LETTERS

Successful treatment of anti-N-methyl-d-aspartate receptor limbic encephalitis in a 22-month-old child with plasmapheresis and pharmacological immunomodulation

We report the case of a previously healthy 22-month-old girl who presented with the full clinical spectrum of anti-N-methyl-d-aspartate receptor (NMDAR) encephalitis with seizures, agitation, stupor, autonomic instability, dysphagia and relentless choreoathetoid movements.

Schimmel *et al* describe a 12-year-old girl with typical clinical symptoms of the recently described NMDAR encephalitis.[1] Their patient was the youngest reported case with this condition to date.

The symptoms in our patient began 1 week after a meningitis C booster vaccination. Cerebrospinal fluid (CSF) examination on admission showed raised lymphocyte count and oligoclonal bands with no oligoclonal bands in a paired blood sample. All other investigations including PCR for human herpes virus 1 in CSF, brain MRI, EEG, blood and urine tests for common inborn errors of metabolism and autoantibody screening were normal or negative. The child did not respond to initial treatment with antibiotics, acyclovir, steroids and intravenous immunoglobulins. The working diagnosis was autoimmune encephalopathy, also known as Sebire's encephalopathy.[2] However, 4 months after the onset of her symptoms the patient showed no signs of improvement and remained severely encephalopathic, hypotonic, unable to sit, see or communicate with her surroundings and had marked chorea. At this stage plasmapheresis was commenced. After 20 cycles of plasmapheresis and further immunosuppression with mycophenolate mofetil, the patient made a remarkable recovery and continues to make progress. Now aged 3 years, she has single words, good receptive language and is walking with mild ataxia. Blood samples taken before plasmapheresis were found retrospectively to be positive for anti-NMDAR antibodies.

Encephalitis is caused by infection or by immune mechanisms. In adults, immune-mediated encephalitis with specific antibodies against NMDAR has recently been described.[3 4] Many of the published cases are of young women with an associated ovarian teratoma. Our case shows that the condition can affect very young children and in our experience these are often female (S Irani, L Jacobson, A Vincent, manuscript in preparation). It is possible that children described in the past as having an autoimmune encephalopathy or Sebire's syndrome actually had anti-NMDAR encephalitis. Indeed, it is very important to consider anti-NMDAR encephalitis as a diagnostic possibility in any child with encephalopathy.

The clinical improvement appeared to be strongly time related to plasmapheresis in our patient, suggesting that a reduction in circulating antibodies can be an effective intervention, even in patients with a longer history than that described by Schimmel *et al*. This indicates the importance of considering immunosuppressive therapy when there is high suspicion of an immune-mediated central nervous system disorder and other investigations have proved negative, even when the serum is negative for the antibody tests currently available. With the advent of new investigation techniques, it is all the more important to avoid the pitfalls so common in evaluating patients with encephalopathy. The clinician must perform a complete and critical review of the medical history along with a comprehensive examination. The challenge is to know and evaluate the differential diagnosis. Failure to do so can result in a misdiagnosis which may lead to unnecessary care, long-term therapy without clinical resolution, or even death.

Shakti Agrawal,[1] Angela Vincent,[2] Leslie Jacobson,[2] David Milford,[1] Rajat Gupta,[1] Evangeline Wassmer[1]

[1]Department of Paediatric Neurology, Birmingham Children's Hospital, Steelhouse Lane, Birmingham UK B4 6NH, UK

[2]Neurosciences Group, Weatherall Institute of Molecular Medicine, University of Oxford, John Radcliffe Hospital, Oxford, UK

Correspondence to Dr Shakti Agrawal, Department of Neurology, Birmingham Children's Hospital, Steelhouse Lane, Birmingham B4 6NH.

Provenance and peer reviewed Not commissioned; not externally peer reviewed.

Patient consent Obtained.

Accepted 13 September 2009

Arch Dis Child 2010;**94**:312. doi:10.1136/adc.2009.164889

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