

Position statement on West Nile virus: a committee opinion

The Practice Committees of the American Society for Reproductive Medicine and Society for Assisted Reproductive Technology

American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology, Birmingham, Alabama

Although there is currently no definitive evidence linking West Nile virus (WNV) transmission with reproductive cells, it is recommended that practitioners defer gamete donors who have confirmed or suspected WNV infections. This document was reviewed and reaffirmed by the Practice Committee in August of 2011. (Fertil Steril® 2012;98:e15-6. ©2012 by American Society for Reproductive Medicine.)

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West Nile virus (WNV) is a flavivirus still commonly found in Africa and the Middle East. It is closely related to the St. Louis encephalitis virus, which has appeared in previous limited epidemics in the United States. The primary mode of transmission to humans is through infected mosquitoes.

There has been a significant increase in the number of reported cases of WNV infection in the United States over the past several years. The first appearance of WNV in North America occurred in 1999, with encephalitis reported in humans and horses. According to the Centers for Disease Control and Prevention (CDC), there were 62 human cases reported from four states and six deaths occurred in 1999. As of November 30, 2002, there were 3,389 human cases reported from 44 states and the District of Columbia and 201 deaths occurring in 2002 (1). As of April 14, 2004, there were 9,858 human cases reported from 45 states and the District of Columbia and 262 deaths occurring in 2003 (2). In 2009 there were 720

cases of WNV and 32 fatalities reported in the United States with the majority occurring in Colorado, California, and Texas (2).

Typically, approximately 80% of those infected with WNV remain asymptomatic. Approximately 20% develop "West Nile Fever" which typically lasts only a few days and is characterized by a mild illness with flu-like symptoms. Approximately one in 150 individuals develops CNS infection characterized by meningitis, encephalitis, or meningoencephalitis. Nationwide, mortality among those who develop meningoencephalitis is approximately 10%.

After initial infection, the virus accesses lymphoid tissues and becomes widely disseminated. Evidence of WNV has been noted in multiple non-neural tissues, including adrenal gland, heart, kidney, liver, and pancreas. Between August 28 and October 2, 2002, 15 cases of WNV meningoencephalitis or meningitis having onset within one month after transfusion of blood products were diagnosed and reported to the CDC (3). Among these, the CDC deter-

mined that transmission via blood products was "highly likely" in several cases.

On September 25, 2002, the CDC reported a case of possible transmission of WNV through organ transplantation (4). In this case, four organ recipients from a single donor all developed clinical WNV infection, and the donor's blood at time of organ harvest contained WNV sequences (5-7). On October 4, 2002, the CDC reported a case of possible transmission of WNV through breastfeeding (8). On December 20, 2002, the CDC reported a case of transplacental WNV transmission and fetal infection (9), and two cases of laboratory-acquired WNV infections attributed to percutaneous inoculation (10).

The FDA has issued guidance to the blood industry recommending that a potential blood donor with the medical diagnosis or symptoms suggestive of WNV be deferred until 14 days after the condition is resolved or 28 days from the onset of symptoms, whichever is later (11).

The FDA has cleared two tests to be used as screening tests for WNV (12, 13). The first test, IgM Capture ELISA, reportedly can correctly identify antibody in up to 90-99% of WNV disease cases. However, because antibody detection is not always specific, the test is considered

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presumptive and should be confirmed by further testing (12). Direct nucleic acid detection testing detects the genetic material of the virus and can identify early infection in the donor before antibodies are produced (13). Direct nucleic acid detection tests are considered by many to be the ideal for WNV screening (5).

It is acknowledged that there are significant limitations with symptom screening for WNV. These include the high incidence of asymptomatic cases as well as the fact that symptoms typically follow the viremic period (the time period presumably most associated with transmission risks). An additional issue is that WNV infection in the United States has exhibited a seasonal pattern. It is not known (nor easily predicted from other flaviviral outbreaks) whether the number of reported WNV cases will continue to accelerate during the expected season (late summer through early fall) each year. However, most experts currently believe that the WNV epidemic will not quickly subside (14).

Despite the recent introduction of WNV screening tests, a number of factors, including test characteristics (sensitivity, specificity, positive predictive value, negative predictive value), anticipated clinical benefits, and costs, need to be carefully evaluated before any global recommendations for WNV testing in reproductive medicine can be offered.

SUMMARY AND CONCLUSIONS

- Although there is currently no definitive evidence linking WNV transmission with reproductive cells, it is recommended that practitioners defer gamete donors who have confirmed or suspected WNV infections (until 14 days after the condition is resolved or 28 days from the onset of symptoms, whichever is later).
- Good donor practice would suggest that donors who are not in good health, including those with recent significant fever and flu-like illnesses as well as those with recent viral meningitis, encephalitis, or meningoencephalitis episodes, be similarly deferred.

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The following members of the ASRM Practice Committee participated in the development of this document. All Committee members disclosed commercial and financial relation-

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