

# Dorsal Root Ganglion Stimulators at a Military Treatment Facility (MTF): Self-reported Opioid Use and Disability at 3 Month Follow-Up

Gabriel Kim, MD, MSE;<sup>1</sup> Connie Kurihara, RN; Edward Park, MD;<sup>1</sup> Melanie Johansson, MD;<sup>1</sup> Christopher Spevak, MD, JD;<sup>1</sup> David Reece, DO;<sup>1</sup> Laura Wandner, PhD<sup>1,2</sup>

Affiliations: <sup>1</sup>Walter Reed National Military Medical Center; <sup>2</sup>National Institute of Neurological Disorders and Stroke (NINDS/NIH)

**Disclaimer:** The views expressed in this poster are those of the authors and do not reflect the official policy of the Department of Army/Navy/Air Force, Department of Defense, or the U.S. Government.

## INTRODUCTION

- Dorsal root ganglion (DRG) stimulator is a novel neuromodulation technique utilized for chronic neuropathic pain associated with complex regional pain syndrome (CRPS) and/or peripheral causalgia in the groin and lower limb.
- CRPS may be characterized by continuing regional pain, allodynia, and hyperalgesia, and may have abnormal sensory motor, vasomotor, and trophic findings.
- CRPS is associated with sleep disturbance, functional impairment, and suicidal ideation.
- In light of the opioid epidemic, it's important to understand how patients are using opioids and how pain impacts function and quality of life (QOL).
- The objective of this quality improvement project was to determine whether self-reported opioid use and perceived disability changed in patients with DRG stimulators at 3-month follow-up.

## METHODS

- SCS Cohort at an MTF includes patients who completed a DRG stimulator trial and permanent implant in 2018-2020.
- This project examined the DRG stimulator sub-sample of the Cohort: patients for whom we had demographics data (N=21), baseline and 3-month follow-up data on self-reported opioid use (N=11) and disability assessment (N=9).
- Frequency was calculated for demographic data (age, work status, diagnosis, and neuropathic component).
- Paired samples t-test was performed for opioid use and disability at baseline and 3 month follow up.

TABLE 1. DEMOGRAPHIC DATA (SUBSET)

Service		
	Frequency	Percent
Army	3	14.3
Navy	5	23.8
Marine	3	14.3
Airforce	7	33.3
None	3	14.3
Total	21	100.0

Work Status		
	Frequency	Percent
Active Duty	10	47.6
Retired	8	38.1
Dependent	3	14.3
Total	21	100.0

Diagnosis		
	Frequency	Percent
Complex Regional Pain Syndrome	8	38.1
Groin pain	4	19.0
Ilioinguinal Nerve Entrapment	1	4.8
Low Back Pain	1	4.8
Neuropathy	3	14.3
FBSS	1	4.8
Pain in knee	1	4.8
Pelvic pain	2	9.5
Total	21	100.0

FIGURE 1. OPIOID USE

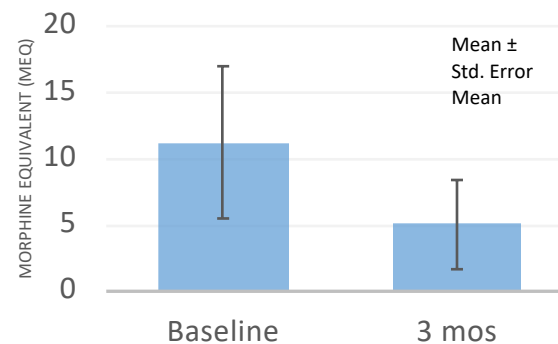
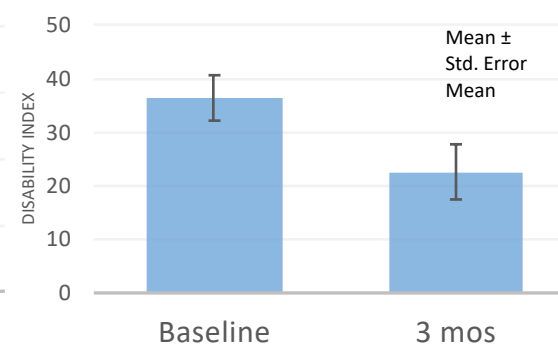


FIGURE 2. DISABILITY



## RESULTS

- Majority of patients were male (61.9%), active duty (47.6%), and were experiencing a neuropathic component to their pain (81.0%).
- Mean age was approximately 45.9 years.
- Top 3 diagnoses are CRPS, groin pain, and neuropathy.
- Patients had a reduction in morphine equivalent (MEQ) from baseline (mean=11.24, SD=19.05) to 3-months (mean=5.03, SD=11.17).
  - Paired samples t-test found this difference approached statistical significance,  $t(10)=1.79$ ,  $p=0.103$ .
- Results also suggest a reduction in perceived disability from baseline (mean=36.33, SD=12.70) to 3-months (mean=22.56, SD=15.42).
  - Paired samples t-test found this difference approached statistical significance,  $t(8)=1.89$ ,  $p=0.095$ .
- None of the patients had explant of their DRG stimulators.

## CONCLUSION

- Preliminary analyses suggest that patients who underwent DRG stimulation may have a reduction in MEQ and perceived disability at 3-months post-implantation.
- The differences were not statistically significant. However, this may be attributed to the infrequent use of DRG stimulation.
- These findings may suggest that DRG stimulator implantation could be an important tool in combating the opioid epidemic and improving the patient's QOL within the military healthcare system.
- More robust data collection is necessary to determine the effectiveness of DRG stimulators.