79% of Adults Live Within 1 Hour of PCI Hospital

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ATLANTA — Prehospital triage and regionalization of ST-segment elevation MI care is geographically feasible throughout most of the country, Dr. Brahmajee K. Nallamothu said at the annual meeting of the American College of Cardiology.

He presented a national analysis of driving times and distances to hospitals with percutaneous coronary intervention (PCI) capability. The conclusion: 79% of adults live within 60 minutes of a PCI hospital even after factoring in the time typically required for emergency medical services (EMS) to arrive on the scene and stabilize the patient. The median road distance to the nearest PCI hospital was 7.9 miles, with a median driving time of 11.3 minutes.

However, these averages hide enormous regional variations. Only 48% of adults in rural U.S. Census tracts live within 60 minutes of a PCI hospital, compared with 98% in urban areas. And while, for example, 90% of adults living in the Pacific region are within 60 minutes of a PCI facility, that's true for only 63% in the Dakotas.

Overall, 43 million adults don't live within a 60-minute drive of a PCI hospital. So there can be no one-size-fits-all national template for ST-segment elevation MI (STEMI) regionalization. Novel approaches will be required, especially in rural districts, said Dr. Nallamothu of the University of Michigan, Ann Arbor.

"This study is a general overview. If STEMI regionalization occurs, it's not going to happen as a national mandate. It'll happen at the local level," he predicted.

The impetus for this study arises from growing interest among health services policy planners in adopting regionalization of STEMI care. The National Heart Attack Alert Program, for example, has called for prehospital triage.

The goal would be to make primary PCI available to a much greater proportion of the 400,000 STEMI patients per year, since there is persuasive evidence that primary PCI is more effective than thrombolytic therapy when it can be performed rapidly by experienced operators.

Dr. Nallamothu's analysis was based on data on nearly 5,000 U.S. hospitals in the 48 contiguous states obtained from the American Hospital Association's annual survey,

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DR. NALLAMOTHU

which he and his coworkers coupled with detailed U.S. Census tract information. They determined that 26% of the nation's hospitals were PCI facilities, and that 42% of U.S. adults had a PCI hospital as their closest hospital.

Among adults with a non-PCI hospital as their closest medical facility, 74% would experience less than 30 minutes of additional delay if their ambulance drove directly to a PCI hospital instead of the nearest hospital. This finding supports the feasibility of prehospital triage, he said.

One audience member noted that only about half of patients with STEMI call EMS; the other half show up in emergency departments as walk-ins, thereby eliminating the possibility of prehospital triage.

Dr. Nallamothu agreed that this is a real obstacle to regionalized STEMI care.

"Community-based strategies to increase the use of EMS have been really unsuccessful to date. That has important implications. For STEMI regionalization to be effective, we're going to need two key components dealing with those two different populations: the patients who use EMS and the ones who don't," he said.

One possibility is more expeditious transfer of non-EMS arrivals at non-PCI hospitals than is now the norm. There is some evidence to suggest that transfer times from non-PCI to PCI hospitals have more to do with institutional relationships than with geographic factors. It may well prove to be the case that aligning financial and other incentives in support of routine swift transfer of non-EMS patients would enable many to arrive within the time window in which primary PCI is advantageous, Dr. Nallamothu said.

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