

Optic Neuritis and COVID-19 Vaccination: Is There Any Association?

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Introduction

Generally, Optic neuritis (ON) can be defined as an acute optic neuropathy, which could be categorized into demyelinating, or idiopathic. This means, it can present as an isolated disorder, or as a part of Multiple Sclerosis (MS). However, optic neuritis can be considered as a complication following vaccine administration. Indeed, optic neuritis is one of the most common adverse ocular events associated with nine different vaccine types [1,2]. According to VAERS (Vaccine Adverse Events Reporting System), there are a wide variety of reported adverse events related to the different types of COVID-19 vaccine. Of these reports, many cases developed blindness (either unilateral or bilateral), foreign body sensation in the eye, color blindness, conjunctivitis (allergic or inflammatory), and other ocular events [1-4]. Most of these ocular events could be related to optic neuritis as a presenting symptom. We will focus in this article on reported cases of optic neuritis following COVID-19 vaccine, are these cases similar to demyelinating/idiopathic optic neuritis, regarding symptoms, affected age group, diagnosis and prognosis?

Results

Post-COVID-19 vaccination optic neuritis can occur as a part of the syndrome; post-vaccination central nervous system inflammatory syndrome [5]. The underlying mechanism is not well understood yet, however,

molecular mimicry between viral protein particles and myelin basic proteins, and other mechanisms are suggested [1,6,7]. This is thought to affect patients with underlying demyelination diseases [5]. However, Post-COVID-19 vaccination optic neuritis was reported in a healthy adult without any significant medical history [8]. Interestingly, patients who developed this complication are predominantly females, and within the typical age group (3rd to 5th decade), although some patients in the extremities of age are affected as well [4,8,9]. Their symptoms are sudden visual loss, progressive blurry vision and pain exacerbated with ocular movements [4,5,8,9]. The examination and imaging findings were consistent with MS- Associated optic neuritis. Additionally, almost all affected patients improved well and restored complete vision in the affected eye with intravenous methylprednisolone 1g within less than a week. All these ideas suggest a close similarity between COVID-19 optic neuritis, and multiple sclerosis/idiopathic type.

Conclusion

Since there is no any biological marker which proves that post-COVID-19 vaccination optic neuritis is caused by the vaccine itself, we cannot clearly realize this as an association. However, clinicians must be aware of this complication, and further studies are required to demonstrate further information related to post-vaccination central nervous system inflammatory syndrome.

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