Cureus
Part of SPRINGER NATURE

Open Access
Abstract

Cureus

Role of Diagnostic Nerve Blocks in the Goal-Oriented Treatment of Spasticity with Botulinum Toxin Type A: A Case–Control Study

Open Access
Abstract
Published 09/05/2024

Mirko Filippetti [1], Stefano Tamburin [2], Anna Ermini [3], Nicola Turri [3], Rita Di Censo [3], Martina Adamo [3], Elisa Manera [3], Jessica Ingrà [3], Elisa Mantovani [3], Nicola Smania [4], Alessandro Picelli [1]

1. Physical Medicine and Rehabilitation, Verona University, Verona, ITA 2. Department of Neurology, University of Verona, Verona, ITA 3. Dipartimento di neuroscienze, biomedicina e movimento, Università degli studi di Verona, Verona, ITA 4. Neuromotor and Cognitive Rehabilitation Research Center, University of Verona, Verona, ITA

Corresponding author: Mirko Filippetti, mirko.filippetti@univr.it

Categories: Neurology, Pain Management, Physical Medicine & Rehabilitation
Keywords: botulinum toxin type a, spasticity, diagnostic nerve blocks

How to cite this abstract
Filippetti M, Tamburin S, Ermini A, et al. (September 05, 2024) Role of Diagnostic Nerve Blocks in the Goal-Oriented Treatment of Spasticity with Botulinum Toxin Type A: A Case–Control Study. Cureus 16(9): a1320

Abstract

Introduction: Post-stroke spasticity (PSS) is a frequent disabling complication that affects the functions, activities, and community participation of patients. Spasticity, that frequently is a cause of pain, is experienced by approximately 34% of stroke survivors within 18 months following a stroke, and peaks at 84% among patients with multiple sclerosis with a long disease history. Goal targeted Botulinum neurotoxin-A (BoNT-A) injections have an A level of evidence for the treatment of upper and lower limb spasticity in patients with stroke and multiple sclerosis. The goal-setting process is pivotal in managing patients with disabling spasticity however factors predicting the outcomes of spasticity treatment with BoNT-A based on SMART goals have been seldom studied. Diagnostic nerve blocks (DNBs) play many pivotal roles in managing patients with spasticity, and guidelines in Physical and Rehabilitation Medicine settings, regarding their safety, have been recently published [1, 2].

Aim: This case–control study assessed the role of diagnostic nerve blocks in guiding the goal-setting process within goal-targeted treatment of spasticity with botulinum neurotoxin-A.

Methods: In this case–control study, patients with disabling spasticity underwent either a goal-setting process based on the patient's needs and clinical evaluation (control group) or additional diagnostic nerve block procedures (case group). All enrolled patients underwent a focal treatment with botulinum neurotoxin-A injection and a 1-month follow-up evaluation during which goal achievement was quantified using the goal attainment scaling-light score system.

Results: Twenty patients per group was enrolled. Data showed a higher goal achievement rate in the case group (70%) than in the control group (40%). Particularly, the rate of goal achievement in the passive domain, among which pain reduction and spasm reduction was 69.2% (i.e., 9/13) in the case group and 50.0% (i.e., 5/10) in the control group. The rate of goal achievement in the active domain (activities/function) was 71.4% (i.e., 5/7) in the case group and 30.0% (i.e., 3/10) in the control group.

Conclusion: Diagnostic nerve blocks may help guide the goal-setting process within the goal-targeted treatment of spasticity with botulinum neurotoxin-A towards more realistic and achievable goals, thereby improving the outcomes of botulinum neurotoxin-A-injection. Future studies should better explore the role of diagnostic nerve blocks to further personalize botulinum neurotoxin-A according to individual patients' preferences and requirements.

References:

1. Yelnik, A.P.; Hentzen, C.; Cuvillon, P.; Allart, E.; Bonan, I.V.; Boyer, F.C.; Coroian, F.; Genet, F.; Honore, T.; Jousse, M.; et al. French clinical guidelines for peripheral motor nerve blocks in a PRM setting. Ann. Phys. Rehabil. Med. 2019, 4, 252–264.
2. Winston, P.; Reebye, R.; Picelli, A.; David, R.; Boissonnault, E. Recommendations for Ultrasound Guidance for Diagnostic Nerve Blocks for Spasticity. What Are the Benefits? Arch. Phys. Med. Rehabil. 2023, 9, 1539–1548.