

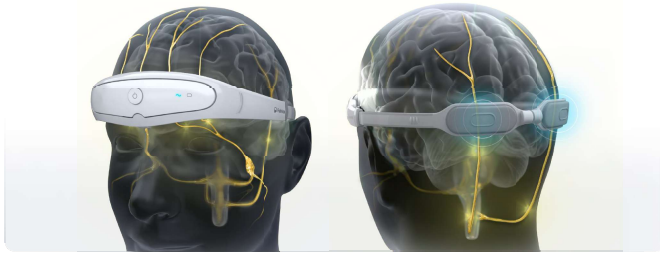
A Novel Home-Based, Physician-Supervised Brain Neuromodulation Therapy For Major Depressive Disorder: Efficacy And Safety Results From A Multicenter Randomized Controlled Trial

Linda I Carpenter¹, Mark S George², Andrew Leuchter³, Morgan M Dancy⁴

¹ Brown University, Providence, RI, USA
² Medical University of South Carolina, Charleston, SC, USA
³ Ralph H Johnson VA Health Care System, Charleston, SC, USA
⁴ University of California Los Angeles, Los Angeles, CA, USA
⁴ Medical University of South Carolina, Charleston, SC, USA

BACKGROUND

Patients with Major Depressive Disorder (MDD) who fail to achieve satisfactory improvement with antidepressants face significant challenges due to limited treatment options. The Proliv™RX system, delivering external combined occipital and trigeminal afferent patterned neurostimulation (eCOT-AS), aims to address this gap by providing an accessible, physician-supervised, at-home therapy.



METHODS

Design: Prospective, randomized, double-blind, sham-controlled, multicenter trial.

Participants: 124 Adults with MDD who had not achieved satisfactory improvement with antidepressants, baseline HDRS21 score ≥ 20 .

Intervention

- Double-blind phase (8 weeks):** Participants self-administered either active or sham stimulation daily, at home.
- Open-label phase (additional 8 weeks):** All participants self-administered active stimulation daily, at home.

Endpoints

- HDRS17 score reduction.
- Response, remission, and clinical substantial improvement rates.
- Safety and adherence to treatment protocol.

RESULTS

Participants

- 124 randomized, 97 analyzed in the mITT sample.
- Baseline HDRS17 score: 22 (both groups).
- Blinding Effectiveness: 90% were unable to determine their treatment assignment.

Key Findings at 8 Weeks (Double-Blind Phase)

- HDRS17 score reduction:** Active: 8.6 points | Sham: 6 points ($p = 0.02$).
- Response rate:** Active: 32% | Sham: 18%.
- Remission rate:** Active: 21.3% | Sham: 6%.
- Clinically substantial improvement:** Active: 62% | Sham: 32%.

Open-Label Phase (8-16 Weeks)

- Both groups received active stimulation and showed continued improvement.
- Response rate:** Initially active: 49% | Initially sham (crossover to active): 48%.
- Remission rates:** Initially active: 32% | Initially sham (crossover to active): 22%.

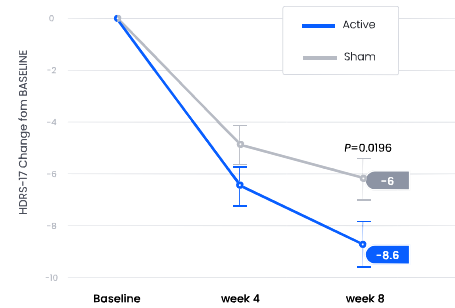
HDRS17 Category Shift from Baseline to Week 16 (active group)

- At baseline, 82% were classified as **severe or very severe** compared to only 15% after 16 weeks of treatment.
- At baseline, **none** of the participants were classified as **normal or mild** compared to 56% after 16 weeks of treatment.

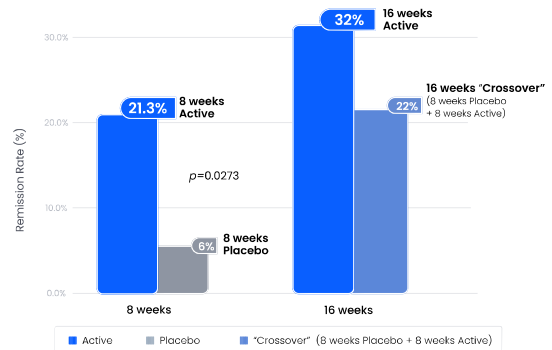
Compliance and Safety

- Compliance: Excellent in both groups.
- Safety: No serious unanticipated adverse events.

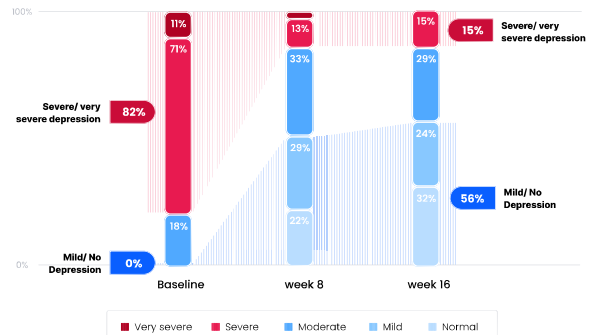
HDRS17 CHANGE FROM BASELINE TO WEEK 8



REMISSION RATE



HDRS17 CATEGORY SHIFT FROM BASELINE TO WEEK 16



CONCLUSION

This is the **first ever randomized controlled trial** to demonstrate successful results of a **home-use neurostimulation therapy** for MDD patients who have not responded to antidepressants. The Proliv™RX system offers a **safe, effective, and accessible therapy option** for this underserved patient population.

