Minorities benefit less from regionalizing heart attack care

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California's Black and Hispanic communities may be falling further behind whites in the quality of care they receive for heart attacks, despite recent medical efforts aimed at improving the standards of care

for these populations, according to a new study led by researchers at UC San Francisco.

In response to ongoing health disparities, emergency management services nationwide have implemented protocols to better coordinate care and get patients directly to hospitals that are equipped and staffed to quickly unblock coronary arteries and restore blood circulation to the heart.

Under the new guidelines, which were encouraged by the American Heart Association, California now is organized to deliver treatment to severe heart attack patients through 33 regional emergency response systems for the state's 58 counties. However, the study has found that patients living in minority communities received less benefit from these protocols than patients in non-minority communities.

"Regionalization was an attempt to equalize access to the gold standard of care for severe heart attack patients, but our research shows that inequalities have been exacerbated, not alleviated," said Renee Hsia, MD, MSc, professor in the Department of Emergency Medicine at UCSF and lead author of the study, which was published November 16, 2020, in *JAMA Network Open*.

The standard of care for a heart attack with complete coronary artery blockage is angioplasty, or "percutaneous coronary intervention" (PCI). A long thin tube called a catheter is threaded through an artery leading from the groin toward the heart, guiding instrumentation used to re-open the artery.

Studies have shown that faster reopening of the artery, especially if it occurs within 90 minutes of seeking care for a heart attack, offers better survival odds, but not every hospital is equipped with a cardiac catheterization lab and staffed at all hours with interventional

cardiologists and other trained personnel.

Aside from the established link between speed and survival, previous studies of the regionalized system have failed to detect a mortality benefit at the population level, Hsia said. By further breaking down their analysis by minority and non-minority zip codes and using California vital statistics data, Hsia and colleagues found that one group did have greater survival after regionalization—whites living in non-minority communities. There were no mortality benefits for whites living in minority communities, or for Blacks or Hispanics in either non-minority or minority communities.

With regionalization, access to PCI-capable hospitals improved 6.3 percent for all patients in non-minority communities, but only 4.5 percent for patients in minority communities, the study found. Same-day PCI increased by 5.1 percent for patients in non-minority communities, but only by 1.7 percent for individuals in minority communities; receipt of PCI any time during hospitalization increased by 5.0 percent for patients in non-minority communities, but only by 0.7 percent for those in minority communities.

The *JAMA Network Open* study compared changes over time in outcomes during the study period beginning in 2006, when only eight California counties were regionalized for heart attack care, to 2015, when all counties were participating. The researchers analyzed data from139,494 patients who suffered the most severe type of heart attack, as determined by a distinctive electrocardiogram signal. Minority communities were defined as the top third of ZIP codes with the highest percentages of Black and Hispanic residents.

Previous studies have shown that advances in heart attack care have improved care between white and minority patients receiving care within a single hospital, according to Hsia. However, the new study findings,

focused on communities rather than on individual hospitals, raise the question as to whether Blacks and Hispanics, depending on their neighborhoods, are more likely to be directed to hospitals where patients do not receive optimal care, even with the new guidelines.

"Given that both emergency care in general and PCI specifically are less available in underserved communities, PCI hospitals in minority communities could already be burdened by a high volume of patients as the result of regionalization, and less able to provide guideline-directed care," according to the study.

In addition, other studies have shown that minority populations use ambulances less often due to concerns about costs and insurance, and individuals who are not taken to hospital by ambulance may not benefit from the newer guidelines as much, Hsia said. The study was not designed to measure ambulance use over time.

"Medical advances do not necessarily benefit all groups equally, and the structure of our health care system may affect how benefits accrue," Hsia said.

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