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Acute Onset Parkinson's Disease Secondary to West Nile Virus Encephalitis

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Mentor: Amy Hellman
Program: Neurological Sciences
Type: Case Report

Background: Acute onset Parkinsonism has a variety of causes including dopamine antagonists, strokes and viral causes including flaviviruses such as WNV, St. Louis encephalitis and Japanese encephalitis, and influenza.

Methods: History, physical exam, laboratory studies and MRI.

Results: A healthy, well-functioning 79-year-old male with PMH of MCI presented with right sided tremor, fever, encephalopathy and meningismus, with no previous history of movement disorders. Physical exam revealed bilateral upper extremity cog-wheel rigidity, narrow-based gait with decreased arm swing, 4-step turn, prominent right-sided resting tremor, facial tremor, bradykinesia with decrement on finger tapping and myoclonus. MRI showed white matter disease consistent with chronic small vessel disease. CSF showed pleocytosis with monocyte predominance, elevated protein and WNV IgM indicating an acute infection. The Parkinsonism started to show improvement and five months later he reported continued improvement in his tremor with a residual postural tremor, resolution of the myoclonus and improvement in his gait. He continued to have difficulty functioning at his prior level due to bradykinesia and worsening of his preexisting MCI.

Conclusion: Viral induced Parkinsonism has been previously ascribed to a variety of viruses including WNV.¹,²,³ One case in 2003 described two relatively healthy patients who developed an acute encephalitis and concurrent parkinsonism that resolved with resolution of the disease.² While a rare cause of Parkinsonism, WNV should be suspected in cases of acute onset Parkinson's disease (PD) that occurs during or after a febrile illness. Further investigation is required to determine the incidence, predisposing factors and the likelihood of developing idiopathic PD.

References

Neuroinvasive West Nile Virus: A Case Series in Nebraska

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Mentor: Sachin Kedar
Program: Neurological Sciences
Type: Case Report

Background: Between May and October 2018, there were 110 reported cases of neuroinvasive West Nile Virus (WNV) in Nebraska. The arbovirus can have many CNS manifestations including meningoencephalitis, poliomyelitis like syndrome, and movement disorders. We present four unusual presentations of neuroinvasive WNV seen during the summer of 2018.

Methods: We reviewed charts of four patients admitted to neurology service who had positive serology and/or polymerase chain reaction (PCR) testing for WNV.

Results: Case 1: A 39-year-old female with diffuse large B-cell lymphoma presented with fever, encephalopathy, and flaccid paraplegia. MRI showed T2 hyperintensities involving the bilateral thalami, temporal lobes, midbrain, pons, and spinal cord which were suspicious for CNS lymphoma. WNV was confirmed by PCR as her prior treatment with RCHOP made her serum and CSF serology falsely negative. Case 2: A 49-year-old female presented with left sided paresthesia and left arm weakness. WNV was confirmed by CSF lymphocytic pleocytosis and positive WNV IgM. Case 3: A 79-year-old male presented with acute onset parkinsonism with positive CSF WNV IgM. Case 4: A 31-year-old male who presented with uveomeningitis syndrome with uveitis of the right eye, fever, headache, nuchal rigidity and CSF pleocytosis. An autoimmune cause was suspected until CSF showed WNV IgM. All four patients showed varying amounts of neurological recovery with supportive care.