# Durability of neurosurgical intervention for trigeminal neuralgia: evidence from a validated measure of pain and daily function at long-term follow-up

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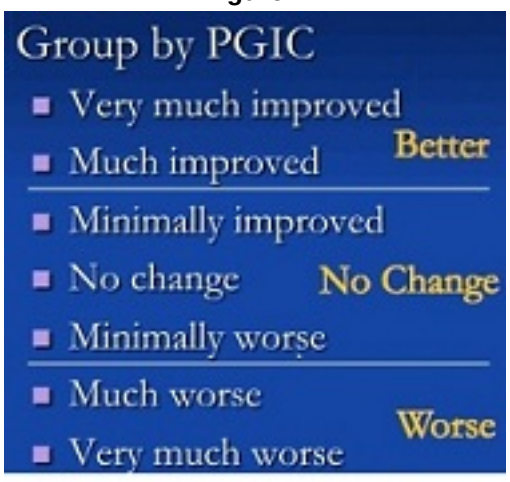
## Introduction

Treatment for medically refractory trigeminal neuralgia (TN) ranges from conservative to neurosurgical intervention. The Brief Pain Inventory (BPI)-Facial was applied here in both short- and long-term follow-up to assess these treatments' outcomes. The BPI scores were utilized to calculate the minimal clinically important difference (MCID) in order to evaluate if treatments provide a significant clinical change. A statistical difference may not necessarily be a significant clinical change. Therefore, this study aims to find the statistical difference that equates to a clinical significance.

### The Brief Pain Inventory-Facial (BPI-F) consists of:

- 0-10 Numerical Rating Scale for Pain Severity
- 0-10 General Interference Scale
- 0-10 Facial-Specific Interference Scale

**Figure 1**




Patient Global Impression of Change (PGIC) Designation of the groups of patients who are better, no change, or worse since their baseline visit

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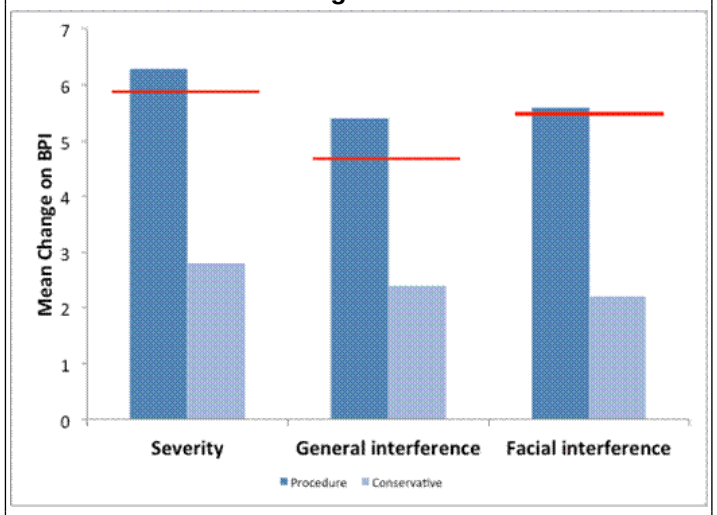
## Methods

An IRB-approved retrospective chart review is planned for 576 patients evaluated by the senior author (JYKL) for possible neurosurgical intervention (2006-2011). Procedures included microvascular decompression (MVD) and gamma knife radiosurgery (GKS). As of 08/06/12, the BPI-Facial has been administered to and analyzed for 66 TN patients at their baseline visit, at the post-procedural visit (if underwent procedure), and at the long-term follow-up (mean 5.07 years) by telephone. The MCID was calculated by using the Patient Global Impression of Change (PGIC). The mean change in the BPI scores for the baseline to long-term follow-up was calculated for the group of patients that rated better on the PGIC (see Figure 1). The mean change score represents the MCID, the threshold improvement for what patients perceive as improvement. Patients with multiple procedures and those with incomplete questionnaires were excluded from the study.

**Figure 2**




Threshold MCID values for each section of the BPI-facial

## Results

Patients that underwent neurosurgical intervention (N=29; GK=20 and MVD=9) and those that were treated conservatively (N=37) had equivalent baseline pain scores. The mean change scores for each section of the BPI-f can be seen in Figure 3. Of the intervention patients, 52% reach general interference MCID, 52% reach facial interference MCID, and 66% reach pain severity MCID. For conservative patients, 30% reach the general interference MCID, 11% reach facial interference MCID, and 28% reach pain severity MCID. Refer to Figure 2.

**Figure 3**

| Mean BPI *change* | Severity (at its worst) | General Interference | Facial Interference |
|---|---|---|---|
| Better | 5.9 | 4.7 | 5.5 |
| No Change | 3.0 | 3.1 | 2.4 |
| Worse | 0.2 | 1.8 | 0.9 |

Mean change scores for each section on the BPI-f for patients categorized by the PGIC

## Conclusions

Preliminary findings indicate that neurosurgical intervention for TN provides a clinically significant change that is perceived as improvement by patients. There are a greater number of intervention patients that reach the MCID threshold than those who had conservative therapy. Therefore showing that neurosurgical intervention for TN is efficacious and durable. Future work encompassing the entire cohort will better delineate these relative outcomes and allow for more procedure-specific comparisons.