Botulinum Toxin as a Treatment for Tennis Elbow

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The full report is titled "Treatment of Lateral Epicondylitis with Botulinum Toxin. A Randomized, Double-Blind, Placebo-Controlled Trial." It is in the 6 December 2005 issue of *Annals of Internal Medicine* (volume 143, pages 793-797).
The authors are S.M. Wong, A.C.F. Hui, P.-Y. Tong, D.W.F. Poon, E. Yu, and L.K.S. Wong.

What is the problem and what is known about it so far?

Tennis elbow (lateral epicondylitis) is a frequent cause of elbow pain. Repetitive use of the arm, especially repeated extension of the wrist and elbow, causes strain and inflammation of muscles and tendons. These movements are common in many activities besides tennis. Commonly used treatments include nonsteroidal anti-inflammatory drugs, physical therapy, corticosteroid injections, and surgery. Researchers do not know if any of these therapies are really effective because tennis elbow eventually improves by itself. Botulinum toxin (which is often referred to by one of its brand names, "Botox") is another potential treatment. Botulinum toxin is a protein produced by bacteria that blocks conduction of nerve impulses. It may reduce pain by blocking the nerve impulses that cause painful muscle spasms. Small studies suggest that botulinum toxin is an effective treatment for tennis elbow, but the studies are not definitive.

Why did the researchers do this particular study?

To determine if botulinum toxin is an effective treatment for tennis elbow.

Who was studied?

60 adults who had tennis elbow for at least 3 months and who came to 2 large medical centers in Hong Kong for treatment.

How was the study done?

The researchers assigned patients at random to receive injections with botulinum toxin or saltwater placebo. They asked the patients to rate their pain before the injection and again 1 and 3 months after treatment. They measured handgrip strength at the same times. They then compared the measures in the 2 groups.

What did the researchers find?

Botulinum toxin significantly improved pain 1 and 3 months after treatment but made no difference in handgrip strength. The toxin appeared to cause weakness in the arms of 10 patients at 1 month; most patients were better at 3 months. Doctors confirmed actual loss of function in the fingers of 4 patients at 1 month and in 1 patient at 3 months.

What were the limitations of the study?

Many of the patients had severe cases of tennis elbow that lasted for many months. The findings might not apply to patients with less severe cases of the disorder. Accurate measures of the effect of treatments in a trial depend on patients not knowing which treatment they received. The patients in whom botulinum toxin caused weakness may have suspected that they received active treatment. As a result, they may have been more inclined to report improvements in pain.

What are the implications of the study?

Botulinum toxin appears to be effective for up to 3 months as a treatment for lateral epicondylitis, but it may cause weakness and loss of hand function in a very small number of people.