

Cerebrospinal Fluid Findings of Solid Organ Transplant Recipients with Neuroinvasive West Nile Virus Infections

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Background

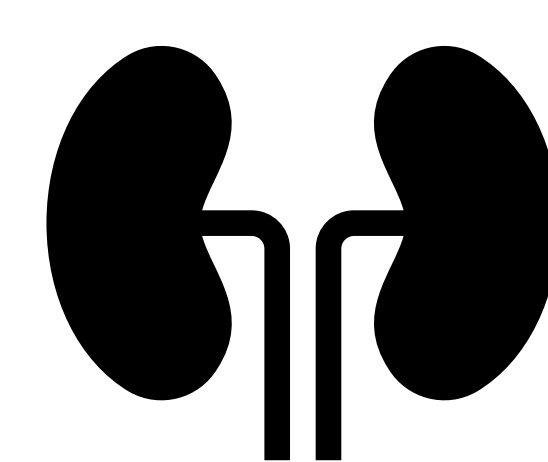
West Nile virus (WNV) infection is usually a self-limited disease or mild febrile illness in immunocompetent hosts, though a small proportion may develop neuroinvasive disease. **In the solid organ transplant population neuroinvasive WNV disease is observed at higher rates compared to immunocompetent patients.** Cerebrospinal fluid (CSF) sampling is recommended in cases of suspected WNV neuroinvasive infections to evaluate cell count, protein, glucose, CSF serology as well as nucleic acid amplification testing. **We evaluated the CSF of neuroinvasive WNV infections among solid organ transplant recipients at our institution.**

Methods

We retrospectively reviewed medical records of all solid organ transplant recipients at our institution who tested positive for WNV and were diagnosed with neuroinvasive disease (meningitis, encephalitis, meningo-encephalitis) from January 1, 2010, to December 30, 2018. Descriptive statistics were examined on key variables.

Results

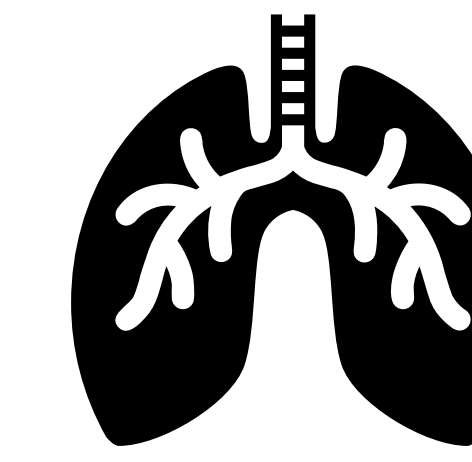
8 SOT recipients with neuroinvasive WNV infection



5 Kidney
1 Kidney-pancreas



1 Liver



1 Lung

Median time from transplant to infection → 49.8 months

CSF Findings: Antibodies

CSF WNV IgG	Negative in 7 patients Not performed in 1 patient
CSF WNV IgM	Positive in 3 patients Negative in 3 patients Not performed in 1 patient

CSF Findings: Cell and Protein

Mean total CSF WBC count (cells/mm³)	134 (5-460)
Mean CSF lymphocyte (%)	56
Mean CSF neutrophil (%)	27
Mean CSF protein (mg/dL)	95.4 (44-140)

Conclusion

West Nile virus infection produces a CSF pleocytosis with neutrophilic predominance, though we noted more lymphocytic predominance among solid organ transplant recipients. Elevated CSF protein is also noted. CSF IgM and IgG are important CSF diagnostics.