



# UTILITY OF SURGICAL DECOMPRESSION FOR TREATMENT OF DIABETIC NEUROPATHY

This is a summary of the American Academy of Neurology (AAN) evidence-based guideline reviewing all available evidence to determine the utility of surgical decompression for the treatment of diabetic neuropathy.

This particular guideline is a practice advisory, which presents evidence-based practice recommendations for emerging and newly approved therapies or technologies.

Surgical decompression at the site of anatomic narrowing has been promoted as an alternative treatment for patients with symptomatic diabetic neuropathy. More than 240 surgeons in 41 states in the United States and in 15 different countries have been trained to perform the decompressive surgery.<sup>1</sup> As of May

16, 2006, 1322 surgeries on 1025 patients by 36 surgeons have been registered in the International Neuropathy Decompression Registry sponsored by the Diabetic Neuropathy Foundation of the Southwest ([www.neuropathyregistry.com](http://www.neuropathyregistry.com)).

Public interest about this topic and the controversial nature of this treatment motivated the development of the guideline. However, systematic review of the literature revealed only Class IV studies concerning the utility of this approach.

Please refer to the full guideline for detailed findings and supporting evidence at [www.aan.com](http://www.aan.com).

## USE OF SURGICAL DECOMPRESSION FOR TREATMENT OF DIABETIC NEUROPATHY

### Insufficient Level U evidence

There is inadequate data concerning the efficacy of decompressive surgery for the treatment of diabetic neuropathy. Given current knowledge, this treatment is unproven (**Level U**).\*

## RECOMMENDATIONS FOR FUTURE RESEARCH

Due to the lack of rigorous evidence, clinicians and researchers should undertake further efforts to determine the utility of surgical decompression for the treatment of diabetic neuropathy. The following recommendations are made for future research in areas that were found deficient based on the thorough, systematic analysis of published literature.

- Randomized controlled trials with standard definitions of peripheral neuropathy, control for concurrent treatments, and validated functional outcome measures with independent, blinded evaluations should be performed.
- Distinction between entrapment neuropathy and peripheral sensorimotor neuropathy should be clarified in these studies.
- Monitoring of glycemic control should be conducted and well-documented in future studies.
- Detailed reporting of post-operative complications should be included in all future studies.
- Data should be provided to allow calculation of number needed to treat to result in a benefit (NNT) and the number of surgeries required to result in harm to the patient (NNH).

1. Dellon AL. Lower-Extremity Peripheral Nerve Problems. J Am Podiatr Med Assoc 2005; 95:427-428

This is an educational service of the American Academy of Neurology. It is designed to provide members with evidence-based guideline recommendations to assist with decision-making in patient care. It is based on an assessment of current scientific and clinical information, and is not intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on the circumstances involved. Physicians are encouraged to carefully review the full AAN guidelines so they understand all recommendations associated with care of these patients.

This guideline summary is evidence-based. The AAN uses the following definitions for the level of recommendation and classification of evidence. **Class I:** Prospective, randomized, controlled clinical trial with masked outcome assessment, in a representative population. The following are required: a) primary outcome (s) is/are clearly defined, b) exclusion/inclusion criteria are clearly defined, c) adequate accounting for drop-outs and cross-overs with numbers sufficiently low to have minimal potential for bias, d) relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences OR a statistical, population-based sample of patients studied at a uniform point of time (usually early) during the course of the condition. All patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation that is masked to the patients' clinical presentations. **Class II:** Prospective matched group cohort study in a representative population with masked outcome assessment that meets a-d above OR a RCT in a representative population that lacks one criterion a-d OR a statistical, non-referral-clinic-based sample of patients studied at a uniform point in time (usually early) during the course of the condition. Most patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation that is masked to the patients' clinical presentations. **Class III:** All other controlled trials including well-defined natural history controls or patients serving as own controls in a representative population, where outcome assessment is independently assessed or independently derived by objective outcome measurement \* Objective outcome measurement: an outcome measure that is unlikely to be affected by an observer's (patient, treating physician, investigator) expectation or bias (e.g., blood tests, administrative outcome data) OR a sample of patients studied during the course of the condition. Some patients undergo the intervention of interest. The outcome, if not objective, is determined in an evaluation by someone other than the treating physician. **Class IV:** Evidence from uncontrolled studies, case series, case reports, or expert opinion.

**\*Recommendation Level:** "Level" refers to the strength of the practice recommendation based on the reviewed literature. **Level A**=Established as effective, ineffective, or harmful for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies.) **Level B**=Probably effective, ineffective, or harmful for the given condition in the specified population. (Level B rating requires at least one Class I study or at least two consistent Class II studies.) **Level C**=Possibly effective, ineffective, or harmful for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.) **Level U**=Data inadequate or conflicting. Given current knowledge, treatment is unproven.



1080 Montreal Avenue • St. Paul, MN 55116  
www.aan.com • www.thebrainmatters.org  
(651) 695-1940