The NMO Clinic and Research Laboratory
at Massachusetts General Hospital
& The Sumaira Foundation for NMO present

iNMOtion

Neuro

Myelitis

Optica

Spectrum

Disorder

NMOSD

is a rare neuroimmune condition in which the immune system attacks cells in the central nervous system (CNS), mistaking them for foreign invaders.

About 75% of patients diagnosed with NMOSD have a coordinated immune response against the aquaporin 4 water channel (AQP4) on supportive cells within the CNS.

This response causes swelling and tissue destruction that ultimately leads to cell death.

These patients have an antibody that specifically targets AQP4. Of the remaining quarter of patients, some 40% test positive for another antibody that attacks myelin oligodendrocyte glycoprotein (MOG).

The remaining seronegative NMOSD patients may have an as-yet unidentified antibody.

STATISTICS

- Occurs in all decades of life with median age of onset between ages 32 and 41. Asian, Afro-American and Afro-Europeans testing positive for AQP4 antibody (Ab) tend to have a younger age of onset[1]
- Found in ~2% of persons with demyelinating disorders in the US[2]; accounts for up to 50% of cases of demyelinating disease in some east Asian countries[3]
- Women predominate over men by 5 - 10 to one for those with lifelong NMOSD[4]
- NMOSD in the US is overrepresented by persons with ancestry from African, East Asian, and Latin American populations[5]
- Worldwide numbers are growing as testing becomes more widespread and statistics are collected
- Currently estimated to reach a prevalence of 0.5 - 10 per 100,000[6]

References:

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3. https://jnnp.bmj.com/content/89/6/667
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SYMPTOMS

may include:

Loss or blurring of vision, loss of color distinction (optic neuritis)	Eye pain (optic neuritis)	Paralysis or weakness of a limb or limbs, loss or changes of sensation (transverse myelitis)
Tightness around the chest, shooting pain, or tingling (transverse myelitis)	Disruptions in bowel and bladder function (transverse myelitis)	Prolonged hiccups, nausea and vomiting (brainstem involvement)

Some residual symptoms may be permanent, even after treatment

DIAGNOSIS

TESTING

- AQP4 antibody blood test
- Magnetic Resonance Imaging (MRI)
- Optical Coherence Tomography (OCT)
- Visual Field Test (VFT)
- Lumbar puncture (spinal tap)
- Neurological exams

TREATMENTS

ACUTE

(during an attack or flare)

Solumedrol
(intravenous steroids)

Prednisone
(oral steroids)

Plasmapheresis
(plasma exchange / PLEX)

PREVENTATIVE

(for life)

Rituxan
(Rituxumab)

Soliris®
(Eculizumab)
*for AQP4 positive only

Uplizna™
(Inebilizumab)
*for AQP4 positive only

Enspryng™
(Satralizumab)
*for AQP4 positive only

CellCept®
(Mycophenolate Mofetil)

Imuran®
(Azathioprine)

Prednisone
(oral steroids)

IV Immunoglobulin - IVIG
(used to rescue the immune system compromised by immune suppressants; not as an intervention for NMO itself)

PIPELINE

RAVULIZUMAB
(a variation of Eculizumab that requires less frequent infusions)

TOLERIZATION OPTIONS
(retraining, rather than suppressing the immune system)

A TREATMENT FOR MOG-AD

Brought to you by

THE NMO CLINIC AND RESEARCH LABORATORY

at Massachusetts General Hospital

SPECIAL THANKS TO

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