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Real-world evidence of significant pain relief following 60-day stimulation of occipital nerves for the treatment of chronic pain

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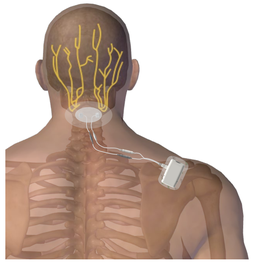
Background



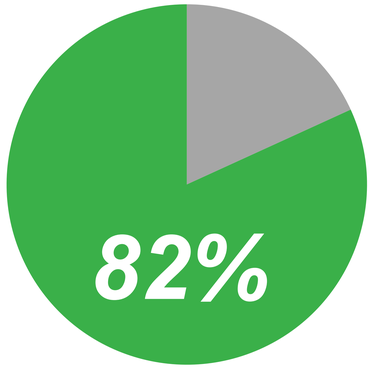
- Headache pain in the occipital region (e.g., cervicogenic headache, occipital neuralgia) is prevalent and often debilitating.[1-4]
- Conventional treatment options commonly lack efficacy or are neurodestructive.[4-6]
- 60-day percutaneous PNS targeting the occipital nerves is a potential non-destructive treatment for headache pain.
- The present work is a retrospective review of real-world outcomes from patients receiving a commercial 60-day PNS treatment targeting occipital 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 occipital nerves
  - ii. Opted in to provide data to the device manufacturer
  - iii. Had 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

82% (36/44) of patients were responders at the end of treatment.

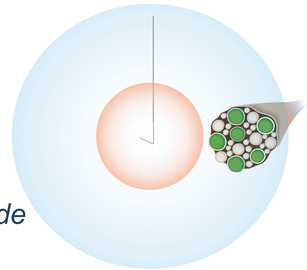


Responders had ≥50% pain relief and/or clinically significant improvement in quality of life

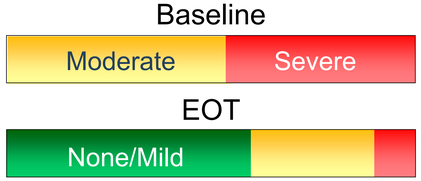
60% *Average pain relief experienced by responders*

Stimulation is intended to produce comfortable sensations in the distribution of the occipital nerve.

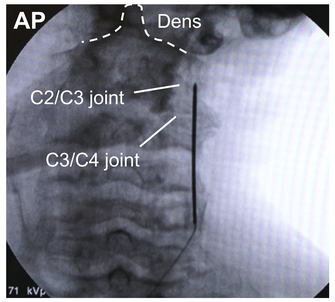
Afferent messaging to the cortex has been theorized to engage central mechanisms to provide sustained pain relief.[8]

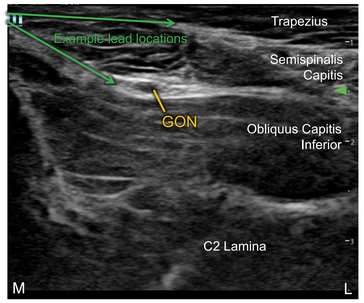


Average pain score was reduced to none or mild in a majority of patients.



Cut points[7]:
None/Mild (NRS ≤3)
Moderate (NRS 4-6)
Severe (NRS ≥7)





- The occipital nerves can be targeted with various approaches under ultrasound or fluoroscopy. Images show different example approaches to the greater and/or third occipital nerves at the level of C2.
- 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.

Conclusions

- Sixty-day peripheral nerve stimulation treatment targeting the occipital nerves produced significant improvements in pain and/or quality of life a majority of patients.
- This real-world evidence highlights the potential role for a temporary, 60-day PNS treatment for disabling pain conditions in the occipital region.

References

1. Sjaastad et al., 2008; 2. Jensen et al., 2008; 3. Verma et al., 2021; 4. Barmherzig, 2019; 5. Fernandez et al., 2020; 6. Watanabe et al., 2012; 7. Woo et al., 2015; 8. Deer at al., 2021

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