



Yellow Fever Vaccine

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Drug Levels and Effects

Summary of Use during Lactation

The yellow fever virus and vaccine can be transmitted into breastmilk although the frequency of transmission is unclear.[1,2] In one group of 11 women who were inadvertently vaccinated, none had detectable yellow fever vaccine RNA in their milk.[3] In another study of 8 women, vaccine RNA was found in several milk samples for 11 to 24 days after vaccination. Yellow fever encephalitis has been reported in breastfed newborns whose mothers received yellow fever vaccine. Administration of yellow fever vaccine to breast-feeding women should be avoided except in situations where exposure to yellow fever viruses cannot be avoided or postponed. Infants under 6 months appear to be at an increased risk of encephalitis from the vaccine and should not be vaccinated. Infants over 9 months of age should be vaccinated themselves if they will be traveling with their mother to a yellow-fever endemic area.[4,5] Exposure to yellow fever vaccine via breastmilk should not increase the risk to an infant who also receives the vaccination.

Drug Levels

Maternal Levels. Eleven nursing mothers were inadvertently vaccinated with the 17DD strain of yellow fever vaccine (Fiocruz, Brazil). Milk samples were obtained on days 8, 10 and 15 after administration. None of the samples contained detectable yellow fever vaccine RNA. One mother's serum was positive for yellow fever IgM on day 8 after the vaccine administration.[3]

Eight Sudanese nursing mothers received the yellow fever vaccine (17DD, Bio-Manguinhos/Fiocruz) within 9 months of delivery. Milk specimens were collected by hand expression while the infant was nursing on the opposite breast. The specimens from the right and left breasts were expressed into separate containers. Collection of milk specimens performed on four occasions: the first collection time was 3-14 days from the date of the vaccination. The three following collections were 3-4 days

apart. All 8 women participated in the first collection, 6 in the second, 4 in the third, and 3 in the fourth collection. In the first collection, 5 mothers' milk contained IgM antibodies against the vaccine and milk from 3 women contained yellow fever vaccine (YFV) RNA. In the second collection 4 of 6 samples contained YFV RNA. In the third collection, 1 of 4 milk samples contained YFV RNA. In the fourth collection, none of the three milk

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samples contained YFV RNA. The minimal clearance time of the viral RNA in milk was 11 days after vaccination and the maximum was 24 days after vaccination.[6]

Infant Levels. Relevant published information was not found as of the revision date.

Effects in Breastfed Infants

A review article reports three Nigerian breastfed neonates 10 days, 23 days and 5 weeks whose mothers received the 17D vaccine during first month of infant's life. Each infant developed encephalitis. Other details are not provided.[7]

One probable case of yellow fever vaccine-associated neurologic disease (YEL-AND) was reported in a 38-day-old infant whose mother was vaccinated 24 days earlier with the Brazilian-manufactured yellow fever vaccine 17D (probably the 17-DD strain). The infant was exclusively breastfed. Although it was not possible to determine if the breast milk was the mode of transmission, no other plausible cause was identified.[8]

A woman who was exclusively nursing her newborn received 17DD yellow fever vaccine on day 15 postpartum. Eight days later her infant developed fever, irritability and refused to nurse. One day later, the infant developed seizure-like activity. The infant was hospitalized and had periods of somnolence and irritability and required intravenous anticonvulsants to control seizures. An MRI was consistent with encephalitis. Yellow fever-specific IgM antibodies were detected in serum and CSF. Laboratory examination of the infant's cerebrospinal fluid confirmed the presence of a viral strain identical to the vaccine. This was the first case of laboratory-confirmed, breastfeeding-associated transmission of 17DD yellow fever vaccine virus from a recently vaccinated mother.[4]

A Canadian mother had received a yellow fever vaccination (probably the 17D-204 strain) when her breastfed (extent not stated) infant was 10 days of age. At 5 weeks of age, the infant developed focal seizures on alternating sides, poor appetite, and vomiting following a 2-day history of fever and irritability. The infant's serum was positive for yellow fever and the cerebrospinal fluid was positive for yellow fever antigen, but negative for yellow fever virus. Although the authors could not entirely rule out other causes, they judged the adverse reaction to probably be caused by yellow fever vaccine transmitted via breastmilk to the infant.[1]

Eleven nursing mothers were inadvertently vaccinated with the 17DD strain of yellow fever vaccine (Fiocruz, Brazil). Some of the infants had been breastfed before the error was discovered. Breastfeeding was discontinued and all infants were placed on formula for 10 days. The infants were followed for 28 days by a pediatrician, but no symptoms were seen in any of the infants.[3]

A mother who was breastfeeding her 1-year-old received her first dose of yellow fever vaccine and continued to nurse her infant. Seven days after the mother's vaccination, the infant exhibited nasal discharge, headache, fever, anorexia, malaise and dehydration. Computed tomography (CT) of the brain showed no abnormalities, and CSF analysis indicated 230 leukocytes/cu mm, 12 erythrocytes/cu mm, and 35 mg/dL protein. The infant was discharged 9 days after admission. The authors considered this an atypical aseptic meningitis caused by yellow fever vaccine.[9]

A manufacturer's pharmacovigilance study of patients exposed to yellow fever vaccine (Stamaril, 17D-204 strain) identified two infants exposed via breastmilk, although both were also immunized with the vaccine along with the mother. Neither had a serious adverse effect, but one 9-month-old had a non-serious heat rash that lasted 2 days. The other infant, a 2-year-old, also vaccinated along with the mother, was diagnosed with hand, foot, mouth disease 26 days after vaccination. Both these events were assessed as not related to the study vaccine.[10]

Eight Sudanese nursing mothers received the YFV (17DD) yellow fever vaccine (Bio-Manguinhos/Fiocruz) within 9 months of delivery. Their infants (ages from 45 days to 8 months) developed symptoms of fever, diarrhea, jaundice, vomiting, and/or skin rashes after one week from when their mothers received the vaccines. [6]

Effects on Lactation and Breastmilk

Relevant published information was not found as of the revision date.

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Substance Identification

Substance Name

Yellow Fever Vaccine

Drug Class

Breast Feeding

Lactation

Milk, Human

Vaccines