Geographic proximity to invasive cardiac services as a barrier to utilization for Blacks compared to Whites

Gregory PM; Malka ES; Kostis JB; Wilson AC; Arora JK; Rhoads GG
Health Services Research Program, Department of Family Medicine, UMDNJ-
Robert Wood Johnson Medical School, New Brunswick, NJ 08903-0019, USA.
HTX/20602898

RESEARCH OBJECTIVE: In an effort to improve access to invasive cardiac services, especially among traditionally underserved populations, changes in state-level health policy have begun to allow for expansion of these services. While racial differences in utilization of invasive cardiac services have been well-documented, racial differences in the impact of geographic proximity to this care on utilization have not been reported. This study was done as part of a statewide evaluation of access to cardiac care. Our specific objective was to study the impact of the distance from a patient's residence to the nearest hospital equipped to provide invasive cardiac services on utilization of these services for Blacks compared to Whites.

STUDY DESIGN: A retrospective cohort of 2,128 Blacks and 17,221 Whites under age 65 hospitalized with primary diagnosis of acute myocardial infarction between 1992-1996 was followed for 90 days from initial hospitalization. Hospital discharge records were linked using a probabilistic record linking scheme to provide follow-up. Main study outcomes were use of cardiac catheterization (CATH), percutaneous transluminal coronary angioplasty (PTCA) and coronary artery bypass graft surgery (CABG). The distance from patient's residence to the nearest hospital with invasive cardiac services (CATH, PTCA and CABG services) was based on straight line distance from the center of zip codes. Distance in miles was categorized as: 0 to <2, 2 to <5, 5 to <10, 10 to <15, 15 to <20, 20 to <25, >=25 miles. Multiple logistic regression was used to adjust for differences in age, gender, insurance status (Medicaid, uninsured, HMO/PPO, private fee-for-service), anatomical location of the infarct (as a measure of severity of illness) and comorbid conditions. Adjusted odds of CATH, PTCA or CABG use at each distance category were compared to odds at 25 miles or more for each racial group separately. Tests for linear trends in adjusted odds ratios across the increasing distance categories were based on linear regression. Adjusted odds of utilization of these services for Blacks compared to Whites was studied at each distance category separately.

PRINCIPAL FINDINGS: Among both Blacks and Whites, sharp linear declines in adjusted odds ratios for utilization of CATH
and PTCA were found with increasing distance from patient's residence to the nearest hospital with invasive cardiac services. At closer distance categories, Blacks were up 1.8 and 2.0 times more likely to undergo CATH and PTCA, respectively, than their counterparts residing 25 miles or more from invasive cardiac services. Whites also showed greater utilization up to 3.0 times for CATH and 2.4 times for PTCA when they lived closer to invasive cardiac services. While use of CABG was also higher among both Black and White patients residing closer to invasive cardiac services than those living farther away, the impact of geographic proximity on utilization was not as great for CABG as for CATH and PTCA. Racial differences in use of invasive cardiac procedures remained regardless of geographic proximity to invasive cardiac services. Blacks were much less likely that Whites (generally one third less) to receive the three invasive cardiac procedures at each distance under 25 miles.

Lower utilization of CATH, PTCA, and CABG for Blacks compared to Whites was not evident among patients residing 25 miles or more from invasive cardiac procedures. CONCLUSIONS: Closer geographic proximity to invasive cardiac services was strongly associated with increased utilization of these services among both racial groups. These patterns may indicate under or over-utilization of invasive cardiac services. Lower utilization for Blacks compared to Whites persisted, despite close geographic proximity to invasive cardiac services. The exception to lower utilization for Blacks compared to Whites occurred among patients who resided farthest from invasive cardiac services and for whom geographic proximity rather than race seemed to be the greater barrier to care.

IMPLICATIONS FOR POLICY, DELIVERY OR PRACTICE: Health policies that promote expansion of invasive cardiac services to improve access to care will bring these services geographically closer to more patients, and thereby, increase utilization. Such policies, however, will likely not have as much impact on reducing racial differences in utilization of invasive cardiac services between Blacks and Whites.

MAIN MESH HEADINGS: Angioplasty, Balloon/*UTILIZATION
*Blacks
*Health Services Accessibility
Heart Catheterization/*UTILIZATION
*Whites

ADDITIONAL MESH HEADINGS: Cohort Studies
Comparative Study
Geography
Human
Insurance Coverage
Outcome Assessment (Health Care)
Retrospective Studies
Utilization Review

PUBLICATION MEETING ABSTRACTS TYPES:

LANGUAGES: Eng