

Botox® and Chronic Migraine

Welcome to **Neuroscience Pearls**: A publication from the **UW Medicine Neurosciences Institute**. Our goal is to provide useful information pertinent to your practice. Here we bring you key points related to **Botox® treatment for chronic migraine**.

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WHAT IS CHRONIC MIGRAINE?

The term Chronic Migraine (CM) is defined by International Headache Society criteria (ICHD-3 beta) as a "Headache occurring on 15 or more days per month for more than 3 months, which has the features of migraine headache on at least 8 days per month."¹ The Food and Drug Administration (FDA) uses broader criteria, and defines CM for BOTOX® treatment as patients with headaches on at least 15 days per month for 3 months; it does not require migraine features.

HOW COMMON IS CM?

In the USA, the prevalence of CM is nearly 1%.² This translates to ~ 3.3 million CM patients.

DIAGNOSIS:

The first step in assessing a headache patient is to determine his/her specific diagnosis by careful history taking. CM is diagnosed using the International Headache Society criteria (ICHD-3)¹. It is important to exclude secondary headaches that can mimic migraine.

TREATMENT OF CM:

1. CM is difficult to treat and requires a multidisciplinary and multimodal approach, as patients suffering from CM are often refractory to pharmacotherapy. Moreover, they are often discouraged and can be less compliant with any therapy.
2. The only two pharmacological treatments that have been shown to be effective in placebo-controlled randomized trials for CM are topiramate and BOTOX® (onabotulinum toxinA). BOTOX® is FDA-approved medication for prevention of CM.
3. Non-pharmacological treatments include lifestyle modification, supplements, physical therapy, acupuncture and behavioral treatments, and are essential for significant long-term improvement.

MECHANISM OF Onabotulinum toxin A (BOTOX®) IN CM:

BOTOX® is a focally-acting neurotoxin. It is safe and effective in treatment of CM. BOTOX® mechanisms of decreasing pain in chronic migraine may include:

1. Decreasing tension in face and neck muscles due to potent, selective and long-lasting blockade of acetylcholine release.
2. Inhibiting release of neurotransmitters involved in pain transmission (glutamate, substance P, CGRP).⁵ This inhibits neurogenic inflammation, directly blocks peripheral sensitization of nociceptive nerve fibers and indirectly blocks central sensitization.⁵
3. Decreasing activation of glia and macrophages, which may be important for long-term effects.⁶

PATIENT SELECTION:

The correct selection of patients is key to the successful use of BOTOX® in CM management.

1. Requires accurate diagnosis of CM using ICHD-3 beta criteria.
2. Patients typically must try at least 3 preventative medications from 3 different classes such as beta blockers, tricyclic antidepressants and anti-seizure medications in order to have BOTOX® approved by medical insurance for medical necessity of treatment.
3. Its longer duration of action (3 months) and lack of systemic side effects makes it attractive for patients who are not compliant with daily use of preventive medications or who cannot tolerate them.

BOTOX® SAFETY, EFFICACY AND ADVERSE EFFECTS:

BOTOX® is safe and effective in the treatment of CM. After 1 year, BOTOX® can decrease CM by 8 to 9 fewer headache days per month v. 6 to 7 days with placebo (PREEMPT).⁷ "The treatment-related adverse event (AE) rate was 28.5% for BOTOX® v. 12.4% for placebo. The most frequently reported treatment-related adverse events were neck pain (4.3%), muscular weakness (1.6%), injection site pain (2.1%), and eyelid ptosis (1.9%)".⁷ Long-term experience shows frontotemporal muscle atrophy in some patients treated longer than 5 years.⁸

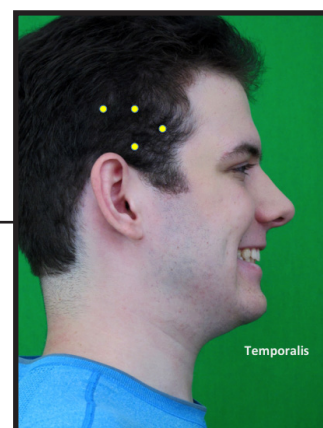
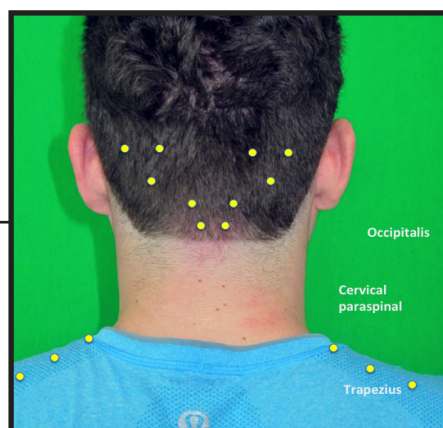
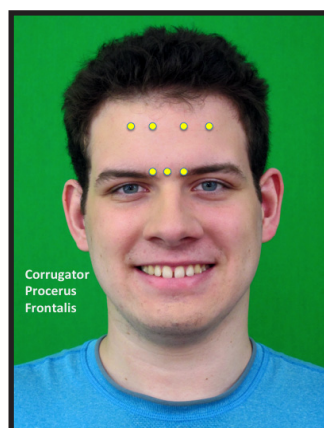
CLINICAL PEARLS:

1. It is important to identify Medication Overuse Headache (MOH), which may affect as many as 80% of CM patients referred to headache clinics and makes them less responsive to any treatment.³

2. If a patient with CM is taking any type of acute medications at least 10 days per month, the patient is likely to have MOH. As few as 5 days per month of butalbital or 8 days per month of opioids can also cause MOH.⁴

Standard Injection Sites for Botox for Chronic Migraines

Photo credit: Natalia Murinova, M.D.



Citations

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