Neurospine 2022;19(3):735-736.
https://doi.org/10.14245/ns.2244746.373

Neurospine
pISSN 2586-6583 eISSN 2586-6591

Editorial

Commentary to "A Review of Functional Restoration From Spinal Cord Stimulation in Patients With Spinal Cord Injury"

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See the article "A Review of Functional Restoration From Spinal Cord Stimulation in Patients with Spinal Cord Injury" via https://doi.org/10.14245/ns.2244652.326.

In this systematic review, Lin et al.[1] comprehensively assess the functional restoration from spinal cord stimulation in 327 patients with chronic, traumatic spinal cord injury identified in 50 case or case-series studies and 21 clinical trials. During stimulation, an overwhelming majority of patients had improvement in sensorimotor function and autonomic genitourinary, pulmonary, and cardiovascular function. Volitional movement lasting for months in the absence of stimulation was seen in some patients. The majority of functional improvements in volitional movement were paired with intense motor training and most patients did not completely regain volitional movement. There was a 4% complication rate with autonomic dysreflexia and skin breakdown or infection reported as the most common complications.

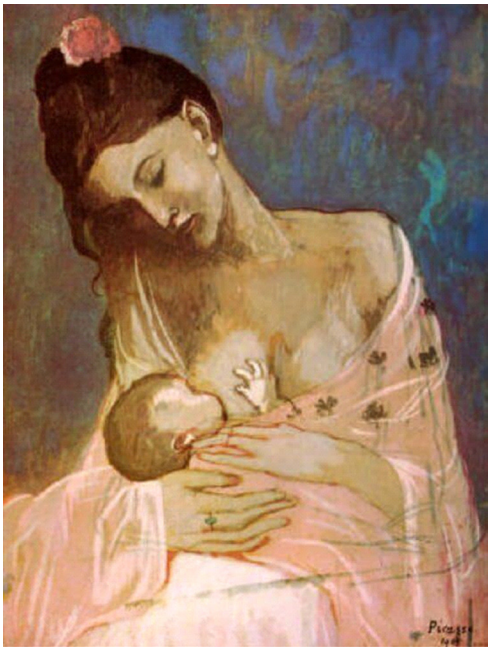
The limitations of the current research were clearly discussed including the heterogeneity of this patient population, the varied stimulation parameters of transcutaneous and epidural spinal cord stimulation, the numerous locations of the lead placements, and the wide range of functional outcomes evaluated. The authors appropriately suggest that future studies decrease the bias in outcome measurements due to lack of control groups and lack of blinding to patients and assessors. Moreover, they encouraged multicenter studies to increase patient enrollment, as well as the development of greater programmability of the stimulators to allow determination of optimal stimulation frequency and modalities.

The functional improvement demonstrated during transcutaneous and epidural spinal cord stimulation in patients with chronic, traumatic spinal cord injury has generated tremendous excitement around the possibility of meaningful functional recovery and neuromodulation of previously "dormant" neural pathways. These findings have stimulated numerous clinical trials and industry funding to develop programmable stimulators that enable targeted spinal cord stimulation. Once these devices are deemed safe and efficacious, then regulatory clearance in Asia, Europe and the United States will allow further access to these devices so that more patients can be enrolled in more robust multicenter, clinical trials. It is probable that these studies will demonstrate that targeted, transcutaneous and epidural spinal cord stimulation will promote meaningful functional gains for patients with chronic, traumatic spinal cord injury.

Conflict of Interest: The author has nothing to disclose.

REFERENCE

1. Lin A, Shaaya E, Calvert JS, et al. A review of functional restoration from spinal cord stimulation in patients with spinal cord injury. Neurospine 2022;19:703-34.



Title: Maternity
Year: 1909
Artist: Pablo Picasso

 https://doi.org/10.14245/ns.2244746.373