Case Presentation

42yo male who worked primarily in wooded areas in Southern New Jersey, presented to the ED with an intractable headache. He also noted weakness and decreased sensation in his right upper and lower extremities. He was also noted to have marked weakness and decreased consciousness. He had fever with a temperature of 102°F. A rapid response was called at 3:30am on day two of admission after the patient was found actively seizing. The seizures resolved with Lorazepam. However, his level of consciousness was significantly depressed. He became febrile with temperatures ranging from 102-105°F despite antipyretics and a cooling blanket. The patient's mentation worsened with a GCS of 7 as did his respiratory status. He was subsequently intubated. Targeted temperature management to achieve normothermia was initiated. A prophylactic external ventricular drain (EVD) was inserted given the increased opening pressure, cerebral edema on MRI, and deterioration of his mental status.

CSF cultures were sent to the CDC which later confirmed the diagnosis of EEE.

Clinical Course

Intravenous Vancomycin, Ceftriaxone, and dexamethasone were initiated. MRI demonstrated an area of edema involving the medial aspect of the left temporal lobe with diffuse abnormal T2 signal within the basal ganglia extending into the midbrain concerning for encephalitis. Over the course of 24 hours, the patient remained febrile with temperatures ranging from 102-105°F despite antipyretics and a cooling blanket. The patient's mentation worsened with a GCS of 7 as did his respiratory status. He was subsequently intubated. Targeted temperature management to achieve normothermia was initiated. A prophylactic external ventricular drain (EVD) was inserted given the increased opening pressure, cerebral edema on MRI, and deterioration of his mental status.

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Discussion

Transmission to humans requires mosquito species capable of creating a "bridge" between infected birds and uninfected mammals such as Aedes, Coquillettidia, and Culex species. Horses are susceptible to EEEV infection and many cases are fatal. EEEV infections in horses, however, are not a significant risk factor for human infection because horses (like humans) are considered to be "dead-end" hosts for the virus (i.e., the concentration of virus in their bloodstream is usually insufficient to infect mosquitoes). Infection die. Death usually occurs 2 to 10 days after onset of symptoms but can occur much later. Of those who recover, many are left with physical or mental sequelae, which can range from mild brain dysfunction to severe intellectual impairment, personality disorders, seizures, paralysis, and cranial nerve dysfunction. Many patients with severe sequelae require long-term care and die within a few years. After stabilization, our patient exhibited significant neurologic deficits including moderate aphasia, dysphagia and global weakness. He underwent aggressive physical and occupational therapy for sixty days with improvement in his deficits.

Conclusion

Currently, therapy for EEE remains limited to supportive care. Our case is unique in that early aggressive treatment with TTM and EVD placement was initiated and appeared to result in favorable outcomes. The role of TTM and EVD placement as neuroprotective interventions in EEE should be further explored.

References