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Retrospective review of real-world outcomes following 60-day PNS of the cervical medial branch nerves

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Background

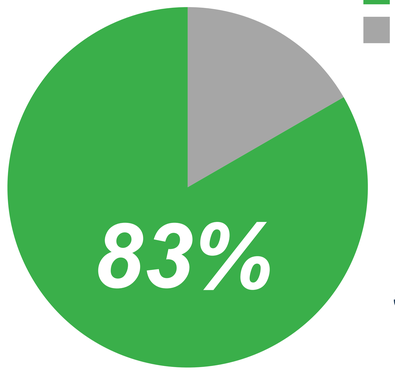
- Axial neck pain is prevalent and often debilitating.[1-3]
- Conventional treatment options commonly lack efficacy or are neurodestructive.[1,4,5]
- 60-day percutaneous PNS targeting the cervical medial branch (CMB) nerves is a potential non-destructive treatment for axial neck pain.
- The present work is a retrospective review of real-world outcomes from patients receiving a commercial 60-day PNS treatment targeting CMB nerves.

Methods

- Anonymized records reviewed from a national real-world database of patients who:
  - i. Previously underwent commercial implantation of 60-day PNS leads targeting cervical medial branch
  - ii. Opted in to provide data to the device manufacturer
  - iii. Baseline and end of treatment outcomes available
- Outcomes summarized at end of treatment (EOT)
- Responders = substantial (≥50%) pain relief and/or clinically significant improvement in quality of life as measured by the Patient Global Impression of Change (PGIC)

Results & Discussion

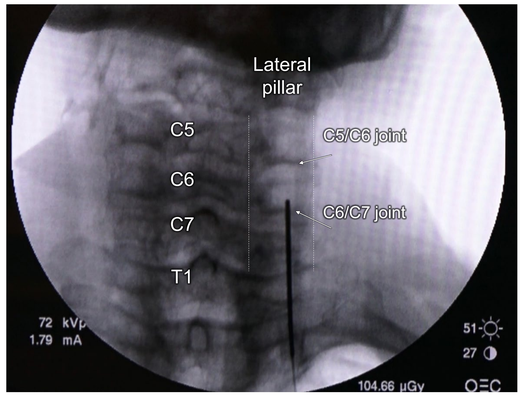
83% (25/30) of patients were responders at the end of treatment.



Responders had ≥50% pain relief and/or clinically significant improvement in quality of life

53% *Average pain relief experienced by responders*

Example fluoro-guided approach to the cervical medial branch nerves

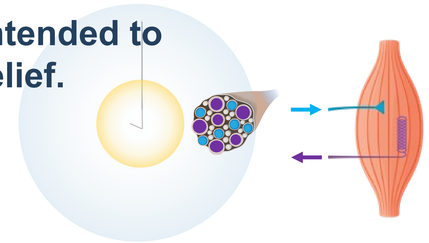


Example fluoroscopic image showing AP view with stimulating probe targeting medial branch over lateral lamina of C6

- While safety was not directly analyzed here, published studies indicate the most common events are skin irritation due to adhesive bandages, pain or discomfort due to stimulation, and pain due to the lead placement procedure.

Stimulation targeting efferent fibers in the cervical medial branch nerves is intended to produce comfortable, cycling tension in core cervical musculature for pain relief.

- Stimulation of efferent motor fibers (blue) induces muscle tension, activating proprioceptive afferent sensory fibers (purple) in response to stretch & tension
- Afferent messaging to cortex has been theorized to engage central mechanisms to provide sustained pain relief[6]



Conclusions

- Sixty-day peripheral nerve stimulation treatment targeting the cervical medial branch nerves produced significant improvements in pain and/or quality of life in a majority of patients.
- This real-world evidence suggests that a 60-day PNS treatment targeting the cervical medial branches is a promising, non-destructive option for axial neck pain.

References

1. Douglass and Bope 2004; 2. Cote et al., 1998; 3. Rao 2002; 4. Carragee et al., 2009; 5. Cohen and Hooten, 2017; 6. Deer et al., 2021

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