ISSN: 2754-4990

Journal of Ophthalmology Research Reviews & Reports

SCIENTIFIC Research and Community

Case Report

Open Access

Nystagmus and Imbalance as the Presenting Symptoms of Anti-Gad Antibody Syndrome in A 67-Year-Old Female

Nyree Khachikyan[1], Artur Manasyan[1] and Nafiseh Hashemi MD[2]*

[1]USC Keck School of Medicine Los Angeles, USA

[2]Hashemi Eye Care, Neuro-Ophthalmology Clinic Los Angeles, USA

ABSTRACT

Autoimmune encephalitis is a serious condition that causes brain inflammation, usually mediated by antibodies to various neuronal antigens [1]. One of the many antigens that may generate an immune response and cause this type of inflammation is the glutamic acid decarboxylase enzyme (GAD). Anti-GAD (glutamic acid decarboxylase) antibodies are targeted against the GAD enzyme that converts glutamate to GABA, which is the nervous system's primary inhibitory neurotransmitter [2]. With the body's primary inhibitory neurotransmitter compromised, anti-GAD antibody syndrome is a rare type of autoimmune encephalitis that results in various symptoms related to prolonged excitation, such as seizures or nystagmus [3]. We present a rare case of autoimmune encephalitis caused by significantly elevated Anti-GAD antibody, with concomitant rheumatoid arthritis in the hands/wrists; symptoms of downbeat nystagmus, diplopia, headaches, and joint pain are improved with rituximab and IVIG infusion, following an unsuccessful treatment with oral prednisone.

***Corresponding author**

Nafiseh Hashemi, Hashemi Eye Care, Neuro-Ophthalmology Clinic, Los Angeles, USA. E-mail: Dr.Hashemi@HashemiEyeCare.com

Received: February 19, 2024; **Accepted:** February 21, 2024; **Published:** February 28, 2024

Keywords: Anti-Gad Ab Syndrome, Nystagmus, Imbalance, Autoimmune Encephalitis

Case Report

The patient is a 67-year-old female who presented to the clinic with dizziness and imbalance, severe nystagmus and headaches. Additionally, she had pain and swelling in her hands and wrists which gradually worsened. Neurology exam was unremarkable for sensory loss and confirmed imbalance. Her ocular history was significant for myopic Lasik correction. Visual field exam was unremarkable, showed slightly enlarged blind spots OU consistent with peripapillary atrophy of myopic fundus. OCT of the optic nerve showed RNFL thickness of 83mic OD and 75mic OS, which is normal range for her eye. On sensorimotor exam, despite the patient report of diplopia, was orthotropic both eyes in all gazes. She had severe downbeat nystagmus worsened in side gazes OU. Bloodwork showed significantly elevated anti-GAD antibody (>250 IU/mL, normal <5 IU/mL), as well as elevated HbA1c (7.4) and low vitamin B12 (5.8 nmol/L). Other blood tests (Anti-Ach Ab, RF, quantiferon gold, ESR/CRP, HepB) were normal. The patient was diagnosed with seronegative rheumatoid arthritis and autoimmune encephalopathy. Following initial examination in the clinic, she was started on 30mg prednisone daily which did not improve any symptoms. She was referred to a rheumatologist who gave her an IV infusion of methylprednisolone and vitamin B12. During her follow-up visit with neuro-ophthalmology, she reported that her nystagmus and balance problems improved following the infusion from her rheumatologist. The patient is currently on Rituxan (rituximab) infusion every 4 months and Gammagard (IVIG) infusion every month. On most recent sensorimotor exam, she has full ocular motility and her nystagmus has significantly improved. Muscle weakness, joint pain and balance have also improved. Patient will continue to stay on these medications and follow up consistently with neurologist and rheumatologist.

Discussion

Autoimmune encephalitis can have various etiologies and presentations, with a variety of symptoms that differ depending on the patients. It can come about due to the body's production of antibodies against intracellular proteins, cell surface proteins, or synaptic receptors [2]. Because the spectrum of symptoms and severity is so wide and often overlaps with other more common disease manifestations, it involves a complex differential diagnosis process [4]. Once diagnosed, treatment can vary from steroids to monoclonal antibody infusions.

A prior case report of rheumatoid arthritis and autoimmune encephalitis in a 57-year-old male has been reported, but patient's brain MRI showed significant parenchymal lesions; our patient's brain MRI was unremarkable. This patient had neurological symptoms which included anorexia, depression, and severe headaches, but did not include ocular symptoms such as nystagmus or diplopia [5]. Another case involving anti-GAD encephalitis presented without ocular symptoms, and was successfully treated with high dose methylprednisolone infusion [2]. In a case report of a 50-year-old female with anti-GAD encephalitis, the patient presented with similar symptoms of downbeat nystagmus and imbalance, but rheumatoid arthritis was absent. She was treated with plasma exchange and IV steroids; balance problems improved significantly but nystagmus and ocular symptoms did not improve [6]. Increased titers of Anti-GAD antibodies have also been reported to be associated with stiff-person syndrome, such as in a

report of a 72-year-old woman, which causes additional symptoms such as stiffness, ataxia, and vertigo in addition to nystagmus [7].

Conclusion

Autoimmune encephalitis can be a serious, life-threatening condition if left untreated, leading to serious brain injury and even death. Finding the right medications to combat the encephalitis is imperative to control symptoms. In our patient, she was unresponsive to the first attempt at treatment with steroids. It is important to treat the disease with team work of multiple specialists, and adjust the medication regimen based on the patient's response. It is also important to always keep encephalitis on the differential diagnosis-because of its non-specific nature, with different clinical presentations and disease association.

References

1. Mattar A, Honnorat J, Joubert B (2022) Les encéphalites auto-immunes [Autoimmune encephalitis : an update]. Rev Prat 72: 85-90.
2. Azizi S, Vadlamuri DL, Cannizzaro LA (2021) Treatment of Anti-GAD65 Autoimmune Encephalitis with Methylprednisolone. Ochsner J 21: 312-315.
3. Tohid H (2016) Anti-glutamic acid decarboxylase antibody positive neurological syndromes. Neurosciences 21: 215-222.
4. Graus F, Titulaer MJ, Balu R, Benseler S, Bien CG, et al. (2016) A clinical approach to diagnosis of autoimmune encephalitis. Lancet Neurol 15: 391-404.
5. Kitamura E, Kondo Y, Kanazawa N, Akutsu T, Nishiyama K, et al. (2019) Autoimmune Encephalitis as an Extra-articular Manifestation of Rheumatoid Arthritis. Intern Med 58: 1007-1009.
6. Shivaram S, Tallapalli AVR, Gupta M, Nashi S, Kulkarni GB, et al. (2022) Spontaneous Downbeat Nystagmus in Anti-GAD-Antibody-Associated Paraneoplastic Syndrome. J Neurosci Rural Pract 13: 546-549.
7. Feldman D, Otero-Millan J, Shaikh AG (2019) Gravity-Independent Upbeat Nystagmus in Syndrome of Anti-GAD Antibodies. Cerebellum 18: 287-290.