Infectious Zika viral particles in breastmilk

Before 2007, no Zika virus outbreak had been recorded, and Zika virus was deemed to cause mild infections.[1] In 2013–14, an outbreak occurred in French Polynesia associated with an increased rate of Guillain-Barré syndrome following Zika infections.[2] Zika virus spread in the Pacific region in 2014 and then, in 2015, to Brazil where an association between Zika infection and microcephaly is under investigation.[2] There is a need for better comprehension of this disease.

In New Caledonia, in July, 2015, a 27-year-old febrile woman without any associated symptoms presented at hospital (day zero) at 37 weeks' gestation and naturally delivered a healthy baby (Agpar score 10) who was immediately breastfed. After delivery, the mother was febrile for 2 days, and a maculopapular rash arose which was decreasing on the day of discharge. The mother evolved favourably and clinical examination of the neonate remained normal until discharge.

Blood cell count, total protein, and C-reactive protein levels were in the normal range for both mother and neonate. Blood samples from the mother and neonate were collected and tested for Zika virus, dengue virus, and chikungunya virus by RT-qPCR. Breastmilk samples were collected before breastfeeding to avoid possible contamination from the neonate's saliva. Only the mother's serum (day three) and breastmilk (day four) were positive for Zika virus by RT-qPCR (35000 RNA copies per mL in the mother and 850000 RNA copies per mL in the neonate). The only serum from the neonate that was sampled on day three was ambiguous. Breastmilk was inoculated onto Vero cells. Infective viral particles were detected from the breastmilk sample and confirmed by the presence of a cytopathic effect and by RT-qPCR (39 million RNA copies per mL, appendix).

Zika virus is transmitted to human beings by mosquitoes (*Aedes* spp). However, other routes of transmission have been described, such as sexual or perinatal transmission.[3] Here, we report the presence of infective Zika virus particles in breastmilk with substantial viral loads. Arbovirus transmission via breastfeeding has been previously suggested for dengue,[4] West Nile,[5] and yellow fever,[6] but more information is needed. Zika infection in woman during pregnancy or during the perinatal period must be considered very seriously by practitioners.

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See **Online** for appendix

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