Autoimmune encephalitis associated with MOG antibodies

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Background

MOG antibody-associated disease (MOGAD) is a group of inflammatory disorders, where the immune system produces antibodies against myelin oligodendrocyte glycoprotein (MOG), a protein found on the outer surface of myelin sheaths in the central nervous system (CNS).

The clinical manifestations of MOGAD vary from optic neuritis or myelitis to acute disseminated encephalomyelitis (ADEM), or cerebral cortical encephalitis (CCE).

What are the symptoms?

The most common symptoms are headaches, seizures, fever, eye pain, and loss of vision.

In children, the most common symptoms are headaches, seizures, and fever.

Other symptoms include altered mental status, confusion, behavioural changes, memory problems, speech difficulties, weakness or paralysis, nausea and vomiting, and, in severe cases, coma.

Symptoms can develop rapidly over days to weeks.

What are the causes?

The causes of this syndrome are not known. However, MOGAD appears to occur predominantly in children.

Genetic predisposition might play a role, but no specific genetic mutations or factors have been consistently identified as contributing to people developing this condition.

How is it diagnosed?

Diagnosis o is usually done by detecting MOG antibodies in the blood serum or cerebrospinal fluid (CSF).

Additional diagnosis is done by magnetic resonance imaging (MRI) of the brain to identify characteristic lesions and inflammation patterns.

Children, especially those younger than five years old, more frequently present with acute disseminated encephalomyelitis (ADEM) compared to adults.

How is it treated?

It is treated by high-dose intravenous corticosteroids, usually methylprednisolone. This is a first-line therapy to reduce inflammation.

If steroids are insufficient, second-line treatments include plasma exchange to remove circulating antibodies and intravenous immunoglobulin (IVIG) to modulate the immune system.

Treatment with the immunosuppressive medication rituximab has been associated with reduced relapse rates.

Supportive care includes seizure management with anticonvulsants as well as treatment for headaches. Rehabilitation services may be needed including physical and speech therapy.

What are the outcomes?

Compared to other types of autoimmune encephalitis, most people affected have a favourable outlook. Acute symptoms typically begin improving within days to weeks of initiating treatment.

Due to the possibility of relapse, long-term monitoring is important. However, about 40-50% of those with MOGAD only experience one episode of symptoms. Some studies have shown that individuals who continue to test positive for the MOG antibody appear to have a higher chance of relapse. The occurrence of relapse can involve the development of a new neurological symptom or worsening of an old symptom.

In children, complete recovery from the initial onset of symptoms is common. Children who present with ADEM appear more likely to experience MOGAD only once.

Overall, this condition is a rare but treatable condition that requires prompt recognition and intervention.

FS082V1 Autoimmune encephalitis associated with MOG antibodies

Date created: July 2025 / Last updated: August 2025 / Review date: August 2028

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