



Residential Address Amplifies Health Disparities and Risk of Infection in Individuals With Diabetic Foot Ulcers

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OBJECTIVE

To determine the association between social determinants of health (SDOH) and a diagnosis of diabetic foot ulcer (DFU) infection.

RESEARCH DESIGN AND METHODS

Targeted interrogation of electronic health record data using novel search engines to analyze individuals with a DFU infection during a 5-year period (2013–2017) was performed. We extracted geolocated neighborhood data and SDOH characteristics from the National Neighborhood Data Archive and used univariate and multiple logistic regression to evaluate associations with outcomes in the population with diabetes.

RESULTS

Among 4.3 million people overall and 144,564 individuals with diabetes seen between 2013 and 2017, 8,351 developed DFU, of which cases 2,252 were complicated by a DFU infection. Sex interactions occurred, as men who experienced a DFU infection more frequently identified as having nonmarried status than their female counterparts. For the population with DFU infection, there were higher rates for other SDOH, including higher neighborhood disadvantaged index score, poverty, nonmarriage, and less access to physician/allied health professionals (all $P < 0.01$). In multiple logistic regression, those individuals who developed DFU infection came from neighborhoods with greater Hispanic and/or foreign-born concentrations (odds ratio 1.11, $P = 0.015$).

CONCLUSIONS

We found significant differences in neighborhood characteristics driving a higher risk for DFU infection in comparisons with the grouping of individuals with diabetes overall, including increased risk for individuals with Hispanic and/or foreign-born immigration status. These data strongly support the need to incorporate SDOH, particularly ethnic and immigration status, into triage algorithms for DFU risk stratification to prevent severe diabetic foot complications and move beyond biologic-only determinants of health.

Diabetic foot ulcer (DFU) infection is a common problem in outpatient and hospital settings. If unrecognized or undertreated, DFU infections could progress to osteomyelitis when osseous structures are involved. The lifetime risk of a person with diabetes to develop a DFU is estimated to be as high as 35% (1–3). Individuals who develop a DFU infection have a 155-fold increased risk of amputation compared

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