A non-invasive method to treat urological and gastrointestinal disorders

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Technology description

Background
Electrical stimulation of somatic afferent pathways in the pudendal nerve, posterior tibial nerve, or sacral spinal roots can inhibit bladder activity in both humans and animals, and is clinically effective in treating overactive bladder symptoms. Stimulation of the sacral S3 spinal root is currently approved by the USA Food and Drug Administration for lower urinary tract (LUT) disorders, including bladder overactivity, urgency, frequency and incontinence . Although the mechanisms underlying neuromodulation are uncertain, this type of therapy has become popular because LUT dysfunctions in some patients are difficult to manage with medications. Thus, current neuromodulation treatments are effective to suppress bladder overactivity, but they require surgery or repeated clinical visits that are expensive and inconvenient.TechnologyInvestigators at the University of Pittsburgh have found that electrical stimulation of the foot could suppress the overactivity of urinary bladder. This indicates that activation of somatic afferent nerves in the foot can probably treat urological and gastrointestinal disorders including bladder overactivity, urinary frequency, urinary urgency, urinary incontinence, interstitial cystitis , urinary retention, fecal incontinence, irritable bowel syndrome, and constipation.

Application area

1) Suppression of overactive bladderAdvantages1) Non-invasive method using a convenient location
2) Stimulation electrodes can be easily maintained in place for an extend time period using sock or shoe
3) Increases the acceptance of neuromodulation by more patients
4) Reduces medical costs for the treatment

Institution

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