

Date: Wed 23 Jan 2008
From: Charles Calisher
<calisher@cybersafe.net>

There are serious problems with the report: West Nile virus, equine, camel- United Arab Emirates 20080121.0257

1. The paper published on the web site of "Wildlife Middle East" <<http://wmenews.com/>> contains many errors of commission. For one, the title of the article, "West Nile fever in the United Arab Emirates", is misleading.

2. Apparently, much of the testing was done at Cornell University, which screened samples from equines (horses, I presume) from 6 Emirates. "WNV-specific IgM" and "serum neutralization test (SNT)" were done at Cornell and "IgG capture" ELISAs were done at the Central Veterinary Research Laboratory in Dubai, using a commercially-available (flavivirus cross-reactive) kit. Both IgG and IgM antibodies to flaviviruses are cross-reactive at some level with heterologous flaviviruses, that is, viruses other than the one responsible for the infection. Indeed, cross-reactivity (with other virus antigens), whether by IgG or IgM ELISA, by neutralization, or by other tests indicates relatedness, the *raison d'être* for the flaviviruses being considered a "group". I know of no one who uses a capture assay for IgG antibody. Capture IgM, but not IgG, antibody ELISAs generally are used because of the possible presence of rheumatoid factor. Whether camels have rheumatoid factor or not is unknown to me.

3. The paper indicates that "IgG antibodies are associated with the memory aspect of the immune response and appear after repeated exposure to the infection". Not correct on 2 counts. (a) IgG antibodies to flaviviruses appear after even a single infection with one of these viruses and (b) they appear after exposure to the virus, not to the infection. That "a positive IgG test generally indicates an infection in the past" is true only insofar as the "past" might be as little as a week before the blood was collected. IgM antibody to West Nile virus (WNV) may be detected on the day of onset and for 1-3 months thereafter or, in some individuals, longer. IgG antibody to WNV can be detected a few days after IgM antibody is detected, so that testing single acute-phase or late convalescent-phase samples from an individual does not definitively provide information regarding the timing of the infection.

4. The authors state that "the reason for this investigation was a horse from Ghantoot (Abu Dhabi) which demonstrated clinical signs consistent with WN encephalitis". What were the specific signs that would suggest that this illness was "compatible with WN encephalitis"?

5. The website did not allow me to see more than the 1st page of the report but I saw no evidence that "West Nile fever" (as stated in the title) was observed. The paper does suggest that West Nile encephalitis occurred, perhaps in the single horse, but I saw no evidence of cases of uncomplicated West Nile virus infection, that is, West Nile fever (unless reported later in the article).

6. There are other concerns. West Nile virus was discovered in Uganda in 1937 and has been isolated since then from South Africa to Egypt and Israel, in Europe, Asia, and now in the Americas. It is likely that WNV has been circulating in the United Arab Emirates for at least decades but that it has been undetected there to now. Perhaps even now it does not circulate there; the authors have not provided evidence one way or the other, except for the single horse with IgM antibody. Perhaps this antibody was to another flavivirus. If these published results mark the beginning of an adequate survey of arboviruses in the United Arab Emirates, that would be a good thing. Nonetheless, this report, in "Wildlife Middle East" and now on ProMED-mail, does not provide definitive information as to the presence of WNV in the United Arab Emirates. Antibody to WNV in humans in New York City in 1999 was cross-reactive with St Louis encephalitis virus antigen and the first cases of WNV there were misdiagnosed. I hope the folks in the United Arab Emirates are not making a same, if mirror image, error.

--

Charles H Calisher, PhD
Professor, Arthropod-borne and Infectious Diseases Laboratory
Department of Microbiology, Immunology and Pathology
3195 Rampart Rd.,
Delivery Code 1690, Foothills Campus Fort Collins, CO
80523-1690 College of Veterinary Medicine and Biomedical Sciences
<calisher@cybersafe.net>

[ProMED-mail thanks Dr Calisher for his comments. One hopes that the equine encephalitis case will stimulate further work in the area. Given the diagnostic problems caused by serological cross-reactivity among the flaviviruses, the ideal situation would be to isolate the virus, or show WN virus-specific genomic sequences by PCR. - Mod.TY]