Safety in numbers for community hospitals performing emergency angioplasty

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Heart experts at Johns Hopkins have evidence that life-saving coronary angioplasty at community hospitals is safer when physicians and hospital staff have more experience with the procedure.

In a report to be presented Nov. 12 at the American Heart Association's annual Scientific Sessions in New Orleans, researchers found that among 5,737 men and women who had emergency, so-called primary angioplasty for treatment of sudden heart attack, all at community hospitals with no on-site cardiac surgery backup, hospitals performing 83 or more procedures per year had the lowest death rates at the time of hospital discharge, at 2.2 percent.

Angioplasty consists of threading a thin tube into the main blood vessels near the heart, and using it to inflate a tiny balloon to widen an artery blocked or narrowed from the buildup of cholesterol-laden plaque. A metal cylinder stent is often deployed to keep the blood vessel open.

Researchers say their findings, collected over seven years from a diverse group of 31 hospitals across the country, none of which have elective angioplasty programs, suggest that patient safety and survival rates for primary angioplasty could be improved by easing restrictions on the use of elective angioplasty so that such hospitals can get more experience.

Under present guidelines from the American Heart Association and the American College of Cardiology, community hospitals are limited to offering angioplasty only in emergency situations, such as during a heart

attack. In all other nonemergency or elective surgical cases, patients must be transferred to another hospital that has on-site, specialized heart surgery backup.

"The results reinforce what we have known for a long time with many other technical procedures, such as organ transplantation or specialized heart surgery: From an institutional and physician perspective, the more procedures performed, the better the outcomes for the patient," says senior study investigator and interventional cardiologist Thomas Aversano, M.D.

In this study, one of a number being conducted by the Cardiovascular Patient Outcomes Research Team (or C-PORT), all participants had primary angioplasty in response to a heart attack caused by a blocked artery. Mortality rates were adjusted to account for factors that heighten risk, such as age, ability to tolerate clot-busting drugs, diabetes and the extent of blockages in coronary blood vessels.

The research is part of several C-PORT projects investigating the safety of performing angioplasty in hospitals without heart-surgery backup, all led by Aversano, an associate professor at the Johns Hopkins University School of Medicine and its Heart and Vascular Institute.

He notes that even in lower volume hospitals, at no more than 46 procedures per year, the death rate is 4 percent. Previous research by Aversano, published in the Journal of the American Medical Association in 2002, showed that heart attack patients who were treated with a clot-busting drug to open up the artery, the alternative to primary angioplasty, had a 6.7 percent death rate.

"Even in low-volume community hospitals, survival rates are better for primary angioplasty than thrombolytic therapy," says Aversano.

"Our results serve as one potential motivation for expanding elective angioplasty to community hospitals without on-site cardiac surgery so that institutional volume is not restricted to emergency cases," he says.

For the last two decades, surgical backup has been required for nonemergency angioplasty because, in rare instances, the procedure leads to a tear in a vessel or closing of an artery rather than opening it. The risk that angioplasty patients will need emergency heart bypass surgery is less than 1 to 2 in every 1,000 cases.

But Aversano and other researchers say medical advances have led to nonsurgical means of treating many of these complications, including the use of stents to keep arteries open, thus minimizing the need for on-site cardiac surgery backup.

Source: Johns Hopkins Medical Institutions