33 patients, of whom 16 had chronic migraine (CM), nine had chronic cluster headache (CCH), and six had secondary headache disorders. PENS was given using Algotec® disposable 21 gauge PENS therapy probes (8 cm) to the occipital nerve ipsilateral to the pain (or bilaterally in cases of bilateral pain). Stimulation was delivered at 2 Hz/100 Hz, at 3 cycles/s, between 1.2 and 2.5 V depending on patient tolerability, for 25-28 min.

Six of nine patients with CCH improved significantly after the first session. In all patients with CCH, PENS therapy was well tolerated, with no significant adverse events reported. One patient with CCH reverted to an episodic cluster. Only four patients with CM experienced any benefit.

PENS therapy shows potential as a relatively non-invasive, low-risk, and inexpensive component of the treatment options for refractory primary headache disorders, particularly CCH [1].

1)
Weatherall MW, Nandi D. Percutaneous electrical nerve stimulation (PENS) therapy for refractory primary headache disorders: a pilot study. Br J Neurosurg. 2019 Oct 3:1-5. doi: 10.1080/02688697.2019.1671951. [Epub ahead of print] PubMed PMID: 31578882.