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Update: Investigations of West Nile Virus Infections in Recipients of Organ Transplantation and Blood Transfusion — Michigan, 2002

CDC, the Food and Drug Administration (FDA), the Health Resources and Services Administration (HRSA), and state and local health departments continue to investigate West Nile virus (WNV) infections in recipients of organ transplantation and blood transfusion. This report summarizes two investigations of Michigan recipients of blood products, one of whom also received a liver transplant (*1*). Both persons tested positive for WNV infection after receiving blood products derived from a single blood donation subsequently found to have evidence of WNV. These investigations provide further evidence that WNV is transmitted through blood transfusion.

On August 14, 2002, a man aged 47 years received a liver transplant and 24 units of blood products (9 units of fresh frozen plasma [FFP], 5 units of red blood cells [RBC], and 10 units of platelet concentrate [PC]). On August 20 and 21, he received 15 units of PC. After being discharged from the hospital on August 24, he was readmitted 10 days later with fever; he subsequently developed encephalopathy. A lumbar puncture revealed elevated protein, a lymphocytic pleocytosis, and WNV IgM antibody; the patient recovered and was discharged. Retention segments* were available for 20 donors; one retention segment was positive for WNV by kinetic quantitative PCR assay (TaqMan®), and the remaining 19 were negative.

On September 2, a woman aged 40 years delivered a healthy infant. The same day, she received one unit of RBC, and on September 3, she received another unit of RBC. She was discharged on September 4. She had intermittent nausea, malaise, and fever, and was readmitted to the hospital 13 days after discharge. On September 18, the patient had a fever of 102.8º F (39.3º C). A lumbar puncture revealed mildly elevated protein, a lymphocytic pleocytosis, and WNV IgM antibody. Blood center records indicated that the RBC unit transfused on September 3 was derived from the same donation subsequently found to be polymerase chain reaction-positive as the PC received by the liver transplant recipient on August 20. On the day of delivery, the patient began breastfeeding. A sample of breast milk obtained 16 days later tested positive for WNV by TaqMan® and for WNV-specific IgM antibody. The patient recovered and was discharged. The infant was breastfed during September 2–19 and remains healthy.

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Editorial Note: This report describes two patients who tested positive for WNV infection after receipt of blood products from a single donation. The retention segment from the donation was positive for WNV by TaqMan®. Although it is possible that both persons became infected from mosquito bites, these findings indicate that the patients became infected through transfusion of blood products. An ongoing investigation in Mississippi isolated WNV in FFP. The retention segment from the donation from which this FFP was made was positive for WNV by TaqMan®, and the donor developed WNV specific IgM antibody after donation. The ongoing investigation provides additional evidence that WNV can be transmitted through blood transfusion (*1*). Additional case investigations conducted by CDC, FDA, and health departments will help to define the risk for WNV transmission through blood transfusion and organ transplantation. Because of the risk for WNV transmission through blood transfusion, efforts to develop a blood screening test are under way.

WNV RNA has not been identified previously in breast milk, and no studies are known that define the implications of this laboratory finding. Laboratory investigations, including attempts to culture WNV from additional breast milk

*Blood samples from tubing that had been attached to the original donor collection bag.

samples, are under way. Until live virus is cultured from breast milk, or until definitive data are obtained to document WNV transmission through breast milk, the TaqMan® findings described in this report should be interpreted with caution.

The risk for transmission of WNV from mother to infant through breastfeeding is unknown. The infant described in this report remains healthy despite breastfeeding for 17 days. Until follow-up testing on the infant is completed, it is unknown whether the infant was infected with WNV. The health benefits of breastfeeding are well established (*2*), and these findings do not suggest a change in breastfeeding recommendations.

References

1. CDC. Update: investigations of West Nile virus infections in recipients of organ transplantation and blood transfusion. MMWR 2002;51:833–6.
2. Lawrence RA. Breastfeeding: a guide for the medical profession. 4th ed. St. Louis, Missouri: Mosby, 1994.

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