

Research Assessment #2

Date: September 11, 2020

Subject: Botulinum toxin injection for facial wrinkles

MLA citation(s):

Small, Rebecca. "Botulinum toxin injection for facial wrinkles." *American family physician* vol. 90,3 (2014): 168-75.

Assessment:

There is an extremely high prevalence of the use of neuromodulators within facial plastic surgery. During my first ever mentor visit with Dr. Cain, I learned about each type of neuromodulator as well as how these injections work. After learning about the way they reduce wrinkles, I wanted to analyze their specific properties more in depth.

Within this article, the authors mention how blepharoptosis and brow ptosis are rare complications that may occur. This correlated directly to my very first research assessment during ISM 1. The brows are located on the frontalis muscle and when the muscle can no longer be held up, the brows tend to droop. This correlation allowed me to understand exactly why brow ptosis is a possible complication of botulinum toxin injection. Since these injections reduce the contraction of certain muscles, if it spreads to the frontalis muscle then the patient's eyebrows will lower. Furthermore, the mention of blepharoptosis was yet another complication related to muscles and was discussed in one of my mentor visits with Dr. Cain last year. The occurrence of blepharoptosis is attributed to the spread of injection towards the eye muscle, leading to lack in eyelid movement. This important distinction also reiterates the importance of a physician's knowledge of muscle and chemical composition within the face. Without proper knowledge, a

physician may increase the chances for the development of these complications. Furthermore, regarding physician knowledge, it is also crucial for the facial plastic surgeon to understand biological properties in order to effectively inject the botulinum toxin. For example, the article discusses how the docking protein is what makes the toxin limit the contraction of the muscles. Could this explain the crucial role of proteins in the facial muscle process? How does the toxin potentially denature and break the protein? Does the protein regenerate, if so, is that why these toxins are not permanent solutions?

One of the details in this article that stood out to me was the mentioning of making sure that the patient has realistic expectations and understands exactly what the toxin does. This point has not only been made in this article, but I've continuously seen it many times in other articles as well. I view this as such a crucial part of the patient to physician connection and communication process. Once a patient discusses a desired result, in order to maximize satisfaction, the facial plastic surgeon must accurately convey the results to the patient in a manner that is successful. If the patient has unrealistic expectations, then there may be disappointment on one end of the relationship. This also can relate back to the impact of social media in facial plastic surgery. Due to the prevalence of these social media forms, the unrealistic expectations that patient's have is heightened and there is more risk for unsatisfactory procedures if the physician does not communicate with the patient. Therefore, when a physician facilitates good communication and emphasizes realistic expectations, the beneficial impact of the procedure can go beyond just the physical improvement.