Latest Use for Botox: Teeth Grinding

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Note that these studies were published as abstracts and presented at a conference. These data and conclusions should be considered to be preliminary until published in a peer-reviewed journal.

Two studies found that patients who ground their teeth so hard during sleep that they required medical attention achieved significant relief from botulinum toxin (Botox) injections.

Note that the only adverse events in the patients receiving Botox were cosmetic changes in their smiles, and no difficulties with chewing or swallowing were reported.

NEW ORLEANS -- Patients who ground their teeth so hard during sleep that they required medical attention achieved significant relief from botulinum toxin injections, researchers said here.

In a small randomized study, 13 patients with severe bruxism during sleep receiving onabotulinumtoxin A (Botox) in the masseter muscles of their jaws had significant reductions in self-reported pain and teeth grinding relative to 10 patients who had placebo injections, reported William Ondo, MD, of the University of Texas Health Science Center in Houston, and colleagues.

Physicians at Henry Ford Health System in Detroit, meanwhile, reported that four patients with severe bruxism obtained significant relief with open-label Botox.

Both studies were presented at the American Academy of Neurology's annual meeting.

Bruxism is common but usually mild. In severe cases, it can cause pain in the jaw or generalized headache, as well as dental problems. Eventually it can fracture teeth or wear them down. Hypertrophy of the masseter muscle can also occur, altering the facial appearance.

Treatment usually involves mechanical devices that protect the teeth but do nothing to stop the basic clenching/grinding impulse, so headache and jaw pain may continue. Ondo and colleagues noted that drug treatments, such as benzodiazepines and dopaminergic agents, are sometimes effective but that there is no consensus on a standard of care.

The Houston study included polysomnography as well as patient self-reports to determine the effectiveness of Botox injections. Patients with sleep apnea or who failed to demonstrate bruxism during baseline polysomnography were excluded.

Polysomnography showed that sleep architecture and breathing parameters were not altered with Botox relative to placebo, alleviating one concern with the treatment.

The only adverse events in the 13 patients receiving Botox were cosmetic changes in their smiles, the researchers said. No difficulties with chewing or swallowing were reported.

Ondo and colleagues used nine different instruments to measure efficacy -- none of which, they indicated, had

been validated for bruxism but were the best available.
Mean scores in the primary measures -- visual analog scales for bruxism and pain at week four -- both showed significant improvements with Botox relative to placebo:

Bruxism: 47.3 for placebo, 64.5 for Botox ($P<0.05$)

Pain: 44.2 for placebo, 65.0 for Botox ($P<0.05$)

For the other measures, nonsignificant trends favoring Botox were reported. These included the Headache Impact Test, the Pittsburgh Sleep Quality Index, the Epworth Sleepiness Scale, and the Self-Rated Anxiety Scale.

The study protocol allowed patients in both treatment arms to receive open-label injections of Botox when bruxism symptoms returned.
Mean time to receive this follow-up treatment differed greatly between treatment arms: 38 days in the placebo group versus 103 days in the Botox group. But it just missed statistical significance ($P=0.05$) because of wide variation in the Botox group, in which the standard deviation was 78 days.
The Henry Ford group, led by Nawaf Murshed, MD, also reported favorable results in four patients, in whom the condition arose after anoxic brain injury.
The group's patients ranged in age from 23 to 63. Botox was injected into the masseter and/or the temoporalis muscles.
In two patients, one injection failed to resolve the symptoms, so additional injections were given at intervals of 3 weeks to 3 months.
Like the Houston group, Murshed and colleagues

reported no significant adverse effects and that symptoms were clearly improved with the treatment.

Neither study had external funding and the authors declared they had no relevant financial interests.

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Primary Source *American Academy of Neurology* Source Reference: *Ondo W, et al "Onabotulinum toxin-A injections for nocturnal bruxism: a parallel, double blind, placebo controlled polysomnographic study" AAN 2012; Abstract P05.006.*

Secondary Source *American Academy of Neurology* Source Reference: *Murshed N, et al "Successful treatment of severe bruxism with onabotulinumtoxinA in patients with post anoxic brain injury" AAN 2012; Abstract P01.237.*