

Special Article

Remote Electrical Neuromodulation (REN) for the Acute Treatment of Migraine

Alan M. Rapoport MD , Tamar Lin PhD, Stewart J. Tepper MD

First published: 05 November 2019

<https://doi.org/10.1111/head.13669>

Conflict of Interest: Alan Rapoport serves as an advisor for Allergan, Amgen, Amneal, Assertio, Automatic Technologies, Biohaven, Neurolied, Promius, Satsuma, Teva Pharmaceutical Industries, Theranica, Xoc, Cala Health, and Zosano; and he is on the speakers' bureau of Amgen and Teva Pharmaceutical Industries. Stewart Tepper has received grants for research (no personal compensation) from Alder, Allergan, Amgen, ATI, Dr. Reddy's, ElectroCore, Eli Lilly, eNeura, Neurolied, Novartis, Scion Neurostim, Teva, Zosano, also serves as a consultant and/or on Advisory Boards for Acorda, Alder, Alexsa, Allergan, Alphasights, Amgen, Aralez Pharmaceuticals Canada, ATI, Axsome Therapeutics, BioDelivery Sciences International, Biohaven, Charleston Labs, Decision Resources, DeepBench, Dr. Reddy's, ElectroCore, Eli Lilly, eNeura, Equinox, ExpertConnect, GLG, GSK, Guidepoint Global, Impel, M3 Global Research, Magellan Rx Management, Marcia Berenson Connected Research and Consulting, Medicxi, Navigant Consulting, Neurolied, Nordic BioTech, Novartis, Pfizer, Reckner Healthcare, Relevale, Satsuma, Scion Neurostim, Slingshot Insights, Sorrento, Spherix Global Insights, Sudler and Hennessey, Teva, Theranica, Thought Leader Select, Trinity Partners, XOC, Zosano; has royalties from Springer; and receives salary from Dartmouth-Hitchcock Medical Center, American Headache Society.

Tamar Lin is an employee of Theranica Bio-Electronics Ltd.

Abstract

There is a significant unmet need for novel, effective, and well-tolerated acute migraine treatments. Remote electrical neuromodulation (REN) is a non-pharmacological, non-invasive, acute migraine treatment that stimulates upper arm peripheral nerves to induce conditioned pain modulation – an endogenous analgesic mechanism in which a conditioning stimulation inhibits pain in remote body regions. This review presents the method of action and the clinical data of REN and discusses its potential patient benefits. The clinically meaningful efficacy, together with a very favorable safety profile, suggests that REN may offer a promising alternative for the acute treatment of migraine and could be considered first-line treatment in some patients.