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ONABOTULINUMTOXINA EFFECTS ON CUTANEOUS ALLODYNIA IN CHRONIC MIGRAINE

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Migraine is one of the most prevalent diseases worldwide, yet it has a high rate of disability. Chronic migraine disorder is a complex, progressive headache disorder affecting approximately 1.3-2% of the general adult population (1). According to The International Classification of Headache Disorders, chronic migraine is defined as greater than or equal to 15 days each month in which a patient has a headache (2). Chronic migraine has a significant impact on quality of life and disability, and is associated with increased depression, anxiety, insomnia and fatigue (1). Various studies have shown that OnabotulinumtoxinA therapy is an effective form of treatment for patients suffering from chronic migraine. Although proven to be a beneficial treatment for chronic migraine, more research is needed on its physiological effects pertaining to chronic migraine disorder, in order to understand the mechanisms of its efficacy.

Cutaneous allodynia (CA) is skin pain provoked by non-noxious stimuli. Cutaneous allodynia is a very common symptom of patients suffering from chronic migraine. CA can be assessed by patient questionnaire, and by use of quantitative mechanical sensory testing (e.g. von Frey Hair testing), which is performed by skin contact with varying degrees of pressure in order to assess at which levels pain vs. non-painful touch sensations are felt. Our clinical experience suggests that chronic migraine patients with CA may respond better to OnabotulinumtoxinA therapy than those without CA. We aim to test the effect of 2-3 cycles of OnabotulinumtoxinA on interictal mechanical pain thresholds and allodynia symptom severity in chronic migraine patients.

We hypothesize that OnabotulinumtoxinA “responders” will show reduced allodynia symptom severity and increased mechanical pain thresholds (reduced sensitivity to cutaneous mechanical stimulation as pain), compared to baseline pre-OnabotulinumtoxinA therapy assessments. We expect that OnabotulinumtoxinA “non-responders” will not have significant change in allodynia symptoms or pain thresholds. We also expect that “non-responders” may have lower baseline allodynia symptom severity compared to “responders.”

References

(1) Neurol Sci. 2016 Jun; 37(6):987-9. Fatigue, sleep-wake pattern, depressive and anxiety symptoms and body-mass index: analysis in a sample of episodic and chronic migraine patients. Lucchesi C[1], Baldacci F, Cafalli M, Dini E, Giampietri L, Siciliano G, Gori S.

(2) Cephalalgia. 2011 Jan;31(1):6-12. doi: 10.1177/0333102410365108. Epub 2010 Apr 7. Episodic and chronic migraineurs are hypersensitive to thermal stimuli between migraine attacks .Schwedt TJ, Krauss MJ, Frey K, Gereau RW.