Steroid Injection for Morton Neuroma—Data-Based Justification

Commentary on an article by Colin E. Thomson, BSc(Hons), PhD, et al.: “Methylprednisolone Injections for the Treatment of Morton Neuroma: A Patient-Blinded Randomized Trial”

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If I were a clinician getting ready to inject steroid in the intermetatarsal space of a patient believed to have a Morton neuroma, my awareness of the study by Thomson et al. would justify the concern that “evidence-based medicine” was being followed. Dr. Thomson and his coauthors have clearly shown that an injection of steroid with a local anesthetic has a significantly greater likelihood of improving a patient’s “foot health” for at least three months than if a local anesthetic without steroid were injected.

The conclusion that steroid injection in a patient with Morton neuroma provides a statistically significant benefit is not shocking. However, the study by Thomson et al. illustrates the amount of work required to develop a Level-I clinical study on even a relatively simple clinical condition such as a Morton neuroma. A previous study by Saygi et al.1 compared steroid injection therapy with shoe modifications and orthoses. That study used simpler outcome measurements and was retrospective. The conclusions of Saygi et al. also supported the benefit of steroid injection over the control treatment, but they did not achieve the same level of evidence as in the highly structured study by Dr. Thomson and his team.

In addition to the demonstration of the exceptional work required for Level-I studies, two other issues to be noted are the selection of outcome measurements for foot and ankle conditions and the use of ultrasonographic imaging for the diagnosis and localization of the steroid injection used to treat a Morton neuroma.

The outcome measurement tools used in the study by Thomson et al. included a Foot Health Thermometer, which is a foot-oriented derivative of a general health assessment tool (the EQ-5D) used in the United Kingdom. The study by Thomson et al. also used secondary outcomes tools including the Manchester Foot Pain and Disability Schedule (MFPDS), a visual analog scale (VAS) for pain, and the Multidimensional Affect and Pain Survey (MAPS).

In the United States, the outcomes tools used for foot and ankle studies include the commonly used but often criticized American Orthopaedic Foot & Ankle Society scores and the well-established and validated Foot Function Index (FFI) and Foot and Ankle Ability Measure (FAAM). The universal and validated pain VAS is a common adjunct. More recently, the Lower Extremity Physical Function Computerized Adaptive Test (LE CAT) has been presented as having considerable advantages for reporting outcomes in orthopaedic patients with foot and ankle problems2.

The point is that there are so many outcome measures available that it is often hard for readers to be familiar with all of the various methods that may be used in a study. It may also be difficult for prospective researchers to decide which outcomes tools to use for a project. The popularity of outcomes tools changes over time, and a study may not be finalized and published until three to five years after it is designed. For the sake of simplicity and standardization, use of a pain VAS coupled with the well-validated and accepted FFI and FAAM may yield an outcome self-assessment that can be consistently implemented in clinical research on foot and ankle problems. In the future, a consensus may develop in favor of the interactive computer tool, the LE CAT, but until such a consensus develops, simplicity and standardization should be a priority when selecting the self-assessment modules. The emphasis should be on study design including adequate subject numbers, randomization, and appropriate blinding as exemplified in the study by Thomson et al.

Ultrasonography was used to confirm the diagnosis of Morton neuroma in this study and to guide the injection. Ultrasonography has also been used for the diagnosis and guidance of an injection for Morton neuroma in at least two other contemporary studies3,4. The injections in these three studies were done by radiologists. However, the diagnosis and injection of a Morton neuroma, when done by a surgeon, is commonly done without the use of ultrasonography. The history and a careful physical examination are usually sufficient to make an accurate diagnosis of this condition. The use of ultrasonography for routine diagnosis or injection in patients with Morton neuroma should result in scrutiny of the resulting equipment costs and time costs, given society’s current effort to control health-care costs. Ultrasonographic imaging for Morton neuroma may be useful to research the best techniques of injection (plantar, dorsal, or axial insertions) or to give injection training to clinicians who do not commonly experience the surgical pathoanatomy of a Morton neuroma.
In summary, this article by Thomson et al. brings into perspective the arduous effort required for a Level-I clinical study on common musculoskeletal conditions and brings attention to the need for simplicity and standardization in outcomes measurements. The article also raises appropriate concerns about applying cost-increasing imaging technology when effective diagnostic and treatment activities can often be done with clinical training alone.

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