COMMENT ON DUARTE ET AL.

Systematic Review and Network Meta-analysis of Neurostimulation for Painful Diabetic Neuropathy. Diabetes Care 2022;45:2466–2475

Ashwini D. Sharan,[1,2] John A. Hatheway,[3] Melissa Murphy,[4] Tammy Dann,[5] Michael A. Fishman,[6] Xander Zuidema,[7] Jan H.M. van Zundert,[7] Maddie LaRue,[1] and Rachel Slangen[1]

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The benefits of spinal cord stimulation (SCS) for patients with painful diabetic peripheral neuropathy (DPN) have been well described in literature dating back decades. Recent U.S. Food and Drug Administration approvals have helped raise therapy visibility as an option for patients with refractory DPN. The accuracy of analyses is imperative in providing health care providers (HCPs) with the most informative guidance for treating patients with DPN.

Duarte et al. (1) provided a meta-analysis of 3 published randomized controlled trials (RCTs) comparing SCS to conventional medical management (CMM) for the treatment of painful DPN. This meta-analysis could play a key role in providing clinicians a comparative benchmark, as no direct head-to-head comparison of high-frequency SCS (HF-SCS) and low-frequency SCS (LF-SCS) has been undertaken in a clinical trial. We applaud the effort to objectively assess the evidence for this indication but are concerned that the overall conclusion the authors reach is not supported by the data.

Using data from the Slangen et al. (2) and de Vos et al. (3) independently conducted RCTs using LF-SCS and the Petersen et al. (4) industry-sponsored RCT using HF-SCS, the authors demonstrated that SCS therapy relieved pain and improved quality of life in patients with painful DPN compared with CMM. The authors found no statistically significant differences between LF-SCS and HF-SCS in responder rate (≥50% pain relief), improvements in pain intensity at 3 months, or improvements in quality of life. A difference was found in favor of HF-SCS in the magnitude of pain score reduction at 6 months.

One potential flaw in this analysis is that equivalent analysis sets were not compared across studies. The two LF-SCS studies published treatment outcomes based on intention-to-treat analysis sets (all randomized patients, including trial failures), while the HF-SCS study published outcomes based on the per-protocol analysis (only patients with successful trials who were implanted and followed up). The intention-to-treat analysis set for the HF-SCS study has been published (5). Despite this discrepancy, the authors conclude that HF-SCS "has the highest probability of being the best [SCS] treatment option" for patients with painful DPN. We believe that this statement contradicts the authors' own findings and is unfounded due to the methodological differences between studies analyzed and the fact that no head-to-head RCT has been conducted. Additionally, long-term outcome data were not considered in this analysis, which is an important determinant of overall treatment success. To date, the longest period of published follow-up data for HF-SCS is 12 months (6), whereas LF-SCS has been demonstrated to provide continued pain relief for DPN patients up to 10 years postimplant (7).

Furthermore, use of the term "best" was left undefined in the article. There is no methodological description of metrics constituting the best therapy, so the reader is left to draw their own conclusions and potentially make inaccurate assumptions as to how and why this conclusion was made. We believe this conclusion has the potential to mislead and/or confuse HCPs who may be initially learning of this therapy option. The accuracy of analyses of SCS for the treatment of painful DPN is imperative as HCPs educate themselves on this newly indicated treatment option.

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[1]*Medtronic, Minneapolis, MN*
[2]*Jefferson Health, Philadelphia, PA*
[3]*Northwest Pain Care, Spokane, WA*
[4]*North Texas Orthopedics & Spine Center, Grapevine, TX*
[5]*Pain Evaluation & Management Center, Dayton, OH*
[6]*Center for Interventional Pain and Spine, Exton, PA*
[7]*Maastricht University Medical Center+, Maastricht, the Netherlands*

Corresponding author: Ashwini D. Sharan, ash.d.sharan@medtronic.com

for Medtronic, Nalu Medical, and Boston Scientific Corp., is on the faculty of Southern Spine, is on the faculty of and performs research for Genesys Spine, and performs research for Biotronik. M.M. is a consultant to Medtronic. T.D. is a consultant/speaker for Medtronic, AIS Healthcare, Abbott, and TerSera Therapeutics. M.A.F. discloses research grants to his institution from Abbott, Biotronik, Boston Scientific Corp., Medtronic, Nalu Medical, SGX Medical, and Thermaquil, consulting fees from Abbott, Biotronik, Medtronic, and Nevro Corp., faculty appointment with Abbott and Medtronic, and stock/stock options at Celeri Health and Thermaquil. J.H.M.v.Z. discloses an educational research grant to his institution from Medtronic. M.L. and R.S. are employees of Medtronic. No other potential conflicts of interest relevant to this article were reported.

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