Peripheral Sensory Neuropathy is a predictor of Mortality in People with Diabetes.

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The 10g monofilament test is a simple method of detecting the presence of sensory neuropathy widely used by non-specialists; and included in pay-for-performance indicators for UK primary care. However, the association with increased mortality has not previously been explored.

We performed a retrospective cohort analysis to determine if the presence of sensory neuropathy can be used as a predictor for increased risk of death. We used routinely recorded electronic data from 126 primary care centres across England, who participated in the Quality Improvement in Chronic Kidney Disease (QICKD) trial to follow a cohort of people with diabetes (N=35,502) over 30 months. The presence of sensory neuropathy was defined as present or absent based on routine 10g monofilament testing during 30 months prior to the observation period. The outcome measure was all-cause mortality. Known risk factors (age, gender, smoking status, co-morbidities, and HbA1c) were adjusted for using a multilevel logistic regression model.

Monofilament testing was performed in 18,748 (52.2%) people during the baseline period. Abnormal sensation was identified in 1,548 (9.0%). Abnormal sensation was associated with an increased risk of mortality during the 30 month follow-up period: odds ratio 1.70 (95% confidence interval 1.41-2.06; $p < 0.001$). The association between mortality and sensory neuropathy was stronger than that with elevated HbA1c (OR 1.16; 95% CI 1.01-1.34; $p = 0.037$), and comparable to smoking, ischaemic heart disease, heart failure, and dyslipidaemia. Failure to monitor sensation using monofilament testing was also associated with an increased risk of mortality: OR 1.23 (95% CI 1.08-1.40; $p = 0.002$). The receiver operating characteristic (ROC) statistic for the model was 0.84.

Sensory neuropathy is an important predictor of mortality in people with diabetes; and the monofilament test may have utility in primary care. People with abnormal sensation should be targeted for aggressive diabetes management.

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