

Investigating treatment factors for NMDAR antibody encephalitis outcome

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Researchers from the School of Life Course Sciences and Biomedical Engineering & Imaging Sciences alongside a group of international experts have undertaken the most comprehensive meta-analysis to date

on treatments and other factors associated with NMDAR antibody encephalitis outcome, published this week in *JAMA Neurology*.

NMDAR antibody encephalitis is a disease that predominately affects children and young adults. The disease occurs when [antibodies](#) perturb the function of the N-methyl-D-aspartate (NMDA) receptor in the brain, required for controlling thoughts, moods and movements. The disease causes seizures, abnormal movements, confusion and memory loss; patients often require long periods of hospitalization, and can later relapse. Some patients recover fully but many suffer long-term cognitive and psychiatric problems that can affect education, employment and quality of life.

There is currently no robust evidence-based treatment guidelines available for NMDAR antibody encephalitis. As such, researchers decided to investigate the use of immunotherapies, identify predictors of poor outcomes (measured by the modified Rankin Scale score) and relapse, and evaluate immunotherapy use over the 14 years since first reports of the disease.

Key findings of the meta-analysis of 1550 patients were that factors that influence good outcome and recovery were early initiation of immunotherapy within 30 days of disease onset and acute treatment with corticosteroids in combination with intravenous immunoglobulin (IVIG), or corticosteroids in combination with IVIG and therapeutic apheresis, or therapeutic apheresis alone. Crucially, researchers found patients were less likely to relapse after being treated with rituximab, a monoclonal antibody. Researchers also found infants under two and adults over 65 years suffered the worst outcomes, while adolescents between 12-19 years had 2.6 times increased odds of good outcome compared to those aged 20-65 years.

"This is a unique study that pools together a combination of 600+

published papers where individual patient data was available to inform on real-world practice. We learned that factors that influence outcome were different from factors that influence relapses. Acute immune treatment for example if instituted early supported better recovery but did not prevent relapses," said Dr Ming Lim, a Paediatric Neurology Consultant at Evelina London Children's Hospital and the School of Life Course Sciences

Dr Lim added that "a somber message from the study is that simple measures such as early initiation of treatment are what is still required to manage patients optimally, a practice that had not improved significantly in the published reports over the 14 years."

More information: Margherita Nosadini et al, Use and Safety of Immunotherapeutic Management of N -Methyl- d -Aspartate Receptor Antibody Encephalitis: A Meta-analysis, *JAMA Neurol.* (2021). [DOI: 10.1001/jamaneurol.2021.3188](https://doi.org/10.1001/jamaneurol.2021.3188)

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