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STROKE SPECIAL INTEREST GROUP

Academy of Neurologic Physical Therapy

In this newsletter...

Stroke Corner Article Review: Race & Rural Living Contributed to Inequalities in Acute Post-Stroke Care

Thanks to Pamela Bosch, PT, DPT, PhD for reviewing this week's article

Race and Rural Living Each Contribute to Inequalities in Acute Post-Stroke Care
Hammond G, Waken RJ, Johnson DY, Towfighi A, Joynt Maddox KE. Racial Inequities Across Rural Strata in Acute Stroke Care and In-Hospital Mortality: National Trends Over 6 Years. Stroke. 2022 Feb 17:STROKEAHA121035006
https://www.ahajournals.org/doi/pdf/10.1161/strokeaha.121.035006

Purpose of article: Black Americans are almost twice as likely to have a stroke and 44% more likely to die of a stroke than White Americans. Also, Black Americans between the ages of 45 and 54 are 3 times more likely to die from a stroke than White Americans in the same age range. However, the contribution of rural living to racial inequities in stroke mortality is unknown. Living in a rural area is a risk factor for overall poor health outcomes, as well as for a higher incidence of stroke. Living in a rural area is a risk factor for low access to certified stroke center care and advanced technologies, and thus, a risk factor for worse clinical outcomes after stroke. Unfortunately, advancements in post-stroke care, specifically endovascular intervention, may contribute to a worsening gap in the management of acute stroke between rural and urban areas. Thus, the purpose of this study was to assess whether there are racial differences in stroke care (defined by use of thrombolytics and endovascular therapy) and patient outcomes (defined by in-hospital mortality) overall and across the urban-rural spectrum. Other purposes were to assess whether race influences the association of urban versus rural residence in stroke care and outcomes, and to determine if any inequities in these measures are worsening over time.

Methods of interest: The research questions were addressed using a large healthcare data set, the Healthcare Cost and Utilization Project (HCUP). Data from HCUP's National Inpatient Sample (the largest available all-payer inpatient health care database in the United States) from 2012 to 2017 were used in the statistical analyses. Patients who were Black or White individuals age 18 or older with a primary discharge diagnosis of stroke were included.
Within the patient sample, subgroups of stroke type (ie, ischemic, hemorrhagic,

transient ischemic attack) were identified. Race, urban, town, or rural residence were the primary predictors of patient outcomes, while the primary outcomes of interest were receipt of intravenous thrombolysis (IVT), receipt of endovascular therapy (EVT), and in-hospital mortality. A secondary outcome of interest was discharge to home.

Analytical models were adjusted for patient comorbid conditions, type of stroke, and stroke severity. Social determinants of health were accounted for by considering zip code level median income and insurance type. Hospital characteristics, including size, ownership, and geographical region were also accounted for in the analyses. Patients from urban areas were the reference group for all comparisons.

Results of interest: The sample included 655,459 patients with a designated race of White or Black. The sample was 53% female, 81% White and 19% Black. While rates of IVT use increased for both Black and White patients over the time studied, Black patients from rural areas had the lowest rates of receiving IVT and EVT over all years. The risk-adjusted odds of receiving IVT were lowest in Black patients from rural areas compared with White patients from urban areas. Further, Black patients from towns or urban areas, and White patients from rural areas were all less likely to receive IVT than White patients from urban areas. There was not a significant interaction between race and rurality. The results for EVT were like those reported for IVT.

For clinical outcomes, rates of discharge to home were lowest for Black rural patients compared with White urban patients. In fact, discharge to home was lower for Black patients compared with White patients across the urban-rural spectrum. For both Blacks and Whites, in-hospital mortality was highest for patients from rural areas, and risk-adjusted odds of mortality among hospitalized Black patients from rural areas or towns were not significantly different from White patients from urban areas. Mortality was lower for Black patients from urban areas than for White patients from urban areas, and White patients from rural areas and towns had higher mortality.

Discussion: Among patients with acute ischemic stroke, IVT and EVT were used less for Black patients than for White patients, and less for rural patients compared with urban patients. Black patients from rural areas were the least likely to be treated with IVT or EVT. Rates of discharge to home were also lower for Black patients across the urban-rural spectrum, an indicator of lower post-stroke functional status. The highest odds of in-hospital mortality were found among White patients from rural areas. The findings of this study affirm the disproportionate concentration of poverty and poorer quality health care in Black communities and suggest that limited access to care leads to the inequities measured in these data. Race, rurality, poverty, and geography all contribute to putting Black individuals at higher risk for receiving care from hospitals that are less likely to provide advanced therapeutic interventions for stroke, leading to worse health outcomes.

Additional reference: A graphic abstract was provided for this article (https://www.ahajournals.org/doi/10.1161/STROKEAHA.121.035006):

Prepping for the NCS? Check out our Stroke Test Prep Questions

New resource alert!

The **Stroke SIG Student Corner** team is putting together a series of test questions to help future takers of the Neurologic Clinical Specialist exam.

Test your stroke knowledge by visiting the **Stroke Corner website** (questions are at the bottom). We'll post a new question and the previous answer around May 1st.

Questions will also be posted on our social media channels, so connect with us via the icons below.

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