Botulinum Toxin Overrides Depression: Not Surprising, yet Sensational

Letter to the Editor:

In reporting that depressed people improve after botulinum toxin (BTx) injection, Finzi and Wasserman[1] have published a sensational proof of principle: facial muscles do not only express but also impress the human mind.

Some 5 years ago we have filed a patent application on treating depression with BTx (German Patent Office; 2001) and thought of this as literally *mind blowing* and radically innovative. Yet, the link between corrugator muscle activity (frowning) and emotional status has fascinated the scientific community for centuries: Charles Darwin was convinced that the corrugator muscle had a tremendous impact on emotional expression, which he considered a driving force for human evolution. He dedicated a whole book to his observation of "the expression of the emotions in man and animals." Photographs of intense facial expressions illustrated the book as a real novelty in scientific publishing at that time.[2]

In 1884 and 1885, respectively, William James and Carl Lange postulated that vasomotor reactions have a substantial impact on emotions.[3] Their concept of emotions, known as the James-Lange theory, implies that frowning is a facial reaction, which may generate negative emotions, such as sadness. In other words: the more we frown (for whatever reason), the more we experience sadness. In the 1970s, attempts have been made to measure frowning activity by electromyogram (EMG) of the corrugator muscles and correlate it with depression severity.[4]

We have studied the effect of BTx on emotional expression and found that corrugator muscle injection changed four basic emotions, significantly: BTx-treated faces expressed more happiness and less anger, fear, and sadness than untreated faces.[5]

Finzi and Wassermann[1] have now focused on treating patients suffering from depression. They report that only 2 months after BTx injection, 9 of 10 patients were no longer depressed. Even though we have anticipated beneficial effects of BTx to treat depression, we find this outcome truly sensational considering the highly complex and chronic nature of depression. The authors, as well as the affected patients, are to be congratulated on this favorable outcome. We would like to see such results replicated in a sufficiently large, randomized controlled trial, however, published in a peer-reviewed psychiatry journal.

References

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