

Botulinum Toxin Type A Infiltration for Primary Headache Syndrome Post-Intracerebral Hemorrhage. A Case Report.



Melissa A. Burgos-Mártir MD, Anabel Jiménez-Figueroa MD, Keryl Motta-Valencia MD
 Veterans Affairs Caribbean Healthcare System, San Juan, PR
 Department of Physical Medicine and Rehabilitation

INTRODUCTION

- Botulinum Toxin (BT) Type A FDA approved Indications/Usage: Prophylactic therapy for chronic migraine headache.
- Literature review is scarce regarding the exact mechanism of headache pain after intracerebral hemorrhage (ICH). Potential suggested mechanisms: Inflammatory byproducts of hemolysis with resulting meningeal irritation and central pain sensitization mediated by NMDA receptors causing hyperalgesia. Symptoms are usually self-limiting, improving within a year.

Significance: We present the distinctive case of a female patient with refractory primary headache syndrome post-ICH (for more than two years after event) and the care plan instituted using Botulinum Toxin Type A.

CASE DESCRIPTION

Case of a 61 y/o G0P0A0 female patient with medical history of right intracerebellar / posterior fossa subarachnoid hemorrhage (of undetermined etiology; conservative treatment) with persisting refractory headache for the past two years prior to our evaluation.

Patient continued with moderate-severe pain intensity and was unable to attain satisfactory pain control despite multiple medication trials (Fioricet, Amitriptyline, Topiramate, Sumatriptan, Divalproex, Dologesic, Gabapentin, Cymbalta and Milgram). Given the failure to multiple class/category drugs, for their abortive / prophylactic treatment role for headache, we proceeded with Botulinum Toxin Type A trial, with the goal of adjuvant treatment.

The BT solution was reconstituted with 0.9% preservative free normal saline to a concentration of 100 units/mL. Treatment timeline:

CASE DESCRIPTION

- 3rd Procedure**
 - Muscles: Procerus, Corrugator, Frontalis, Temporalis, Occipitalis, Upper Trapezius*, Masseter* and Orbicularis Oculi*
 - *Additional muscles included in view of Ocular / temporomandibular component (Figure 3)
 - Result: Resolution of temporomandibular component
- 4th Procedure**
 - Muscles: Procerus, Corrugator, Frontalis, Temporalis, Occipitalis, Upper Trapezius* and Orbicularis Oculi*
 - *Additional muscles included in view of Ocular component (Figure 4)
- 5th Procedure**
 - Muscles: Procerus, Corrugator, Frontalis, Temporalis, Occipitalis, Upper Trapezius* and Orbicularis Oculi*
 - *Additional muscles included in view of Ocular component (Figure 4)
 - Results: Resolution of ocular component
- 6th Procedure**
 - Muscles: Procerus, Corrugator, Frontalis, Temporalis and Occipitalis (Figure 1)

Assessment/Results

- Botulinum Toxin Type A Infiltration lead to satisfactory and sustained relief of a severe and refractory headache syndrome post-ICH.
- Infiltrations discontinued once symptoms stabilized sufficiently to be responsive to complementary and alternative options for pain management.

DISCUSSION

- This is the first reported case, to our knowledge, of Botulinum Toxin Type A infiltration used to efficiently treat primary headache syndrome post-ICH.
- Over the treatment course, progressive modulation of headache pain qualities and area of distribution also noted (Table/Figures); making toxin the primary treatment (reduction in intensity, ER visits and simplification of medications); suspected effect of neurotoxin treatment.

Conclusion

- Although Botulinum Toxin has been established with good response to treat headache syndromes (chronic headache / migraine), no reports are found regarding its use for post-ICH headache management.
- While post-ICH headache is related to known and proposed pain pathways caused by cortical and meningeal irritation in the presence of blood which literature suggest a natural recovery (which may be viewed as unrelated to BT mechanism of action); with this case, longstanding post-ICH headache of severe and refractory qualities was successfully managed with neurotoxin. It is proposed that additional underlying pain pathways responsive to neurotoxins are likely contributory to post-ICH headache, which should be further explored for optimization of treatment strategies.

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- Initial**
 - Muscles: Procerus, Corrugator, Frontalis, Temporalis, Occipitalis, Cervical Paraspinals* and Upper Trapezius*
 - *Additional muscles included in view of cervicogenic component (Figure 2)
 - Result: Good therapeutic response (decreased pain intensity, resolution of cervicgia and decreased ER visits) confirming responder status
- 2nd Procedure**
 - Muscles: Procerus, Corrugator, Frontalis, Temporalis, Occipitalis (Standard Infiltration Protocol for chronic migraine headache; Figure 1)
 - Results: Improvement of headache symptoms allowed identification of other pain focus

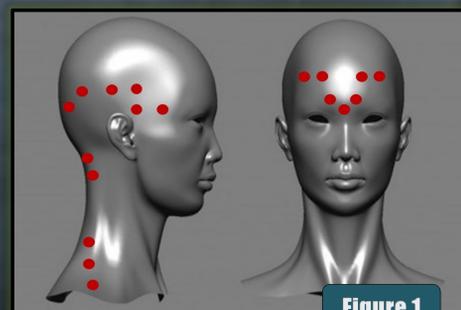


Figure 1

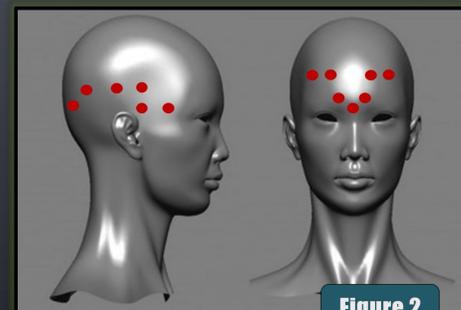


Figure 2

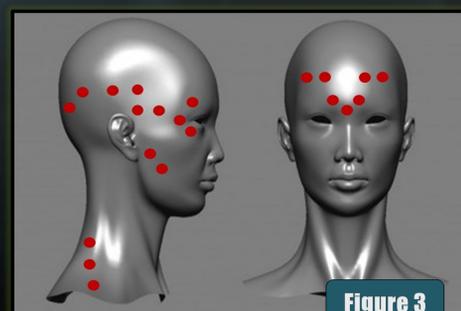


Figure 3

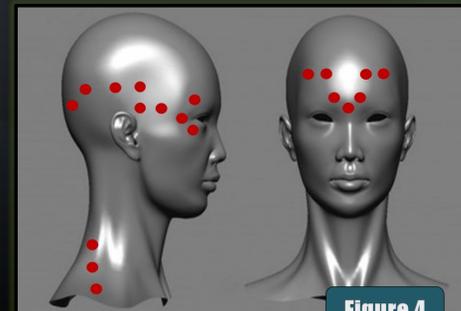


Figure 4