Report Botulinum Toxin Injections Appear to Have a Protective Effect Against Incident Anxiety, According to Postmarketing Safety Surveillance Data

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Abstract

Glabellar Botulinum Toxin (BoNT) injections have been found to have an antidepressant effect in Randomised Controlled Trials (RCTs). BoNT injection is linked to lower rates of depression across a variety of non-psychiatric indications in the FDA Adverse Event Reporting System (FAERS) database, confirming prior findings independent of particular predictions of an antidepressant effect of BoNT. The goal of employing BoNT to treat depression is to stop negative emotions from being reinforced by proprioceptive bodily signals. Negative emotions are also present in various mental diseases, implying that BoNT has therapeutic potential across diagnoses in psychiatry. As compared to alternative therapies, BoNT injections were associated with a lower incidence of anxiety symptoms and related illnesses, according to an examination of the FAERS database. Botulinum toxin injections in the glabella have been found to lessen the symptoms of depression in a series of Randomised Placebo-Controlled Trials (RCTs) and meta-analyses. However, because the toxin's noticeable muscle relaxation makes true blinding of study participants impossible, it's unclear to what extent a bias toward expectations/placebo effects in the treatment groups vs. disappointment/nocebo effects in the control groups may have inflated the large effect sizes observed in these trials.

Keywords: Botulinum toxin • Anxiety • FDA

Introduction

The antidepressant activity of botulinum toxin in the absence of particular expectations to that effect to overcome this methodological restriction. We evaluated the incidence rates of depression and related symptoms after treatment with botulinum toxin to a benchmark of alternative therapies for the same purposes using the FDA Adverse Event Reporting System (FAERS). We discovered a strong preventative antidepressant effect of botulinum toxin over a broad spectrum of indications and injection sites, confirming and extending the findings of earlier RCTs [1].

The facial feedback concept underpins the evaluation of botulinum toxin as an antidepressant. The implication is that relaxing face muscles that express negative emotions will impair the proprioceptive afferences from these muscles, as well as their sustaining and reinforcing influence on the emotions communicated [2].

Botulinum toxin therapy may not be particular for depression, but rather a transdiagnostic, emotion-focused treatment approach, because an excess of negative emotions is not specific for depression, but occurs in and causes the suffering associated with the majority of mental diseases. Anxiety is one of the most common negative emotions experienced in excess [3].

Anxiety, panic, and fear symptoms can be found in a variety of psychiatric diseases, including depression, schizophrenia, borderline personality disorder, and anxiety disorders. Anxiety disorders, where fear or anxiety is the primary symptoms, are the most common mental disorders.

Panic, fear, and anxiety are all triggered by proprioceptive and interoceptive signals, which are also involved in the pathophysiology of anxiety disorders. Relaxation and biofeedback approaches, on the other hand, can help with these issues. One case series has already suggested that glabellar injections of botulinum toxin may help people with social anxiety disorder. As a result, BoNT injections for glabellar frown lines were linked to lower levels of anxiety than other cosmetic treatments. Furthermore, BoNT injections for dystonia, facial spasms, chronic migraine, and hyperhidrosis reduced comorbid anxiety disorders or related symptoms in multiple investigations, supporting the concept that BoNT may have an anxiolytic impact. BoNT injections have also been shown to have anxiolytic effects in experiments with mice and rats. However, no RCTs have been conducted to date on the effectiveness of BoNT as a treatment for anxiety disorders. Expectations and blinding concerns may affect the result of such trials in this indication, much as they do in depression. Before embarking on any RCTs, we examined the FAERS database to see if botulinum toxin injections could help prevent incident anxiety. Symptomatology in patients who have bona fide no specific anticipation of such an effect [4].

Discussion

We discovered that treatment with BoNT has a protective effect against incidence anxiety disorders or symptoms in this study of the FAERS database. Cosmetic use/facial muscles, migraine/facial and head muscles, spasms and spasticity/upper and lower limbs, torticollis and neck pain/neck muscles, and sialorrhea/parotid and submandibular glands all had a substantial influence. Hyperhidrosis/axilla, palm neurological, and bladder disorders/detrusor muscle had no effect. We identified a statistically increased incidence of anxiety following BoNT injection in the blepharospasm/eyelid muscles indication, despite no reports in the control group. Although less pronounced and consistent, these results are essentially compatible with those from a similar trial on depression (ROR ranging from 0.13 to 0.60), indicating that BoNT injections have potential in the treatment of mental illnesses [5,6].

The facial feedback hypothesis encouraged the assessment of BoNT as a therapy for depression and other mental diseases linked with an excess of negative emotions. The cumulative evidence of BoNT's efficacy in such purposes, however, is not proof of this rationale's veracity. It was found that BoNT had an antidepressant impact across a wide range of purposes and injection sites, brought up a wide range of hypotheses for this effect. Some of these theories support the facial feedback concept, while others contradict it. In the associated study, we go over these alternatives in detail. In theory, they may also be applied to our anxiety findings. Modulation of face feedback may explain the findings for cosmetic use and migraine as a mechanism of action behind the observed effects on anxiety. The corrugator muscles, which are major effectors in the face expression of any unpleasant emotion, are the primary target of BoNT injections in the cosmetic indication, and they are also targeted in the migraine injection scheme. The frontalis muscle, which is also covered by the migraine scheme and is routinely injected for cosmetic reasons, is responsible for raising the brows, which is a sign of concern. As a result, disruption of the appropriate proprioceptive signals may account for the reduced anxiety [6]. As a result, disruption of the appropriate proprioceptive signals may account for the reduced anxiety. The quantitatively greater incidence of anxiety following BoNT treatment falls into a similar idea in blepharospasm. The orbicularis oculi muscle, which is involved in the expression of enjoyment (Duchenne's smile) and narrows the palpebral fissure, is the major target in this indication.

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