

# When the body attacks the brain: Immune system often to blame for encephalitis, study finds

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Credit: Mayo Clinic

Encephalitis caused by the immune system attacking the brain is similar in frequency to encephalitis from infections, Mayo Clinic researchers report in *Annals of Neurology*.

Encephalitis is a term used to describe brain inflammation. Its symptoms include fever, confusion, memory loss, psychosis and seizures. It progresses quickly over days to weeks and can be life-threatening. Traditionally, it has been thought that infections account for most cases of encephalitis, but this study shows autoimmune encephalitis is an equally common cause.

"The results of our study suggest that doctors evaluating patients with encephalitis should search for autoimmune causes in addition to infectious causes, given both have a similar frequency," says Eoin Flanagan, M.B., B.Ch., senior author of the population-based study and an autoimmune neurology specialist at Mayo Clinic.

Feb. 22 is World Encephalitis Day—a day to raise awareness of the illness.

Infection remains an important concern when evaluating patients with encephalitis, notes Michel Toledano, M.D., one of the study's co-investigators and a neuro-infectious diseases specialist. "But the results of our study indicate that doctors also should explore autoimmune causes to ensure that the appropriate treatment is given, which is essential to prevent long-lasting damage," Dr. Toledano says.

To identify cases of encephalitis, the study used data from the Rochester Epidemiology Project, a medical records database of all medical providers in Olmsted County, Minnesota. The researchers found about 14 per 100,000 people had autoimmune encephalitis in their lifetime, compared to 12 per 100,000 who had infectious encephalitis. One study limitation is that the diagnostic criteria for autoimmune and infectious causes of encephalitis differed, which could affect the comparison.

"Previously, we did not know how common autoimmune encephalitis was, as no prior studies evaluated this," Dr. Flanagan says. "This study allows us to estimate that approximately 1 million people worldwide had autoimmune encephalitis in their lifetime. We also estimate that, currently, about 90,000 people around the world develop autoimmune encephalitis each year."

In this study, the researchers used 2016 [diagnostic criteria](#) for autoimmune encephalitis. Using the Mayo Clinic Neuroimmunology Laboratory, which performs comprehensive neural autoantibody testing on blood and spinal fluid, the researchers were able to identify neural antibody markers that indicate a likely autoimmune cause.

"Our study showed that clinicians are now detecting more cases of autoimmune encephalitis than they were in the past because of the discovery of these new neural autoantibody markers. These advances in diagnostic testing are good news for patients, as they have allowed doctors to diagnose and treat autoimmune [encephalitis](#) more effectively." Dr. Flanagan says.

**More information:** Divyanshu Dubey et al. Autoimmune encephalitis epidemiology and a comparison to infectious encephalitis, *Annals of Neurology* (2018). [DOI: 10.1002/ana.25131](https://doi.org/10.1002/ana.25131)

Provided by Mayo Clinic

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