

Chemodenervation with Botulinum Toxins for the treatment of Oromandibular dystonia

Opinion

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Opinion

Oromandibular dystonia (OMD) is a chronic lifelong disorder that usually causes repetitive or sustained dystonia movements of the mouth, jaw, and tongue or a combination of these movements [1]. The gross prevalence of OMD is estimated to be 9.8 per 100,000 individuals [2]. It is mostly seen in association with neurological and non-neurological disorders; however, isolated dystonias are uncommon. The dystonic movement involving OMD causes disfigurement of the face the patients are often stigmatized in society by their appearance. OMD is not only physically debilitating for the patients, but it also affects them psychologically. These patients tend to isolate themselves socially and are secondarily exposed to multiple psychiatric disorders, including anxiety, major depressive disorder, and suicide. Deficits of emotional processing are also reported in the patients suffering from OMD [3,4].

OMD is a type of focal dystonia that affects lower facial muscles. It is broadly classified into Jaw-closing dystonia, Jaw-opening dystonia, Jaw-deviating dystonia, Jaw-protrusion dystonia, Lingual dystonia, Perioral dystonia, or a combination of these dystonias. When blepharospasm (Involuntary close of the eyelids) is present in conjunction with OMD, it is known as Meigs Syndrome. Following muscles are commonly targeted in treating different types of dystonias.

OMD is frequently observed in conjunction with cervical dystonia as well [5,6]. OMD is diagnosed clinically, and there is no standard diagnostic criteria for this condition. Several pharmacological and non-pharmacological modalities are used for treating this condition, and the choice of treatment varies from patient to patient. Benzodiazepines,

baclofen, zolpidem, tetrabenazines, dopaminergic agents (Levodopa), anticonvulsants, and carbamazepine are some of the oral medications used in the treatment of OMD. However, their use is limited due to the side effect profile, inadequate/subtherapeutic response, or high cost. Operative therapy, physiotherapy, and occupational therapy are also utilized to ease the symptoms of the patients to some extent [7].

Chemodenervation with Botulinum toxins (BoNT) are one of the safest and effective modalities for the treatment of oromandibular dystonia [8]. It involves injecting a potent bacterial neurotoxin that blocks the release of acetylcholine at the presynaptic terminal resulting in temporary denervation of the targeted skeletal muscle. Electromyography (EMG) is utilized for the better targeting of the involved muscle. EMG usage usually results in better outcomes and increased interval rate between subsequent injections [9].

Table 1: Types of Oromandibular Dystonias and the Muscle(s) Targeted for the BoNT injections.

Type of OMD	Targeted Muscles
Jaw-Closing dystonia	Temporalis, Medial Pterygoid, and Masseters
Jaw-Opening dystonia	Anterior belly of Digastric, Platysma, Lateral Pterygoids
Jaw-Deviation dystonia	Ipsilateral Temporalis, Contralateral lateral Pterygoids
Perioral dystonia	Orbicularis Oris
Lingual dystonia	Hyoglossus, Genioglossus

There are four most commonly used commercial preparation of botulinum toxins available in the market Dysport®, MyoBloc/NeuroBloc®, Xeomin®, and Botox®, and each of them differ in efficacy, potency, and dosage in treating dystonias [10]. Currently, there is a



level C recommendation for Abo-BoNT and Ona-BoNT. Rima-BoNT B and Inco-BoNT A carry level U recommendations according to class I clinical practice guidelines [11].

In our practice, the OMD is best treated with botulinum toxins. As this procedure is technique-dependent excellent results can be obtained in experienced hands. Familiarity with the anatomy, knowledge about accurate dosing, proper injection technique, and utilization of the EMG can give remarkable results with minimum or no side effects. Some of the adverse effects that can be seen in the patients are injection site swelling/pain, dysarthria, dysphagia, dizziness, skin rashes, dry mouth, dysphonia, problems in chewing solid foods, etc. Dysphagia is one of the severe complications that can occur while injecting for lingual dystonia, which is by far the most complicated dystonia to treat [12]. However, careful dose titration and EMG utilization can minimize the temporary adverse effects.

Long-term management of oromandibular dystonia with chemodenervation utilizing botulinum toxins is a safe and effective treatment. Due to the rarity of the conditions and inadequate trials, the data lacks in establishing the long-term effects of toxins. Prospective clinical trials or randomized clinical trials (RCT) can establish the best treatment strategies for the treatment of OMD.

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Conflict of Interest

No conflict. All authors agree to the final draft of the manuscript.

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