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Samantha Ryan
Wayne State University, fh3583@wayne.edu

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Baclofen as a helpful alternative in treatment of painful paroxysmal attacks from trigeminal neuralgia

SAMANTHA RYAN, Wayne State University School of Medicine, fh3583@wayne.edu

ABSTRACT A clinical decision report using:

Fromm GH, Terrance CF, Chattha AS. Baclofen in the treatment of trigeminal neuralgia: double-blind study and long-term follow-up. *Ann Neurol*. 1984;15(3):240. https://doi.org/10.1002/ana.410150306

for a patient with paroxysmal attacks from trigeminal neuralgia who is unable to take carbamazepine.

Keywords: *baclofen, trigeminal neuralgia, paroxysms, carbamazepine*

Clinical-Social Context

Shirley Gentles [pseudonym] is a sharp 89-year-old white female with a past medical history of hypertension, hyperlipidemia, depression, trigeminal neuralgia, and GERD who presented to the Emergency Department from her cardiologist office for new onset atrial fibrillation with rapid ventricular response. She mentioned that she had been experiencing new palpitations for one week before deciding to see her specialist. While in the hospital, Mrs. Gentles was treated with intravenous diltiazem and heparin for her persistent atrial fibrillation and was eventually converted back to normal sinus rhythm. Subsequently, Mrs. Gentles was started on apixaban for anticoagulation. Unfortunately, this ultimately resulted in the need to discontinue her carbamazepine due to its pharmacological contraindication with apixaban. Mrs. Gentles felt extremely distressed about being taken off this medication because of the success she had in the reduction of the painful paroxysmal attacks that resulted from her trigeminal neuralgia. She also felt opposed to trying new medications to treat this condition because of how she felt she did not have much time in her life to be relying on a lengthy road of trial and error when she knew that carbamazepine worked well for her.

While the healthcare team was trying to discuss alternatives with Mrs. Gentles, she brought up the question of whether she could be placed on baclofen because of a prior unrelated experience that she had with the medication. She mentioned that before she was prescribed carbamazepine for her trigeminal neuralgia, she had been on baclofen for a few years for back spasms that resulted from a motor vehicle accident. She said that while she was still taking baclofen, she felt that her trigeminal neuralgia was well managed. When asked why she stopped baclofen, she said that her back spasms ultimately resolved with the help of physical therapy and regular visits to a chiropractor. Mrs. Gentles did ask whether the facial tic relief from baclofen could have been a placebo effect, but she was more curious if it could be an actual alternative in her predicament.

SAMANTHA RYAN, is a medical student at the Wayne State University School of Medicine.

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Clinical Question

Can baclofen successfully be used in reducing painful paroxysmal attacks resulting from trigeminal neuralgia?

Research Article

Fromm GH, Terrance CF, Chattha AS. Baclofen in the treatment of trigeminal neuralgia: double-blind study and long-term follow-up. *Ann Neurol*. 1984;15(3):240. https://doi.org/10.1002/ana.410150306 [1]

Description of Related Literature

The initial search was completed on PubMed using the keywords “baclofen” and “trigeminal neuralgia”. This brought up 108 results. To narrow down the number of articles, the parameters included only randomized control trials. This resulted in 1 article. Because there was only 1 article that fit under these parameters, the parameters were changed to include clinical trials. This resulted in 5 additional articles. Lastly, Google Scholar was utilized to assess any “related articles” to the articles of interest to guarantee that any other pertinent studies were not missed. Two articles were found, one of which was a pilot study that preceded one of the clinical trials found on PubMed.

Zakrzewska et al. conducted a clinical trial to evaluate the long-term outcome in patients with trigeminal neuralgia who were first treated with oxcarbazepine and then consequently with surgery.[2] Additionally, Fromm et al. completed a randomized control trial and Vilming et al. completed a clinical trial to study the tolerability and efficacy of tizanidine when compared to carbamazepine in the management of trigeminal neuralgia.[3,4] While all three of these studies briefly mentioned the similarities between the properties of baclofen to either oxcarbazepine or tizanidine, baclofen was not administered to subjects and was not specifically studied in these trials.

Pamar et al. administered a clinical trial of baclofen on 20 patients with trigeminal neuralgia.[5] Although the article appeared to have potential value in understanding whether baclofen had usefulness in minimizing paroxysms that result from trigeminal neuralgia, the article lacked accessibility to view its study.

Fromm et al. compared L-baclofen to racemic baclofen in the treatment of trigeminal neuralgia.[6] While it was an interesting study that compared the effectiveness and tolerance of L-baclofen and racemic baclofen, baclofen is only available to the public in racemic mixtures and is therefore out of the scope of our clinical question.

Steardo et al. executed clinical trials of baclofen on subjects that suffered from various conditions such as trigeminal neuralgia, Tabes dorsalis, post-herpetic neuralgia, and post-arachnoid radiculitis.[7] Although there may be benefits in exploring which condition baclofen is most effective in reducing pain, we were solely interested in its effectiveness in trigeminal neuralgia and whether it would reduce paroxysms.

Fromm et al. administered an open clinical trial where 14 subjects with refractory trigeminal neuralgia were given baclofen to access whether there was reduction in the recurrence of paroxysmal attacks.[8] While the sample size was small and it lacked a double-blind aspect, it served as the experimental model to propel further research with the same authors. One of these studies conducted contained both a single-crossover double blind study of baclofen on 10 patients with trigeminal neuralgia and an open trial on an additional 50 patients with the same condition.[1] Researchers specifically focused on whether baclofen decreased the number of painful paroxysms and oversaw long-term follow-up on both groups. These factors made this study the best candidate for critical appraisal. Due to having a moderate sample size of 60 subjects total but being a clinical trial as opposed to randomized control trial, this study can be considered at most a Grade-B Strength of Recommendation based upon SORT criteria.[9]

Critical Appraisal

Fromm et al. administered two clinical trials: a single-crossover double-blind study of 10 patients with typical trigeminal neuralgia and an open trial of 50 patients with trigeminal neuralgia who were either refractory to the maximum dose of carbamazepine or

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suffered unwanted side effects from carbamazepine.[1] According to SORT criteria, the SORT Grade of Recommendation for Baclofen in the treatment of trigeminal neuralgia is B based on small studies, many of which were not randomized.[9]

Selection bias in this study could not be ruled out because the specifics in recruiting of subjects was not discussed. Additionally, since the participants in the open trial of the study were not blinded like those in the double-blind portion of the study, it cannot be ruled out that bias could have occurred with patients who may have been overly optimistic or even overly pessimistic over whether baclofen would prove useful in treating their illness. There was also publication bias, as the study was not registered on ClinicalTrials.gov.

There were some similarities and differences between the subject population that took part in these clinical trials. Both trials included women but the oldest subject to participate in the single-crossover trial was 78 years old and the oldest subject to participate in the open trial was 86 years old.

Regarding the study protocol, there were two portions of the study. In the first portion, 10 patients with typical trigeminal neuralgia participated in a single-crossover, double blind study. The ages of the patients, the duration of their illness, and concomitant medications were recorded. During the first visit, the average daily frequency of their paroxysmal attacks in the previous week was recorded. In phase A, subjects were given identical appearing tablets that were either a placebo or 10 mg of baclofen for one week. The initial dosage of baclofen was 10 mg three times per day which was then increased by 10 mg per day every other day. In phase B, subjects were given the other tablet (baclofen or placebo) for an additional week. When phase B was completed, the code was broken and the patients for whom baclofen had been effective in reducing paroxysms, continued to take it. Through each phase, the average number of paroxysmal attacks per day was calculated and evaluated by student t test. In the second portion of the study, 50 additional subjects with typical trigeminal neuralgia participated in an open study where they were given 10 mg of baclofen three times a day. The dosage of baclofen was increased by 10 mg a day every other day to a range of 60 to 80 mg a day in three or four divided doses by the end of the second week. Just as in the other portion of the study, the average number of paroxysmal attacks per day was calculated. They were then evaluated by a student t test and a chi-square test. 6 of the 50 patients in the open trial had to drop out due to inability to tolerate side effects from baclofen.

Results of the first portion of the study (double-blind single-crossover) found that baclofen had significantly reduced the frequency of paroxysmal attacks in 7 subjects. The second portion of the study (open trial) found that 37 of the 50 subjects had a reduction in the severity and frequency of paroxysmal attacks. 13 subjects (2 from the first portion and 11 from the second portion) became refractory to baclofen during the long-term follow up of the trial (range of 1 to 5 years) and opted for decompression of the trigeminal nerve or injection of glycerol into the trigeminal cistern.

One of the largest criticisms with this article is that there were a select few subjects in the single-crossover double-blind study and the open trial that were still taking carbamazepine or taking another concomitant medication to treat paroxysms. This not only reduces the validity of the study, but it also deviates from Mrs. Gentles' inability to take carbamazepine or the fact that she is not currently on another medication to treat her trigeminal neuralgia.

The results of the clinical trial did suggest that baclofen was not as effective as first-line carbamazepine in decreasing the number of paroxysms in trigeminal neuralgia. While this was not the focus of our clinical question, there is value in the transparency of admitting that baclofen may not be a better option than the primary treatment of the condition, as this is an important aspect of discussion that we wanted to have with Mrs. Gentles.

While there are some clear issues with this study which make baclofen a questionable second-line medication for the standard trigeminal neuralgia patient, the fact that there were subjects who continued to be on baclofen because of its effectiveness in reducing paroxysms shows there is possible potential for baclofen to be a helpful alternative to carbamazepine for someone like Mrs. Gentles who believes that she may have benefited from the medication in the past.

Clinical Application

According to our findings, clinical trials have shown that baclofen has provided some patients with relief for the paroxysms that result from trigeminal neuralgia. Not only did we discuss this with Mrs. Gentles, but we also included the neurology team and consulted them on the possibility of having Mrs. Gentles switch to baclofen

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based on a combination of our findings, her personal experience with the medication, and current guidelines. They ultimately decided that she could be started on baclofen and that they would closely monitor her progress in their outpatient neurology clinic. This decision brought much peace of mind to our patient. In the future, we would like to see more extensive studies on baclofen in treating trigeminal neuralgia, particularly ones that are random controlled blind trials that access patients over long periods of time.

New Knowledge Related to Clinical Decision Science

This clinical decision was made after listening to the life experiences of an 89-year-old patient. The patient herself presented the clinical question which had been unforeseen by her physicians. This case demonstrates that listening is a prerequisite for clinical decision making. It also teaches us that patients can enlighten providers on what might be the best decision for them. This means that is it our duty to use our independent judgement and to evaluate the literature to ensure that a patient's request is reasonable and within our means.

Additionally, it is important to note that paroxysms in trigeminal neuralgia are often very debilitating for those who are afflicted with the disease. While carbamazepine is considered the first-line treatment, not all patients are able to take the medication and must turn towards other alternatives. This was the case for Mrs. Gentles, who wanted to know if a medication she had already tried in the past for a different condition would be helpful in combating her paroxysms. As mentioned previously, to ensure that we were abiding by our duty as healthcare providers, we had to establish that we did a thorough search of studies to see whether this was the best choice for our individual patient and her circumstances.

Conflict Of Interest Statement

The author declares no conflicts of interest.

References

1. Fromm GH, Terrance CF, Chattha AS. Baclofen in the treatment of trigeminal neuralgia: double-blind study and long-term follow-up. *Ann Neurol.* 1984;15(3):240. https://doi.org/10.1002/ana.410150306
2. Zakrzewska JM, Patsalos PN. Long-term cohort study comparing medical (oxcarbazepine) and surgical management of intractable trigeminal neuralgia. *Pain*. 2002;95(3):258-266. https://doi.org/10.1016/S0304-3959(01)00406-7
3. Fromm GH, Aumentado D, Terrence CF. A clinical and experimental investigation of the effects of tizanidine in trigeminal neuralgia. *Pain*. 1993;53(3):265-271. https://doi.org/10.1016/0304-3959(93)90222-B
4. Vilming ST, Lyberg T, Lataste X. Tizanidine in the management of trigeminal neuralgia. *Cephalalgia*. 1986;6(3):181-182. https://doi.org/10.1046/j.1468-2982.1986.0603181.x
5. Pamar BS, Shah KH, Gandhi IC. Baclofen in trigeminal neuralgia -- a clinical trial. *Indian J Dent Res*. 1989;1(4):109-113.
6. Fromm GH, Terrence CF. Comparison of L-baclofen and racemic baclofen in trigeminal neuralgia. *Neurology*. 1987;37(11):1725-1728. https://doi.org/10.1212/wnl.37.11.1725
7. Steardo L, Leo A, Marano E. Efficacy of baclofen in trigeminal neuralgia and some other painful conditions. A clinical trial. *Eur Neurol*. 1984;23(1):51-55. https://doi.org/10.1159/000115677
8. Fromm GH, Terrence CF, Chattha AS, Glass JD. Baclofen in Trigeminal Neuralgia Its Effect on the Spinal Trigeminal Nucleus: A Pilot Study. *Arch Neurol*. 1980;37(12):768-771. https://doi.org/10.1001/archneur.1980.00500610048007
9. Ebell MH, Siwek J, Weiss BD, et al. Strength of Recommendation Taxonomy (SORT): A patient-centered approach to grading evidence in the medical literature. *J Am Board Fam Pract*. 2004;17(1):59-67. https://doi.org/10.3122/jabfm.17.1.59

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