SUPPLEMENTARY DATA

Validation of clinical peripheral polyneuropathy

We validated our definition of clinical distal sensorimotor polyneuropathy (DSPN) in an unselected population of 151 in- and out-patients with type 2 diabetes, referred by their general practitioner or diabetologist to the German Diabetes Center. The average age of the patients was 54 ± 11.2 years. Compared to patients with known diabetes from KORA F4, patients from the validation dataset were younger and more often current smokers. Sex, body mass index, blood cholesterol, HbA1c and creatinine levels were comparable between the two study samples.

Patients from the validation dataset had undergone nerve conduction velocity measurements of the peroneal nerve and the sural nerve. Also, the Neuropathy Disability Score (NDS) (1) was assessed for which a score of three or more was considered indicative of peripheral polyneuropathy. Diagnosis of DSPN was confirmed if both nerve conduction velocity assessments were abnormal in patients with NDS score ≥3 (n=19).

In KORA F4, we defined the presence of clinical DSPN as an impaired bilateral vibration perception and/or an impaired bilateral foot-pressure sensation. When applying this definition to the validation dataset, 34 patients were diagnosed with clinical peripheral neuropathy. In table S1, both diagnostic definitions are shown in a 2x2 contingency table. The agreement between the two definitions of peripheral polyneuropathy was 86.1% (95% confidence interval (CI): 78.8%-90.2%). Sensitivity was 84.2% (95%CI: 60.4%-96.6%), specificity was 86.4% (95%CI: 79.3%-91.7%), positive predictive value was 47.1% (95%CI: 29.8%-64.9%) and negative predictive value was 97.4% (95%CI: 92.7%-99.5%). Whereas all measures are relatively high, the positive predictive value of predicting clinical DSPN is low. Most likely this reflects the low prevalence of the disorder in the study sample, which was 13% (95%CI: 7.7-19).

Subsequently, we constructed a receiver operating characteristics (ROC) curve to determine the ability of the clinical DSPN definition to discriminate between patients with and without peripheral polyneuropathy (figure S1). The area under the ROC curve (AUC) was 0.91 (95%CI: 0.84-0.97), indicating excellent discriminative ability.

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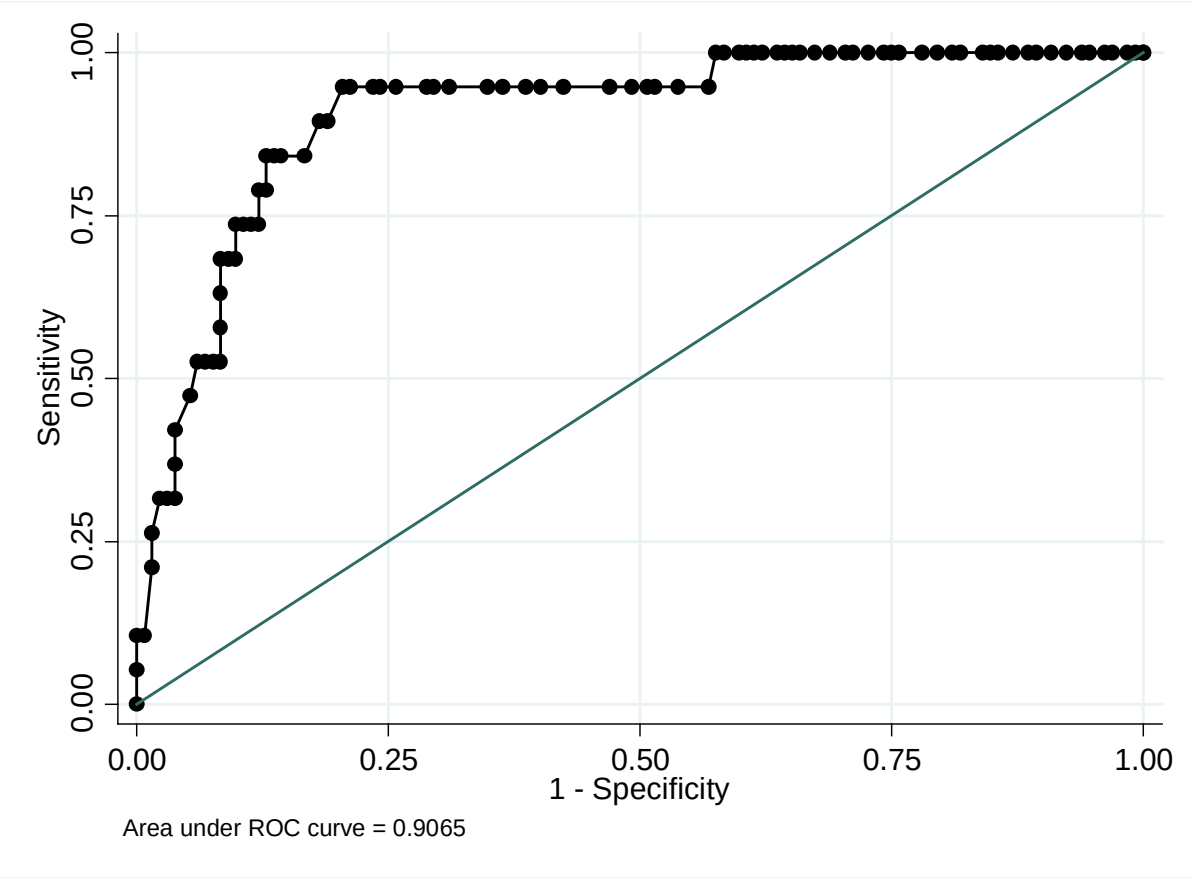
Supplementary Table 1. Contingency table assessing the number of peripheral polyneuropathy diagnoses by the definition of clinical distal sensorimotor polyneuropathy

Confirmed clinical peripheral polyneuropathy*	Clinical distal sensorimotor polyneuropathy†		
	No	Yes	Total
No	114	18	132
Yes	3	16	19
Total	117	34	151

*Confirmed clinical peripheral polyneuropathy was defined as an impaired nerve conduction velocity measurement of both the peroneal nerve and the sural nerve and a score of 3 or higher on the neuropathy disability score.
†Clinical distal sensorimotor polyneuropathy was defined as an impaired bilateral foot-vibration perception and/or an impaired bilateral foot-pressure sensation.

Supplementary Figure 1. Receiver operating characteristics curve for diagnosing clinical distal sensorimotor polyneuropathy. The area under the curve is 0.91 (95% confidence interval: 0.84-0.97), indicating excellent discrimination.



SUPPLEMENTARY DATA

REFERENCES

1. Young MJ, Boulton AJ, MacLeod AF, Williams DR, Sonksen PH. A multicentre study of the prevalence of diabetic peripheral neuropathy in the United Kingdom hospital clinic population. Diabetologia 1993; 36:150-154.