

Screening and diagnosis of diabetic polyneuropathy in clinical practice: A survey among German physicians (PROTECT Study Survey)

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At a glance:

- Most physicians perform regular screenings for diabetic sensorimotor polyneuropathy (DSPN) but commonly do not use standardized testing procedures and assessments as suggested by clinical guidelines.
- Non-standardized testing procedures have the potential to be subject to diagnostic bias.
- To improve the adherence to guidelines, reasons for non-adherence should be explored and physicians should be included in the development process to resonate with their expectations and preferences.

Introduction & Background

One-third of patients with diabetes are affected by DSPN, which can have a negative impact on prognosis, quality of life and morbidity due to neuropathic pain and foot ulcers. However, DSPN is still often underdiagnosed and undertreated, and complications are underestimated by both physicians and patients. Diagnosis of DSPN is complex due to the subtle disease onset, lack of reliable biomarkers, varying definitions of DSPN, and lack of standardized testing

procedures. Moreover, a poor acceptance of and adherence to clinical guidelines in daily practice is likely, and a contributing factor to the underdiagnosis and undertreatment of DSPN.

This survey aimed to collect information about the screening for and diagnosis of DSPN in clinical practice and to investigate to what degree general practitioners (GPs), internists and diabetologists adhere to standardized guidelines in clinical practice.

Materials & Methods

This cross-sectional survey was conducted among 580 GPs, internists and diabetologists in 13 out of 16 federal states in Germany. The recruitment of physicians was conducted off-line via random selection from a private contact database. The survey included multiple-choice and open-ended questions about the medical qualification and specialization. Moreover, the screening frequency, use of clinical neuropathy scores, and adherence to guidelines were investigated. Similarly, questions about the utilization of bedside tests, and the adherence to standardized procedures for different bedside tests were included.

Results

76% of participants were GPs, followed by 28% of internists and 11% of diabetologists. Most participating physicians (86%) were part of a disease management program for type 2 diabetes.

Regarding screening frequency, 87% of physicians reported screening frequency of at least once per year and 65% reported to examine the feet of DSPN patients at least twice per year. 72% of physicians reported to not use clinical scores or questionnaires for the assessment of symptoms associated with DSPN. Of physicians who reported to use them (28%), about half preferred the Neuropathy Symptom Score (NSS; 51%) and visual analog scale (VAS; 45%) for pain.

Physicians who reported to use clinical scores (20%) for the assessment of the severity of neuropathic signs most frequently chose the Neuropathic Disability Score (NDS; 76%), but 80% of physicians did not use clinical scores for the assessment of neuropathic signs. Preferred examination instruments were the reflex hammer (71%), VibraTip (70%), 10 g monofilament (52%), and TipTherm (41%), all of which were applied at multiple sites by around half of physicians. Additionally, the Rydel-Seiffer tuning fork was used by 32% of participants and was applied at several sites in 80% of times, namely at the medial malleolus (60%) and the medial metatarsophalangeal joint (48%).

Regarding the assessment of neuropathic signs, 40% of physicians reported implementation of age-independent rating for the assessment of vibration sense using the tuning fork, 18% reported adjusted rating depending on age, and 41% reported they did not use any standardized approach for the assessment of vibration sense.

For the assessment of pressure sensation via the 10 g monofilament, it was mostly applied at the metatarsal ball of

the foot (42%) and the plantar aspect of the big toe (35%). 58% of respondents reported not to apply a standardized testing procedure and 73% reported to not use a standardized assessment of pressure sensation.

Pain sensation was mostly assessed on the plantar (54%) and dorsal (41%) part of the foot, but most physicians reported to not use a standardized testing procedure (62%) and assessment approach (77%).

Lastly, regarding the assessment of thermal sensation, preferred testing sites were the dorsum of the foot (59%), and the ball of the foot (36%). Most physicians did not use a standardized testing procedure (54%) or a standardized assessment (66%).

Discussion & Conclusions

The results of this survey showed that although most physicians regularly screened their patients for DSPN, they did not use clinical questionnaires and scores for the assessment of the severity of neuropathic symptoms and did not apply a standardized procedure or assessment for the testing of vibration, pressure, pain, or thermal sensation. Furthermore, only half of the participating physicians used guidelines when diagnosing or excluding DSPN.

Due to the lack of uniform DSPN diagnostic criteria and subjective nature of available tests, adherence to guidelines is desired to avoid diagnostic bias. For example, this is important for the assessment of vibration sensation using the tuning fork, since tuning fork test results naturally decline by age; thus age-independent classifications can overestimate vibration sensation loss.

Therefore, to enhance adherence to guidelines, needs of physicians should be considered, for example by reducing complexity and securing applicability and clarity.

Limitations of this study were possible selection and source bias, unequal distribution of included specialties and limited generalizability of results.



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