

## Does Botox for Migraines Cause Depression?

Aside from its popular use in reducing the appearance of facial wrinkles, Botox treatment is also one of the reliable preventative therapies for relieving symptoms of chronic migraine – it relaxes the muscle to block pain signals from reaching your nerve endings. But since this procedure involves multiple Botox injections into the different muscle groups, some patients can't help but worry if it can cause serious adverse reactions, including depression symptoms.

So does Botox for migraines cause depression? No, there aren't enough pieces of clinical evidence to claim that Botox for migraines causes depression. Some studies report how Botox injections on frown lines, having similar injection sites to chronic migraine, can help relieve depression. But some clinical studies also suggest Botox can cause depression by limiting a patient's smile, affecting their mood.

### Is Depression A Side Effect of Botox for Migraine?

Botox treatment has been reliable for addressing several chronic conditions, like chronic migraine, hyperhidrosis or excessive sweating, muscle spasm, and other diseases involving the muscles. As a preventative therapy for migraine pain, botulinum toxin blocks pain signals from the brain from reaching your nerve endings by relaxing the muscles. It's important to note that Botox is more advisable only for chronic migraine headaches.

Chronic migraine patients experience 15 headache days where 8 of which are migraine headaches. For their Botox treatment, they'll be receiving high doses of botulinum toxin. Some patients worry about its side effects, one being the effect on their mental health.

Clinical studies about depression being a side effect of botulinum toxin injection need further development. While promising, existing trials still aren't enough and are done in small sizes, producing inconclusive findings.

Some studies suggest Botox causes or heightens depression symptoms, while some also report the opposite – Botox relieves the effects of this mental health condition and may even be used as one of the different treatments for treating it because of its suggested antidepressant effect.

These claims revolve around the facial feedback hypothesis posed by Charles Darwin and William James. According to them, contractions of your facial muscles when making expressions not only convey how you feel but also affect your mood.

Research suggests that Botox can cut the feedback of your facial muscles to your nervous system. Other studies report the effect of botulinum toxin on your brain and the results of the treatment on your self-esteem and social life.

### Research on Botox Causing Depression

A clinical trial published in 2018 has affirmed the relation of Botox to facial feedback, but it claims to heighten a patient's depression symptoms as it limits a muscle contraction in forming a smiling or laughing face.

The clinical trial led by Dr. Michael Lewis from Cardiff University School of Psychology in Wales has examined 24 female participants who received Botox injections for frown lines, and 11 of them also had shots for crow's feet at the orbicularis oculi muscles. The researchers handed out questionnaires to gauge their mood, and the results revealed that those who had also received Botox for laughing lines felt less happy.

While the clinical trial deserves merit, it's important to note that its size and other limitations and methodologies make it still inconclusive. More than this, Botox for migraine headache attacks is injected into muscle groups at the forehead and not at the side of your eyes, where the injection site for crow's feet are.

#### Research on Botox Relieving Depression

Meanwhile, numerous clinical trials suggest Botox for chronic migraine can relieve depression. The claim of Botox's antidepressant effect may have originated in a small clinical trial in 2006 by Dr. Eric Finzi and Dr. Erika Wasserman.

The study follows 10 participants with psychiatric comorbidities, such as depression or anxiety, who've received Botox injections on their frown lines. It has been reported that 9 out of 10 participants no longer experience symptoms of the depressive disorder. The 10th participant still noticed symptoms but reported an improvement in their mood.

Following the study in 2006, another placebo-controlled clinical trial was published in 2012. It has followed 30 participants reporting symptoms of depression and are on antidepressants. Half of the participants have received injections of botulinum toxin at their frown lines for 16 weeks, while the other half received placebo injections with saline.

Those who've received botulinum toxin injections have reported a decrease in depression symptoms by 47.1% after 6 weeks, while the placebo group has revealed a 9.3% reduction within a similar time frame. This study has provided clinical evidence of the toxin's effects in relieving depression symptoms after 6 weeks, similar to how antidepressants work (4 to 6 weeks). While it's small, it can be a basis for further clinical trials.

Another clinical trial in 2013 studied the effects of Botox injections into the glabellar frown lines between 25 patients with depression and 25 without psychiatric comorbidity. The subjects have reported improvements in their depression symptoms, occurring around 8 weeks after the treatment.

In 2014, a placebo-controlled study has followed 30 subjects with symptoms of major depressive disorder, where half are administered botulinum toxin into the forehead, while the other group received a placebo. Based on their evaluation every 3 weeks for 24 weeks, patients

who received Botox injections experienced reduced symptoms of their major depressive disorder than those who had placebo shots.

Another study in the same year by Dr. Eric Finzi and Dr. Norman E. Rosenthal also examined the effects of botulinum toxin on 85 subjects with symptoms of depression. They've discovered that a single treatment already had a significant antidepressant effect in 6 weeks.

In 2017, a placebo-controlled study examined 28 subjects who were given botulinum toxin injections into their forehead lines in 6 weeks, like the previous studies. But in this trial, the participants were also in different treatments of antidepressants. The results showed significant improvement in the symptoms of patients who had received Botox injections compared to their baseline rates and the results of the placebo-injected group.

A study in 2019 by Dr. Andrew M. Blumenfeld and colleagues from the Headache Center of Southern California, The Neurology Center, Carlsbad, California reported that symptoms of depression and anxiety in patients who had received Botox injections for chronic migraine reduced. The study followed 716 chronic migraine patients throughout 9 treatment sessions of botulinum toxin, spanning around 108 weeks.

Of the 716 volunteers, 715 received a Botox injection, and 373 finished the study. From the scales they've used, results show decreased levels of anxiety, depression, fatigue, and poor sleep quality when compared to the baseline rates, even in patients whose migraine headaches didn't reduce. These scales are:

Patient Health Questionnaire-9  
Generalized Anxiety Disorder-7  
Pittsburgh Sleep Quality Index  
Fatigue Severity Scale

The reduced symptoms of psychological comorbidities may be due to the improved appearance from the botulinum toxin injection, relief from reduced headache days, or reduced usage of migraine headache medications. The researchers maintain that significant findings in the study warrant further investigation.

Another study in 2019 has reported the indirect effects of botulinum toxin on the central nervous system, which result in changes in neural activity. The toxin goes beyond its injection site and travels to the brain and affects sensory afferents.

#### How Botox Can Possibly Relieve Depression

Previous studies have suggested the therapeutic effects of botulinum toxin for chronic migraine depression and even anxiety. While there's a study discovering the toxins causing or exacerbating the symptoms of depression, the injection site is also an important variable.

Many of these studies have implied some reasons why Botox might have relieved symptoms of depression like the break of the facial feedback loop, effects on the central nervous system,

relief from symptoms of a chronic condition, and improvement of mood from changes in appearance.

### 1) Break of the Facial Feedback Loop

Many studies that link Botox to depression, whether it's for relief of the condition or cause, refer to facial feedback. As established, this theory claims that your facial expressions not only convey how you feel – it also mirrors these emotions back to your brain, causing arousal.

Muscle tension is also one of the symptoms of depression. A patient with depression might have an increased muscle contraction. Because of this, Botox might have an antidepressant effect as the toxin relaxes the muscles, breaking the facial feedback loop where your expressions heighten your emotions.

### 2) Effects on the Central Nervous System

As suggested by the previously mentioned study in 2019, the effects of botulinum toxin may not only be localized in the injected muscle group – a small part of the toxin may reach the brain through the bloodstream and also affect other sensory afferents of the body. The research has found that botulinum toxin injection for muscle spasms may also affect opposing reflexes and muscle groups because of neural activity changes.

### 3) Relief From Symptoms of Chronic Diseases

Aside from the pharmacological effects of Botox on mental health, another reason why the treatment may have eased depression and even anxiety symptoms is due to the wellness patients experience after treatment of their chronic condition. Major depressive disorder and anxiety are common mental health conditions that chronic migraine patients also experience.

Once Botox has reduced the chronic migraine headaches patients experience, they may have a more improved quality of life. They may now start doing recreational activities without the debilitating effects of their condition.

### 4) Improvement of Mood from Cosmetic Changes

Another probable reason why Botox may also have affected the patients' mental health for the better is due to its cosmetic results. Patients feel better about their appearance and experience better social mechanisms.

### Side Effects to Expect from Botox for Migraine

Some studies suggest Botox injections can cause or heighten depression, while more clinical trials report the opposite – botulinum toxin for chronic migraine can help relieve symptoms of this mental health condition.

Just as the injections are said to limit patients from making happy facial expressions, also making them less happy, the toxin also limits the muscle contraction associated with depression.

Botox treatment is also said to affect the central nervous system and the patient's mood when it has alleviated their symptoms.

While the relation of botulinum toxin for chronic migraine to depression still needs further study, there are other adverse events that patients can expect, ranging from mild to long-term side effects. There are also serious side effects, but they're pretty rare and may only happen at the hands of an inexperienced injector.

#### Common Side Effects

Like many other treatment options, including oral medications, Botox injections for chronic migraine also have common side effects. These adverse reactions are usually mild and will resolve in a day or two or may extend up to several weeks. These symptoms should be nothing to worry about.

The mild side effects of Botox for chronic migraine are:

- bruising
- chills
- dry mouth
- droopy eyebrows
- fatigue
- injection site pain, soreness, and swelling
- neck pain
- neck stiffness
- muscle weakness

Consult your doctor about the ways to manage these symptoms to reduce your discomfort. If symptoms persist, seek medical attention immediately.

#### Serious Side Effects

Chronic migraine patients undergoing Botox treatment may have the risk of developing serious side effects. Note that these symptoms are rare and may only happen at the hands of an inexperienced injector or lack of thorough screening. When they do happen, they are usually only mild and will only be temporary.

The serious side effects of Botox treatment are:

- blurry vision
- swelling of the throat or tongue
- corneal ulceration
- difficulty in breathing and swallowing
- spread of toxin effects
- allergic reaction

Seek immediate medical attention once you notice any of the symptoms mentioned because they can be life-threatening. Your doctor will provide instructions on how to manage these symptoms.

#### Schedule a Consultation at Ethos Spa for Your Botox Injections

There aren't any conclusive pieces of clinical evidence or reports that Botox for chronic migraine may cause or worsen a patient's depression. But more studies suggest how Botox for any other treatment can improve your mood as much as it does your appearance.

Seek an expert Botox injector who will provide a customized treatment plan for you, discuss the side effects you can expect, and guide you through your aftercare. Ethos Spa is one of the medical spas in New Jersey trusted by many patients because of its dedication to providing safe and tailor-fit solutions. Book an appointment today by visiting our clinic at Summit Avenue or by giving us a call. You may also fill out a quote on our website.