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A Novel Device for Transcutaneous Electrical Nerve Stimulation to Treat Renal Colic

Stanford scientists have developed a non-invasive electrical stimulation device to treat pain in patients with renal colic.

Pain from kidney stones has been rated worse than childbirth or having a finger cut off. One in ten adults globally will suffer from kidney stones in their lifetime, and half of them will experience it twice. Current pain management with narcotics carries a risk of addiction, and other pain management options like ibuprofen are insufficient for pain of that magnitude.

A team of scientists developed a novel transcutaneous electrical nerve stimulation device that targets the appropriate nerves that signal renal colic pain to the brain. When applied, the electrical stimulation device delivers electrical pulses through the skin to superficial nerves in the abdomen and near the hip to block pain signals from reaching the brain. The device reduces pain to a tolerable level while patients await natural ejection of the kidney stones or surgical removal.

Stage of Development

Proof of concept

Applications

- Pain management before natural or surgical removal of kidney stones.
- Pain management after surgical removal of kidney stones.

Advantages

- Non-invasive
- Works faster than ibuprofen and narcotic medication
- Non-addictive and lacks other side effects, like abdominal ulcers, nausea, vomiting, drug tolerance, associated with either ibuprofen or narcotic medications
- May help some patients avoid surgery for kidney stones

Innovators

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