

Higher incidence of seizures seen in children with H1N1 virus compared to seasonal flu

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A recent study by researchers at the University of Utah determined that the 2009 pandemic influenza A (H1N1) caused a higher rate of neurological complications in children than the seasonal flu. The most common complications observed were seizures and encephalopathy. Full details of the study, the most extensive evaluation of neurological complications following H1N1 flu in children, are published in the September issue of *Annals of Neurology*, a journal of the American Neurological Association.

The H1N1 virus ([swine flu](#)) was identified in Mexico and the U.S. in April 2009 and quickly spread worldwide, prompting the World Health Organization (WHO) to declare the novel influenza A virus a pandemic. According to estimates from the [Centers for Disease Control and Prevention](#) (CDC), 43 million to 89 million Americans were infected with H1N1 between April 2009 and April 10, 2010, with approximately 14 million to 28 million of those cases in [children](#) 17 years of age and younger. On August 10, 2010 the WHO International Health Regulations Emergency Committee officially declared an end to the 2009 H1N1 pandemic.

In their retrospective study, Josh Bonkowsky, M.D., Ph.D., and colleagues examined neurological complications in children with H1N1 compared to the seasonal flu. Children (younger than 19 years of age) who were hospitalized with H1N1 and neurological complications between April 1 and November 30, 2009 were included in the study. In the comparison group, the research team used records of children

hospitalized with seasonal flu and neurological complications from July 1, 2004-June 30, 2008. Neurological complications observed included seizures, febrile seizures, status epilepticus, encephalopathy, encephalitis, myositis, myalgia, aphasia, ataxia, neuropathy, Guillain-Barre syndrome, or other focal neurological complaints.

Researchers identified 303 children who were hospitalized with 2009 H1N1 of which 18 experienced neurological complications. Eight-three percent of these pediatric patients had an underlying medical condition—primarily neurological issues (66%). The research team found the most common neurologic symptoms in this group were seizures (67%) and encephalopathy (50%). More than half of those children who experienced seizures presented in a life-threatening state known as status epilepticus, where continuous seizure activity occurs for more than 5 to 30 minutes¹.

The comparison group included 234 children who were hospitalized for seasonal flu with 16 patients experiencing neurological issues. In the seasonal flu cohort only 25% patients had underlying medical conditions. The researchers also noted that none of the patients with seasonal flu and neurological complications had encephalopathy, aphasia, or focal neurological deficits.

Compared to seasonal influenza, patients with H1N1 were more likely to have abnormal electroencephalogram (EEG) findings. "We found that more pediatric H1N1 patients had neurological deficits and required ongoing treatment with anti-epileptic medications upon discharge from the hospital," commented Dr. Bonkowsky.

Additionally, researchers found the use of steroids or intravenous immunoglobulin was not beneficial in the treatment of encephalopathy. "The absence of proven treatments for influenza-related neurological complications underlines the importance of vaccination," said Dr.

Bonkowsky. For protection against the flu, the CDC recommends yearly flu vaccination and the U.S. 2010-2011 seasonal influenza vaccine will protect against an H3N2 virus, influenza B, and the 2009 H1N1 virus.

Provided by Wiley

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