

Non-invasive vagus nerve stimulation shows promise for treatment of rheumatoid arthritis

April 17 2019

Bioelectronic medicine scientists at The Feinstein Institute for Medical Research collaborated with counterparts from Academic Medical Center at University of Amsterdam in the Netherlands to carry out a series of pilot clinical studies to assess the effect of a novel bioelectronic stimulation. These studies show that non-invasive stimulation at the external ear improves disease symptoms in patients with rheumatoid arthritis (RA). These findings were first published today in *Bioelectronic Medicine*. An emerging field of science, bioelectronic medicine draws on neuroscience, focuses on molecular targets, and deploys bioengineering to tap into the nervous system to treat disease and injury without the use of pharmaceuticals.

RA is a chronic inflammatory disease, which is characterized by pain, swelling and stiffness of joints. It affects around 1.3 million people in the United States and costs tens of billions of dollars annually to treat. Commonly, signs and symptoms of this condition are treated using synthetic and biological antirheumatic drugs. However, these medications can result in side effects and may not be effective in all RA patients.

In this [pilot study](#), Sangeeta S. Chavan, Ph.D., Feinstein Institute professor, along with Meghan E. Addorasio, BS, tested the efficacy of non-invasive vagus nerve stimulation to reduce inflammation and improve disease severity in RA patients. They found that bioelectronic

medicine treatment was effective in inhibiting the production of cytokines, proteins that mediate inflammation and reduce the inflammatory responses in patients with rheumatoid arthritis.

"Our primary objective was to observe if a non-invasive treatment using an external device will be effective in improving disease severity of rheumatoid arthritis that continues to plague more than one million across the country each year," Dr. Chavan said. "We are pleased to observe that this novel bioelectronic treatment significantly reduces swelling and inflammation associated with RA."

"This clinical research suggests that non-invasive stimulation could suppress inflammation in [rheumatoid arthritis](#) patients," said Kevin J. Tracey, MD, president and CEO of the Feinstein Institute, and co-author on the paper.

Provided by Northwell Health's Feinstein Institute for Medical Research

Citation: Non-invasive vagus nerve stimulation shows promise for treatment of rheumatoid arthritis (2019, April 17) retrieved 13 May 2024 from <https://medicalxpress.com/news/2019-04-non-invasive-vagus-nerve-treatment-rheumatoid.html>

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