COMMENT ON MIZOKAMI-STOUT ET AL.

The Contemporary Prevalence of Diabetic Neuropathy in Type 1 Diabetes: Findings From the T1D Exchange. Diabetes Care 2020;43:806–812

Karel Kostev

Diabetes Care 2020;43:e113 | https://doi.org/10.2337/dc20-0878

Mizokami-Stout et al. (1) investigated the prevalence of diabetic peripheral neuropathy (DPN) in individuals with type 1 diabetes (T1D) in the U.S. Among 5,936 individuals with T1D (mean ± SD age 39 ± 18 years, 55% female, mean ± SD glycated hemoglobin [HbA_{1c}] 8.1 ± 1.6%), DPN prevalence was 11%. Older age, higher HbA_{1c}, female sex, cardiovascular disease, hypertriglyceridemia, higher BMI, retinopathy, and reduced estimated glomerular filtration rate were associated with significantly higher risk of having DPN.

We conducted a similar study in Germany based on a longitudinal database (Disease Analyzer database) that contains information on about 5 million subjects in the time period between 1 January 2015 and 31 December 2019 (2). This study included adult patients (≥18 years) who had received a diagnosis of T1D (ICD-10: E10) and at least one insulin prescription in 801 general or diabetologist practices in Germany during 2015–2019. DPN was considered using ICD-10 code E10.4 documented within 1 year prior to the last T1D diagnosis. Further diagnoses documented within 12 months prior to the last T1D diagnosis were cardiovascular disease (CVD) (ICD-10: I10, I20–25), hypertriglyceridemia (ICD-10: E78.1, E78.2, E78.3), obesity (ICD-10: E66), retinopathy (ICD-10: E10.3), and renal complications (ICD-10: E10.2).

To investigate the association between predefined variables and the probability of having DPN, a multivariate logistic regression model was fitted, with DPN as a dependent variable and age, sex, HbA_{1c} value, and codiagnoses as impact variables. *P* values <0.05 were taken to indicate statistical significance. Analyses were performed using SAS version 9.4 (SAS Institute, Cary, NC).

The present study included 9,349 individuals with T1D (mean ± SD age 44 ± 17 years, 42% female, mean ± SD HbA_{1c} 7.9 ± 1.8%). The prevalence of DPN was 13.6%. In line with results of Mizokami-Stout et al., older age (odds ratio [OR] 1.03 [95% CI 1.03–1.04], $P < 0.001$, per year), CVD (OR 1.39 [95% CI 1.20–1.61], $P < 0.001$), retinopathy (OR 3.69 [95% CI 3.15–4.34], $P < 0.001$), and renal complications (OR 1.61 [95% CI 1.37–1.90], $P < 0.001$) were positively associated with a probability of DPN. No significant associations were observed for HbA_{1c} values, female sex, hypertriglyceridemia, or obesity.

Unfortunately, in our study, no data on diabetes duration, hypoglycemia, smoking, or socioeconomic status were available. Moreover, DNP diagnoses and all codiagnoses relied solely on ICD-10 codes. However, although different methods and definitions were used and analyses were performed in two different countries with two different patient populations, results were very similar. Based on our results, we can confirm that nonglycemic risk factors such as CVD may also play a role in DPN development.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

References

1. Mizokami-Stout KR, Li Z, Foster NC, et al.; T1D Exchange Clinic Network. The contemporary prevalence of diabetic neuropathy in type 1 diabetes: findings from the T1D Exchange. Diabetes Care 2020;43:806–812
2. Rathmann W, Bongaerts B, Carius HJ, Kruppert S, Kostev K. Basic characteristics and representativeness of the German Disease Analyzer database. Int J Clin Pharmacol Ther 2018;56:459–466

Epidemiology, IQVIA, Frankfurt, Germany

Corresponding author: Karel Kostev, karel.kostev@iqvia.com