



RESPONSE TO 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

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We thank Professor Kostev for his comments (1) on our manuscript that evaluated the contemporary prevalence of diabetic peripheral neuropathy (DPN) in 5,936 participants with type 1 diabetes (T1D) in the T1D Exchange Clinic Registry (2). As described, we found a DPN prevalence of 11% as defined by the Michigan Neuropathy Screening Instrument Questionnaire (MNSIQ) (2). Our study highlighted several nonglycemic risks factors including hypertriglyceridemia (odds ratio [OR] 1.03, 95% CI 1.01, 1.05) and smoking (OR 1.83, 95% CI 1.18, 2.82) and other complications including retinopathy (OR 1.46, 95% CI 1.14, 1.88) and cardiovascular disease (CVD) (OR 1.73, 95% CI 1.24, 2.42) (2).

We elected to use the MNSIQ because it is a simple, noninvasive measure of DPN that has been previously validated in several other T1D cohorts, including the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) (3), and could be reliably administered to larger cohorts. Importantly, the same MNSIQ was used to evaluate the prevalence of DPN in another large cohort of patients with T1D participating in the Scottish Diabetes Research Network Type 1 Bioresource (SDRNT1BIO); a report of this study published in the same issue reported remarkably similar DPN prevalence (12.9%) (4). Jeyam et al. similarly found that hypertriglyceridemia (OR 1.17, 95% CI 1.04, 1.31), smoking (OR 1.67, 95%

CI 1.37, 2.03), albuminuria (OR 1.92, 95% CI 1.41, 2.63) and an estimated glomerular filtration rate <30 mL/min/1.73 m² (OR 1.96, 95% CI 1.03, 3.74) were important DPN risk factors (4).

We are happy to see that comparable DPN prevalence and vascular risk factors were found by the study reported by Kostev in 9,349 individuals with T1D in the German Disease Analyzer database (1) while using ICD-10 codes for the diagnosis of DPN. Although there are limitations to quantifying DPN prevalence based on ICD codes, prior studies based on ICD-10 codes have found a positive predictive value of 72% for assessment of DPN prevalence (5). In our own study (2), we found a similar degree of concordance between the MNSIQ-defined DPN and clinic-reported DPN.

Importantly, our study found that markers of lower socioeconomic status, including lower education levels (OR 1.15, 95% CI 1.08, 1.23) and lack of private insurance (OR 1.89, 95% CI 1.46, 2.44, for other insurance vs. private insurance), are additional risk factors (2), as was also observed by Jeyam et al. (4) in the Scottish cohort. Large-scale databases have potential to evaluate the impact of social determinants of health but are limited by the potential for misclassification of diabetes and lack of traditional methods for DPN evaluation. However, the misclassification error rate may be lower than previously thought, and we should utilize available databases for further assessment of social

determinants of health on diabetes outcomes.

These independent findings from three large T1D cohorts further highlight that DPN prevalence in patients with T1D remains unacceptably high and that cardiovascular risk factors and markers of socioeconomic status likely play key roles in its development.

We thank Professor Kostev for acknowledging our work. We are pleased that despite different methodologies used, our findings for DPN prevalence are similar.

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