Severe Meningo-Encephalitis and Death in a Renal Transplant Recipient Resulting from West Nile Virus Infection

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The first case of West Nile virus infection occurred in New York in 1999 and, since then, several cases of meningo-encephalitis with a variety of clinical syndromes have been reported. This case report is the first to our knowledge of a renal transplant recipient who acquired West Nile virus infection and presented with meningo-encephalitis and other unusual neurological sequelae with high serum and cerebrospinal fluid titers.

Key words: West Nile virus infection ■ renal transplant

We report what we believe is the first death in a renal transplant recipient from West Nile virus infection. A 75-year-old Hispanic male with a history of a cadaveric renal transplant and hypertension was admitted to the hospital with *klebsiella* bacteremia and sepsis syndrome. The source of the bacteremia was never determined, and the patient was treated with antimicrobial therapy and then discharged home feeling well.

However, he was readmitted within 10 days with fever, headaches, myalgias and abdominal pain. The vital signs on admission included a temperature of 102.1°F, blood pressure of 110/98 mmHg and pulse rate of 92/minute. Physical examination revealed an acutely ill-looking male who was coherent. Systemic examination revealed no abnormalities. Laboratory data included a white blood cell count of 5.4 cells/cu mm, Hb 13.7 gm/dl and platelet count of 93,000 cells/cu mm. The blood urea nitrogen was 20 mg/dl, serum creatinine was 1.4 mg/dl, SGOT 107U/L, SGPT 44 U/L, alkaline phosphatase 48 U/L, and total bilirubin was 0.7 mg/dl.

The patient was started on intravenous cefepime hydrochloride. Several sets of blood cultures, white blood cell labeled scan, transesophageal echocardiogram, CT scans of the chest and abdomen as well as MRI of the brain were unremarkable. His clinical status deteriorated with persistent fever altered mental status and respiratory failure that required transfer to the intensive care unit for mechanical ventilation. A diagnostic spinal tap revealed white blood cell count of 38/HPF, red blood cell count of 139 cells/HPF, lymphocytes 97 and 2 monocytes. Culture of the spinal fluid yielded no growth. He then developed weakness of the left upper extremity and right lower extremity with EMG changes to suggest an early myelopathy. No nerve involvement was noted.

Despite aggressive supportive care and broad-spectrum antimicrobial therapy, the patient expired from adult respiratory distress syndrome and respiratory failure. Because we were in the middle of the West Nile virus "season," serology for the West Nile

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virus and CSF for complement fixation tests were requested. These came back four days after the patient's death and were reported as 1:1280 IgM and 1:1280 IgG, respectively, in the serum and CSF.

DISCUSSION

West Nile virus is a flavivirus related to the St. Louis encephalitis virus. The first case in the United States was reported in 1999 and since then it has spread rapidly to the other parts of the country. El Paso, TX is situated in west Texas and reported its first case of West Nile virus in 2003 and since then has seen several cases of this infection. Patients present with a variety of neurological symptoms from meningo-encephalitis, muscle weakness, diminished reflexes and even paralysis.[1] The complete blood count may be normal or may present with lymphopenia. The cerebrospinal spinal usually has leukocytosis with neutrophilia and increased levels of protein. CT or MRI scans of the brain are usually normal or may show enhancement of the leptomeningeal or periventricular areas.

West Nile virus infection of the immunocompromised patients is a rare phenomenon and the clinical presentations at this point do not have any characteristic features.

This case highlights several interesting aspects of West Nile virus infection in renal transplant recipients:

a) This case appears to be the first reported case of meningo-encephalitis secondary to community-acquired West Nile virus infection resulting in death in a renal transplant patient.

b) The immunocompromised incubation period appears to be shorter when compared to the nonimmunocompromised patients.[2]

c) The clinical presentation in the immunocompromised host appears to be unusual and variable and occasionally may result in death.[3,4]

d) A high level of clinical suspicion with aggressive evaluation utilizing with appropriate laboratory studies is of paramount importance in the diagnosis of West Nile virus infection in the immunocompromised patients.[5]

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