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The association between sudomotor dysfunction assessed by the indicator plaster Neuropad with foot ulceration in diabetes

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Background/Aims: To examine the relationship between sudomotor dysfunction assessed by the Indicator Plaster Neuropad (IPN) and foot ulceration (FU) in patients with diabetes. **Methods:** A total of 321 patients with either type 1 or type 2 diabetes (211 without and 110 with FU; mean age: 62 ± 10 years) were recruited in this cross-sectional study. Assessment of PN was based on neuropathy symptom score (NSS), neuropathy disability score (NDS), vibration perception threshold (VPT) and 10g-monofilament perception. Sudomotor dysfunction was assessed using the IPN. **Results:** Patients with FU had significantly longer duration of diabetes, lower values of ankle-brachial pressure index, higher values of VPT, NSS, NDS and monofilament score in comparison with patients without FU. Sudomotor dysfunction, assessed by abnormal result of the IPN, was significantly more common in the FU group (94.5%) in comparison with the group without FU (50.2%). Multivariate logistic regression analysis after adjustment for gender, body mass index, duration of diabetes, glycemic control and ankle-brachial pressure index, demonstrated that the odds (OR, 95% confidence intervals) of FU increased with measures of neuropathy such as NDS ≥ 6 (12.18, 6.96-21.29), VPT ≥ 25 Volts (23.86, 11.19-50.87), monofilament score < 3 (7.64, 3.88-15.02) but was also significantly increased with abnormal IPN result (17.33, 7.28-41.27) ($P < 0.001$). **Conclusions:** Sudomotor dysfunction assessed by the IPN is associated with increased risk of FU and may be included in the screening tests for identification of the diabetic patients at risk for this complication.