

## AAN 68<sup>th</sup> ANNUAL MEETING ABSTRACT

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**Abstract Title:** Survivors of Ebola Virus Disease Have Persistent Neurologic Deficits

**Press Release Title:** Most Ebola Survivors Examined in Study Experienced Brain Symptoms Six Months After Infection

**Objective:** To characterize the neurologic sequelae of Ebola virus disease (EVD) survivors in Liberia

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**Background:** The neurologic complications of EVD remain unknown. Since March 2014, there have been 10,672 reported cases with 4,808 fatalities in Liberia alone.

**Design/Methods:** EVD survivors (n=87) enrolled in the ongoing Prevail III EVD natural history study were examined by a team of neurologists. A standardized assessment was used at the survivors' 6-month study visits to collect information on neurologic symptoms during and after EVD and to document neurologic examination findings. Four survivors with head trauma with loss of consciousness and one with schizophrenia prior to EVD were excluded from analysis.

**Results:** Of 82 EVD survivors, the mean age was 34.6 years (SD=11.0). 53.0% were female. 69.5% of survivors were admitted to an Ebola Treatment Unit (ETU) for more than 14 days. The most commonly recalled new neurologic symptoms during or after the ETU admission were: headache, depressed mood, weakness, myalgia, and memory loss. Severe neurologic manifestations included hallucinations, meningitis, and coma. Severe manifestations were found in half of the survivors, and the remaining half had moderate manifestations. The most commonly reported ongoing symptoms were weakness, headache, depressed mood, memory loss, and myalgia. Two patients were actively suicidal and one had active hallucinations. The most common neurologic findings were abnormalities of eye pursuits and saccades in nearly two thirds of the cohort; tremor and abnormal reflexes, and abnormal sensory findings in one third, and frontal release signs in a sixth. Nearly all survivors had some neurologic disability as measured by the Modified Rankin Scale.

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**Conclusion:** Neurologic abnormalities following Ebola virus disease involved subcortical structures, cerebellar pathways, and sensory peripheral nerves and were present in most survivors. Evaluations of uninfected contacts of the survivors are ongoing and will allow for additional insight into the neurologic burden of EVD. Controls are in the process of being evaluated to determine which of these findings are Ebola-specific. Participants examined have been seen so far at only one point in time, thus it is unknown whether the symptoms will persist or resolve.

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