



## Treatment of chronic migraine with long-term botulinum toxin: influence of non-pharmacological measures

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### Introduction

Botulinum toxin has proven to be a highly effective treatment for chronic migraine, although individual responses can be influenced by various factors, particularly non-pharmacological measures.

### Objective

Report a case of long-term application of botulinum toxin for chronic migraine accompanied in a public health tertiary center with best response after optimization of non-pharmacological treatment.

### Case report

A 36-year woman with chronic migraine was first evaluated in our center in 2012. At that time, various pharmacologic prophylactic classes were tried, but she remained refractory. Following the PREEMPT protocol, botulinum toxin treatment was initiated, starting with the first session in November 2012, which resulted in a 50% reduction in headache days. Over the course of 34 sessions, administered at intervals ranging from 12 to 40 weeks, she experienced benefits lasting 1.5 to 2 months per session, with gradually new worsening of headaches after this period, attributed to factors such as excessive use of analgesics, psychiatric comorbidities, and extended intervals between injections during the pandemic. Medications were adjusted and occasionally peripheral nerve blocks were performed. Adverse effects were minimal, consisting mainly of transient local pain and cervical discomfort following a single session. Before the 33th session, she started on physical activities, with longer duration response (3,5 months). In the 34th session, she had intensified physical activities due to recent diabetes diagnosis. Four months later, she had a pain-free period of 3 months, with pain return in low frequency (once a week), promptly resolved after changing use of atenolol to propranolol. In the later sessions, she was also being adequately treated for psychiatric and sleep disorders, and the protocol was interrupted.

### Conclusion

Real world studies have shown long-term efficacy and safety of botulinum toxin in chronic migraine. In this case, response to injections was influenced by excessive use of analgesic and uncontrolled psychiatric and sleep disorders, and it was decided to maintain the protocol for a long time. However, sustained response was observed only after a regular physical activity planning, illustrating how the non-pharmacological treatment can drastically affect the individual response to botulinum toxin, even in refractory cases with multiple applications.