Anti-NMDA receptor encephalitis

ABSTRACT

Anti-NMDA Receptor Encephalitis is a neurologic disorder caused by an autoimmune response against NMDA receptors in the brain. Antibodies attack these receptors causing swelling, and resulting in a wide array of neurologic symptoms including behavior changes, cognitive problems, memory deficits, seizures, speech problems, movement disorders, autonomic dysfunction, breathing problems, and a decreased level of consciousness. It is the most common type of autoimmune encephalitis, and makes up between 1% and 4% of all encephalitis cases. Anti-NMDA encephalitis disproportionately affects women, and is sometimes linked to the presence of an ovarian teratoma. The median age of diagnosis is 21 years, and approximately 36% of cases are children. Diagnosis includes recognition of clinical symptoms and a laboratory confirmation using cerebral spinal fluid (CSF) or serum samples. Treatment may involve surgery, intravenous immunoglobulins (IVIg), plasma exchange, rituximab, and/or cyclophosphamide. Early treatment is an indicator of good outcome, and despite its severity approximately 81% of patients make a full recovery.

Public health challenges with this disease stem from its resemblance to many other conditions. During the initial phase of the disease symptoms can resemble mental illness such as bipolar disorder or schizophrenia. Additionally, as symptoms progress it remains difficult to diagnose due to the commonality of other forms of encephalitis caused by viruses. Misdiagnoses are dangerous for patients, but also affect the amount of accurate epidemiologic information available- making assessment of the impact of the disease on communities difficult. In order to improve detection, subsequent patient care, and overall disease epidemiology, dissemination of information must occur between and within a variety of clinical specialties.

The mission of project was to expand on previous research on anti-NMDA receptor encephalitis, uncover patterns that may lead to a greater understanding of the disease and its impact on society, and to draw attention to and disseminate information to improve recognition, diagnosis, and treatment. This document was produced for a variety of healthcare workers by compiling existing information and filling in the gaps with a retrospective chart review of 11 patients treated at the Hospital of the University of Pennsylvania (HUP). This document is formatted for consistency with the WHO publication Neurologic Disorders: Public Health Challenges (2006).

Faculty Mentors: Myrna R. Rosenfeld, MD, PhD & Rosemary Frasso, PhD, MSc, CPH