LACOSAMIDE (VIMPAT) IN THE TREATMENT OF IDIOPATHIC HEMIFACIAL SPASM

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Author Contributions

Dr. Gary Mellick provided the case patient, collected reference articles and composed the initial draft of the article. He serves as the corresponding author for this manuscript and its revision.

Dr. Larry Mellick collected reference articles and contributed equally to the writing of the article.

Financial Disclosure Form

Dr. Gary Mellick serves as legal consultant for work related injuries and is currently retained by Actavis, Lupin, Teva and Sandoz in a joint consulting agreement.

Dr. Larry Mellick is the Editor-in-Chief of Emergency Department Legal Letter and receives a small monthly stipend. He also acts as a consultant in medical malpractice cases.
Hemifacial spasm is characterized by a combination of unilateral clonic and tonic spasms of the muscles innervated by the facial nerve. The most common cause of hemifacial spasm (HFS) is now widely recognized as neurovascular contact or compression at the root exit zone (REZ) of the facial nerve at the lateral pons. The movement disorder typically begins in the orbicularis oculi and over the course of years involves the brow, mid and lower face, and neck platysma. The prevalence rate of hemifacial spasm is estimated to be 14.5 per 100,000 in women and 7.4 per 100,000 in men. The usual age of onset is between 40 to 50 years of age. Hemifacial spasm, if untreated, is typically a lifelong condition, and less than 10% of patients experienced spontaneous remissions.

**Case Report**

A 52 year old female occupational therapist presented with a complaint of continuous involuntary twitching of the entire left side of her face. The facial twitching began following a cervical laminectomy procedure in 1999. Initially, only the orbicularis oculi muscle was involved, but the mid and lower face was involved within a month. Treatments with botulinum toxin (Botox) were started in 2000; and these provided temporary partial relief.

Physical examination showed frequent, recurrent spasms of the left side of the face. Contrast MRI of the brain showed a normal brainstem and cranio cervical junction. Computerized Tomography Angiography (CTA) imaging of the cervical vessels revealed redundancy of the vertebral arteries. Brainstem evoked potential testing showed findings consistent with an ipsilateral lower brainstem lesion between the acoustic nerve and lower pons.

The patient was started on lacosamide on a trial basis for her hemifacial spasm during hospitalization. At a dose of 150 mg twice per day she reported 60 to 70% improvement in her spasms. The lacosamide was discontinued at hospital discharge and her hemifacial spasm returned. At her office follow-up visit the same dosage was reinstituted with similar results within 24 hours. And, when stress free, she described 80% relief without side effects. With stress HFS control deteriorated to 40%.
When the lacosamide dose was increased to 200 mg by mouth twice a day, she reported 90% improvement with deterioration to 70% when under stress. This dose was tolerated well and after one week was increased to 250 mg twice a day. At this dose the patient reported 99% improvement and was able to sing in the choir again, suck from a straw and whistle without worsening of the spasms. At this dose, however, she reported the onset of a hand tremor that interfered with signing her name and texting on her telephone. Also, at that dose she complained that her balance was affected. When the dose of lacosamide was reduced to 200 mg during the day and 250 mg at bedtime, she experienced significant improvement of the hand tremor and had no hemifacial spasms present the next day. For the past five months the patient has continued to have greater than 90% hemifacial spasm relief.

**Discussion**

Botulinum neurotoxin (BTX) is the medical therapy of choice in HFS. However, the therapeutic effect is sometimes insufficient and repeated Botox injections may be required. Repeated Botox injections have limitations that include high costs and the potential for denervation of the injected muscles. Other treatment options include various oral pharmacologic therapies that have shown limited efficacy, or microvascular decompression of the facial nerve. Thus, there is a need for further or alternative treatment options.

Vimpat was initiated because of the success of other anti-epileptic drugs (AEDs) in the treatment of HFS. Anticonvulsants have been useful for hemifacial spasm, possibly because of their ability to inhibit repetitive neuronal firing. However, anticonvulsant therapy is often limited by side effects or a limited response to therapy. Lacosamide is a novel AED licensed as adjunctive therapy for partial-onset seizures with or without secondary generalization. Lacosamide is an agent with a low toxicity profile and has a novel mode of action. It appears to be different from existing AEDs in that it selectively enhances the slow inactivation of voltage-gated sodium channels. Lacosamide is generally well tolerated and the most common adverse events are nonspecific central nervous system effects such as dizziness, vertigo, headache and nausea. Since lacosamide is not approved by the Food and Drug Administration (FDA) for this
condition, treatment of HFS is an off-label use of the medication. Finally, the long-term efficacy of lacosamide in hemifacial spasm has yet to be determined.

References:


