0%) had indeterminate test results, which indicated that they were infected but at very low viral copy numbers. Notably, 1 of these 2 infants had roomed-in with the mother without infection prevention efforts, because the mother’s illness was not recognized until after delivery. Neither of these neonates developed signs of disease. Taken together with other reports of 1% to 2% of neonates born to SARS-CoV-2–positive women being infected,3-5 this large case series suggests a relatively low likelihood of perinatal transmission from infected mother to newborn. To determine the risk of postnatal transmission of virus from an infected mother (or potentially, another household member), infants in the study were evaluated in outpatient clinics in the first 1 to 3 weeks after birth. No clinical COVID-19–related illness or other negative impact on neonatal health was observed. Although there are now reported cases documenting that SARS-CoV-2 infection in neonates can cause significant disease,6-10 the study’s observations are aligned with other findings that most cases reported in young infants are asymptomatic or minimally symptomatic.11-14

Although this study adds significantly to our understanding of the risk presented to newborns from mothers with COVID-19 at the time of delivery, there are several features of this report that should be considered. First, the timing of maternal infection was not fully known for many women in this report, because most (67 of 100) were asymptomatic and were only identified owing to routine obstetric testing rather than symptomatic illness at the time of birth. Given what is now known about prolonged nasopharyngeal polymerase chain reaction–based detection of SARS-CoV-2 compared with infectious virus shedding, it is possible that many mothers were not infectious at the time of delivery. Second, only 76 of the 101 infants (75.2%) roomed-in with their mothers during the birth hospitalization; 6 infants were separated from severely ill mothers owing to maternal stay in the intensive care unit, and 19 infants were admitted to the neonatal intensive care unit, where infected parents could not be present. When rooming-in with infected mothers, infants were placed in isollettes and kept at least 180 cm (6 feet) away from their mothers when possible; mothers were instructed to wear masks during labor, birth, and all newborn care. Finally, only 55 of 101 infants had postdischarge visits, and ultimately only 6 of 101 were known to undergo retesting for SARS-CoV-2 after birth hospital discharge. Thus, the low risk of perinatal transmission observed in this study should be viewed within the context of the unclear timing of many of the maternal infections. More importantly, the very low risk of postnatal infection should additionally be placed in the context of maternal/newborn physical separation that occurred for different reasons in 25 cases (24.8%) and the very careful infection control practices used in the other 75.2% of cases, at least during the birth hospitalization, as well as missing postdischarge follow-up for a significant proportion of the newborns.

Nonetheless, this report from New York City during a period of high community disease activity must be considered carefully in reviewing current neonatal management recommendations. Early in the pandemic, initial recommendations for management of newborns delivered to mothers with COVID-19 were deliberately conservative, based on our only knowledge about SARS-CoV-2 at that time—that it was very contagious and that infected individuals were at risk of
severe mortality and morbidity. Knowing that other common viruses such as varicella, respiratory syncytial virus, herpes simplex virus, and enteroviruses can cause severe disease in newborns, it was initially recommended that mothers with COVID-19 be temporarily physically separated from their newborns to decrease the risk of neonatal infection.15 As the pandemic has continued, however, we have learned more from published studies and gained more from clinical experience. Acquisition of SARS-CoV-2 from infected mothers at delivery appears to be infrequent, and the risk of severe illness among newborns who are infected in the perinatal or immediate postnatal period appears infrequent as well. On the other hand, the difficulties of separating newborns from their mothers, which were appreciated from the outset, certainly have not lessened and if anything have increased as the pandemic continues to expand. The balance between these risks has greater clarity now and will be considered when revisions are made to neonatal management guidance. This is exactly how the scientific method is supposed to work. Despite the many horrors of the past months, we can draw solace from the knowledge that scientific processes that have worked in the past are working now and will continue to serve us as we move together into an uncertain future.

REFERENCES

ARTICLE INFORMATION

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