

Limitations

To date, studies of mother-infant dyads with data on feeding practices and COVID-19 infection have come from case reports, case series or a report of a family cluster. Other study designs such as cohort studies or case-control studies were eligible for inclusion, but none were identified. We are thus unable to measure and compare risks of infection based on feeding practices.

Although 1 of the 3 infants of mothers with viral particles in breast milk had COVID-19, it was unclear through which route or source the infant was infected, i.e., through breastfeeding or close contact with the mother or other infected person. RT-qPCR detects and identifies viral genetic material in samples, such as breastmilk, but does not provide information on viability or infectivity of the virus. Documented presence of replicative COVID-19 virus in cell culture from breast milk and infectivity in animal models are needed to consider breast milk as potentially infectious.

The presence of IgA in breast milk is one of the ways in which breastfeeding protects infants against infection and death. IgA antibodies with reactivity to the COVID-19 virus have been detected in breastmilk of mothers previously infected with COVID-19 but their strength and durability have not yet been adequately studied to address protection from COVID-19 among breastfed infants.

Discussion

Detection of COVID-19 viral RNA in breastmilk is not the same as finding viable and infective virus. Transmission of COVID-19 would need replicative and infectious virus being able to reach target sites in the infant and also to overcome infant defense systems.

The implications of transmission risk need to be framed in terms of COVID-19 prevalence in breastfeeding mothers and the scope and severity of COVID-19 infection in infants when transmission occurs compared to the adverse consequences of using breastmilk substitutes and separation of newborn and young infants from mothers.

Children appear to be at low risk of COVID-19. Among the cases of confirmed COVID-19 in children, most have experienced only mild or asymptomatic illness.¹² This is also the case with other zoonotic coronaviruses (SARS-CoV and MERS-CoV), which seem to affect children less commonly and to cause fewer symptoms and less severe disease compared with adults.¹³

Serum IgA have been detected in breastmilk of mothers with previous COVID-19 infection. Although the strength and durability of IgA reactive to COVID-19 have not yet been determined, multiple bioactive components, such as lactoferrin, have been identified in breastmilk that not only protect against infections but improve neuro-cognitive and immunologic development of the child.¹⁴ A Hanson first described IgA in breastmilk in 1961.¹⁵

Skin-to-skin contact and kangaroo mother care facilitate breastfeeding as well as improve thermoregulation, blood glucose control and maternal attachment, and decrease the risk in mortality and severe infection among low birth weight infants.^{16,17} Beyond the neonatal period, positive effects of mother-infant holding include improved sleep patterns, lower rates of behavioural problems in the child and higher quality parental interaction.¹⁸

Colostrum to exclusively breastfed infants, the risk of mortality is 14-fold higher in infants who are not breastfed.¹⁹ Over 820 000 children's lives could be saved every year among children under 5 years.²⁰ If all children 0-23 months were optimally breastfed. For mothers, breastfeeding protects against breast cancer and may protect against ovarian cancer and type 2 diabetes.²¹

Knowledge gaps

It is still not clear whether the virus can or cannot be transmitted through breast milk. Risk of transmission based on feeding practices have not been quantified, compared, or modelled against the benefits of breastfeeding and nurturing mother-infant interaction.

Conclusion

At present, data are not sufficient to conclude vertical transmission of COVID-19 through breastfeeding. In infants, the risk of COVID-19 infection is low, the infection is typically mild or asymptomatic, while the consequences of not breastfeeding and separation between mother and child can be significant. At this point it appears that COVID-19 in infants and children represents a much lower threat to survival and health than other infections that breastfeeding is protective against. The benefits of breastfeeding and nurturing mother-infant interaction to prevent infection and promote health and development are especially important when health and or humanitarian services are themselves disrupted or limited. Adherence to infection prevention and control measures is essential to prevent contact transmission between COVID-19 suspected or confirmed mothers and their newborns and young infants.

Based on available evidence, WHO recommendations on the initiation and continued breastfeeding of infants and young children also apply to mothers with suspected or confirmed COVID-19.

References

1. World Health Organization. UNICEF. Global Strategy for Infant and Young Child Feeding. Geneva, Switzerland: World Health Organization; 2003.
2. World Health Organization. Guideline: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services. Geneva, Switzerland: World Health Organization; 2017.
3. World Health Organization. WHO recommendations on intervention: to improve preterm birth outcomes. Geneva, Switzerland: World Health Organization; 2015.
4. World Health Organization. Clinical management of COVID-19: Interim guidance (27 May 2020). Geneva, Switzerland: World Health Organization; 2020.
5. Centeno-Tablante E, Medina-Rivera M, Finkelsiein JL, Rayco-Solon P, Garcia-Casal MN, Ghezzi-Kupel K, Rogers L, Peña-Rosas JP, Mehta S. Transmission of novel coronavirus-19 through breast milk and breastfeeding: A living systematic review of the evidence. PROSPERO 2020 CRD42020178664
6. Fox A, Marino J, Amanat F, Krammer F, Hahn-Holbrook J, Zolla-Pazner S, Powell RL. Evidence of a significant secretory-IgA-dominant SARS-CoV-2 immune response in human milk following recovery from COVID-19. medRxiv preprint doi: <https://doi.org/10.1101/2020.05.04.20089995>
7. Wu Z, McGoogan JM. Characteristics of and Important Lessons from the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA. Published online February 24, 2020. doi:10.1001/jama.2020.2648
8. Zimmerman P, Curtis N. COVID-19 in Children, Pregnancy and Neonates. The Pediatric Infectious Disease Journal: June 2020 - Volume 39 - Issue 6 - p 469-477 doi: 10.1097/INF.0000000000002700
9. Zimmermann P, Curtis N. Coronavirus Infections in Children Including COVID-19: An Overview of the Epidemiology, Clinical Features, Diagnosis, Treatment and Prevention Options in Children. Pediatr Infect Dis J. 2020;39(5):355-368. doi:10.1097/INF.0000000000002660
10. Hanson LA. Comparative immunological studies of the immune globulins of human milk and of blood serum. Int Arch Allergy Appl Immunol 1961;18:241-267. doi:10.1159/00029177.
11. Peroni DG, Fanos V. Lactoferrin is an important factor when breastfeeding and COVID-19 are considered. doi:10.1111/APA.15417.
12. Bardanzelli F, Peroni DG, Fanos V. Human Breast Milk: Bioactive Components, from Stem Cells to Health Outcomes. Curr Nutr Rep. 2020;9(1):1-13. doi:10.1007/s13668-020-00303-7.
13. Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database of Systematic Reviews 2016, Issue 11. Art. No.: CD003519. DOI: 10.1002/14651858.CD003519.pub4
14. Conde-Agudelo A, Diaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. Cochrane Database of Systematic Reviews 2016, Issue 8. Art. No.: CD002771. DOI: 10.1002/14651858.CD002771.pub4
15. Korja R, Laiva R, Lehtonen L. The effects of preterm birth on mother-infant interaction and attachment during the infant's first two years. Acta Obstet Gynecol Scand. 2012;91(2):164-73.
16. Howard K, Martin A, Berlin LJ, Brooks-Gunn J. Early mother-child separation, parenting, and child well-being in Early Head Start families. Attach Hum Dev. 2011;13(1):5-26.
17. Sankar, M.J., Sinha, B., Chowdhury, R., Bhandari, N., Taneja, S., Martines, J., Bahl, R., Optimal breastfeeding practices and infant and child mortality: a systematic review and meta-analysis. Acta Paediatr 2015;104:3-13.
18. Victora CG, Bahl R, Barros AJD, Franca GVA, Horton S, Krasavac A, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. Lancet. 2016;387:475-90. doi.org/10.1016/S0140-6736(15)01024-7.

WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this scientific brief will expire 2 years after the date of publication.

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