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BOTULIN TOXIN FOR TREATMENT OF CHRONIC MIGRAINE

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Migraine is one of the most debilitating forms of headache. Migraine is estimated to be the third most common disease in the world, with prevalence of 14.7%. The World Health Organization lists migraine as one of the three illnesses, along with anemia and hearing loss, but notes that its consequences are not severe and that it is often ignored. A total of 324.1 million people worldwide suffers from migraine, representing 2–15% of the global population. Women are affected three times more often than men, and the majority of those affected are productive, socially active adults between the ages of 25 and 55. The World Health Organization describes severe migraine is described as devastating as quadriplegia, insanity, and dementia, ranking migraine as the sixteenth most disabling disease.

A schedule of botulinum toxin, commercially known as Botox, received approval from the Food and Drug Administration (FDA) in 2010 for the treatment of chronic migraine. Patients who choose this treatment typically receive Botox injections every three months to manage symptoms.

Mechanism of action. Botox uses a form of botulinum toxin that temporarily paralyzes muscle activity, which is believed to help prevent chronic migraines in some people. The mechanism by which Botox relieves migraines involves blocking the release of vesicles containing neuropeptides and neurotransmitters, affecting a variety of neuropeptides and neurotransmitters, especially in C-fibers.

Dosage and Administration. It is recommended to reconstitute Onabotulinumtoxin-A vacuum-dried vials with sterile, non-preserved 0.9% Sodium Chloride Injection USP before administering the injection. It is advised to dilute 200 units/4 mL or 100 units/2 mL for persistent migraines, with a final concentration of 5 units/0.1 mL. It is recommended that 155 Units be administered intramuscularly, as opposed to intradermally, to treat chronic migraine. This avoids the periosteum, the area around the eyes, and visible superficial blood vessels. A sterile 30-gauge, 0.5-inch needle is used to inject 0.1 mL (5 Units) into each of the 31 injection sites in the head and neck, which are spread across seven distinct head/neck muscle areas. Patients with thick neck muscles may require a 1-inch needle in the neck area; using needles longer than this lengthens the danger.

Clinical Research and Combination Therapy. Clinical trials have been conducted to evaluate the effectiveness of Botox in preventing migraine, including a multicenter, randomized, double-blind, placebo-controlled, phase 3 studies. Additionally, Botox can be used in combination with CGRP monoclonal antibodies, which have been found to be clinically synergistic, offering a potential combination therapeutic approach for patients with chronic migraine.

In summary, Botox represents a significant advance in the treatment of chronic migraine, with a well-understood mechanism of action and a regular treatment schedule. Although effective for some patients, cost and potential side effects are important factors. Ongoing clinical research continues to refine and evaluate its use, both as a stand-alone treatment and in combination with other treatments.