Jury Out on West Nile's Possible Role as a Teratogen

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TUCSON, ARIZ. — Recent published data suggest a risk of birth defects among live-born infants of mothers infected with West Nile virus, but much more work is needed to confirm the association, Dr. Dawn M. Wesson said at the annual meeting of the Teratology Society.

"There appears to be a slightly higher frequency of major birth defects in the West Nile–infected group as compared to the general population, but … even though this is suggestive it's certainly not proof," cautioned Dr. Wesson, of the department of tropical medicine at Tulane University School of Public Health and Tropical Medicine in New Orleans.

She based her remarks on a clinical study of 77 women infected with West Nile virus (WNV) during pregnancy in 2003 and 2004 who were followed in 16 states. Of the 77 women, 71 delivered 72 live infants. Four women had miscarriages and two had abortions (Pediatrics 2006;117:e537-45).

Of the 72 live infants, 67 were born at term, 4 were born preterm, and the gestational age of 1 infant was unknown.

The researchers, led by Daniel R. O'Leary, D.V.M., of the division of vector-borne infectious diseases at the Centers for Disease Control and Prevention, found that nearly 11% of infants born to mothers infected with West Nile virus during pregnancy had major birth defects, compared with almost 6% of infants born to uninfected mothers in the general population.

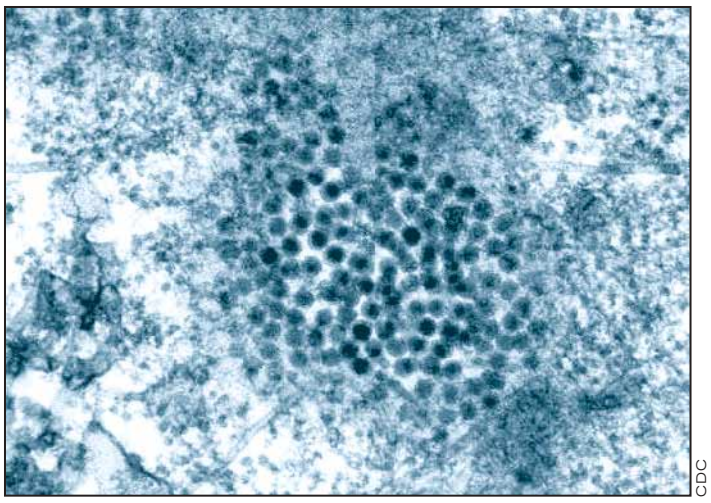
The researchers cautioned that of the 72 infants followed to date, nearly all appeared to be normal, and none had conclusive laboratory evidence of congenital WNV infection. Seven infants had major malformations, but "only three had defects that could have been caused by maternal WNV infection based on the timing of the infections and the developmental period for the specific malformations, and none had any conclusive evidence of WNV etiology," Dr. O'Leary and his associates wrote.

At the meeting, Dr. Wesson said one of the key reasons researchers are unable to determine with certainty whether WNV is a teratogen is that the sensitivity and specificity of IgM testing of cord blood to detect WNV is really unknown. "Also, congenital WNV infection among newborns with IgM-negative serology cannot be ruled out," she said. "We need more studies."

In a partnership between the Centers for Disease Control and Prevention and Tulane University, researchers are studying the effect of WNV on pregnancy outcomes in two groups of women: retrospectively in those infected while pregnant during 2003 and 2004, and prospectively in those infected while pregnant between 2005 and 2008.

In addition to performing all recommended tests during and after pregnancy, the researchers plan to follow case and control infants with ophthalmologic and developmental exams as well as a CT scan if indicated, and a dysmorphology exam in infected infants.

The final part of the effort is to perform morphologic, endocrine, and molecular assessments of the villous placenta, trophoblast, conceptus membranes, and maternal decidua. "We don't know the answer to the question [about WNV's possible role as a teratogen], but I think the pieces that we have in place and the collaborators we have in line should help us to answer those questions," Dr. Wesson concluded. ■



CDC

The sensitivity and specificity of IgM testing of cord blood to detect WNV is really unknown. The virus is shown here by electron micrograph.