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Area deprivation index predicts annual chronic kidney disease screening and chronic kidney disease development among patients with newly diagnosed hypertension and type 2 diabetes in a large midwestern health system: a retrospective cohort study

Background

We explore how area deprivation index (ADI), a national ranking of neighborhood sociodemographic disadvantage is associated with chronic kidney disease (CKD) screening and development among patients with newly diagnosed hypertension (HTN) or type 2 diabetes (T2DM).

Methods

Patients (n=235 208) with a new HTN or T2DM diagnosis between 2015 and 2018 in a large healthcare system were followed for 3 years to evaluate CKD screening (one estimated glomerular filtration rate and urinary albumin-to-creatine ratio) and CKD development. Multivariable logistic regression models evaluated associations between ADI quintiles with CKD screening and diagnosis.

Results

Most patients were white (57%) females (55%) with HTN (65%). Few were screened in the first year after diagnosis (17%) and 9% developed CKD within 3 years. The odds of patients being screened were 54% greater (OR 1.54; 95% CI 1.48 to 1.60) and 146% greater (OR 2.46; 95% CI 2.19 to 2.76) for developing CKD for most deprived compared with the least deprived.

Conclusions

Patients with high ADI were more likely to be screened and almost twice as likely to develop CKD compared with the least deprived. Results highlight the importance of systematic health record data collection in large healthcare systems to evaluate social factors with health outcomes.

Keywords: epidemiologic factors; epidemiologic measurements; epidemiologic methods; chronic kidney disease; social determinant of health

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Biography

Dr. Ingle is a Research Scientist, Associate at the Advocate Health Research Institute. Prior to the Research Institute, Dr. Ingle's work focused on the impact of environmental exposures on reproductive health using several longitudinal cohorts. Since joining the Advocate Health Research Institute in 2020, Dr. Ingle has expanded her research into health disparities, cancer epidemiology and chronic health. She currently serves as the Principal Investigator for the MATernal & Infant Newtork, a Centers for Disease Control sponsored mother-infant dyad longitudinal project. Dr. Ingle holds a PhD in environmental epidemiology from the University of Michigan.

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