Key Points

1. Botox is being used to treat a variety of problems such as headaches and chronic neck pain.
2. Neck dissection surgery, performed to remove tumors, often results in neck and shoulder pain due to the surgery itself
3. Study examined whether Botox injections reduce pain after such surgery
4. In a group of 16 patients, Botox was shown to significantly reduce both chronic and shooting pain
5. However, overall quality of life did not improve significantly
6. Small study, more research is required to validate the effectiveness of Botox
7. It would be interesting to perform a similar study on patients who had Chiari decompression surgery

Definitions

Botox - Botulinum Toxin Type A; toxin produced by a bacteria which can cause muscle paralysis

cerebellar tonsils - portion of the cerebellum located at the bottom, so named because of their shape

cerebellum - part of the brain located at the bottom of the skull, near the opening to the spinal area; important for muscle control, movement, and balance

cerebrospinal fluid (CSF) - clear liquid in the brain and spinal cord, acts as a shock absorber

Chiari malformation - condition where the cerebellar tonsils are displaced out of the skull area into the spinal area, causing compression of brain tissue and disruption of CSF flow

neck dissection surgery - set of surgical techniques used to treat cancer in the neck; as much of the cancer is removed as possible

Botox May Help With Neck Pain Due To Surgery

In recent years Botox - Botulinum Toxin Type A - has moved out of the realm of cosmetics and has been used in increasingly various ways. Botox has shown to be effective, or is being evaluated, to treat things like chronic headaches, myofascial pain, and to a limited extent, chronic neck pain. Now, researchers from University Hospital in Cologne, Germany, led by Dr. Claus Wittekindt, have reported that Botox injections may be help reduce pain due to neck surgery.

People who develop cancer in their neck often undergo a fairly radical surgical procedure called neck dissection. The goal of the surgery is to remove as much of the cancer as possible, but unfortunately, many people end up with chronic neck and shoulder pain after the procedure. The pain is often described as a chronic dull ache combined with shooting pains. The muscles in the neck are often tender in several spots, go into spasm easily, and the area sometimes becomes hypersensitive to touch.

To examine the effects of Botox, Dr. Wittekindt and his team identified 16 patients who had undergone neck dissection surgery and had suffered from neck pain for at least six months. Each patient was carefully examined to rule out a recurrence of the cancer and any neurological problems. In addition, each person had unsuccessfully tried more conservative treatments, such as physical therapy and massage.

At the start of the study, each subject filled out a general quality of life questionnaire, plus one designed specifically for people with neck cancer. A baseline for both their chronic and shooting pain was established using a simple Visual Analog Scale from 1-10. Next, the doctors identified tender areas in the subject's neck and administered the Botox injections into muscle trigger points (often in the trapezius). Finally, the subjects were given a pain diary and asked to note both their chronic and shooting pain levels one, two, three, and four weeks after the injections. The quality of life measures were taken again at the four week period.

The researchers found that on average the Botox injections significantly reduced both the chronic and shooting pain experienced by the patients (see Figure 1). Chronic pain dropped from an average score of 4.5 at the start of the study to 3.3 four weeks after the injections. Similarly, shooting pain scores dropped from an average of 6.1 to 4.7. Interestingly, despite the significant pain relief experienced by the participants, their quality of life - as measured by the questionnaires - did not significantly improve. The authors point out that neck cancer patients suffer from many symptoms that can impact overall quality of life.

It should also be pointed out that while the injections clearly helped the group on average, 5 patients did not experience any pain relief. However, for those that were helped, the Botox appeared to work quickly, with significant relief apparent by Day 14.

The mechanism by which the Botulinum toxin inhibits muscle contraction - and eliminates spasms - is fairly well understood, but the authors speculate that the toxin may also influence chemicals involved in the pain process itself and provide pain relief above and beyond the relaxing of the muscle itself. This may account for Botox's long lasting effect (3 months and beyond) in many applications. Since this study only tracked pain levels for one month, how long the injection can help with this type of neck pain is not yet known.

In addition, given the small number of patients who participated in the study, additional research, involving more patients, is required to truly validate and quantify the beneficial effects of the toxin. Future studies may also want to include a control group, which receives a placebo, to make sure that the perceived pain relief is due to the Botox and not a brief psychological effect.

Clearly, the most interesting future research for Chiari and syringomyelia patients would be to repeat the study on people who have undergone decompression surgery. Anecdotally, a significant number of people - particularly men - experience neck and shoulder pain after the surgery. Whether the pain is due to the surgery itself, or is a result of the malformation or syrinx, is not clear. While the neck dissection surgery is clearly more radical, decompression surgery does involve cutting and opening the muscles and post-decompression surgery pain is often described in similar terms as the pain in this study.

Either way, given the growing evidence that Botox can provide lasting relief for many different types of pain, for those who have been through surgery and are enduring chronic neck pain and spasms, it may be worth discussing the issue with your doctor.

Figure 1
Average Pain Scores During Study

syringomyelia (SM) - neurological condition where a fluid filled cyst forms in the spinal cord

trapezius - large, triangular muscle connecting the neck, back and shoulder

visual analog scale (VAS) - simple way to measure pain; the VAS uses a continuous line from 0 (no pain) to 10 (worst imaginable pain), the patient simply points or marks on the line to indicate their pain level

Source

Notes: Pain was measured using a simple Visual Analog Scale (0-10)

Vasan CW, Liu WC, Klussmann JP, Guntinas-Lichius O. Botulinum toxin type A for the treatment of chronic neck pain after neck dissection. Head Neck. 2004 Jan;26(1):39-45.

Time After Injection	Average Chronic Pain Score	Average Shooting Pain Score
Day 0	4.5	6.1
Day 7	4.1	5.4
Day 14	3.5	5.2
Day 21	3.4	4.8
Day 28	3.3	4.7