Door-to-balloon time drops for heart attack patients, but mortality rates unchanged

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Door-to-balloon time has dropped dramatically as hospitals rush heart attack patients into treatment, but a five-year study released Monday shows quicker hospital care has not saved more lives.

Heart attacks are a medical emergency and hospitals race against the clock to open the clogged artery causing the attack in 90 minutes or less.

Door-to-balloon time is the amount of time between a heart attack patient's arrival at the hospital to the time he or she receives an intervention, such as a balloon angioplasty, to open the artery.

The study published in the Archives of Internal Medicine showed no change in mortality, in spite of the drops in door-to-balloon time at Michigan hospitals from 113 minutes in 2003 to 76 minutes in 2008.

The U-M Cardiovascular Center and colleagues at Michigan hospitals tracked the outcomes of 8,771 patients with acute ST-elevation myocardial infarction, commonly known as a severe heart attack.

"Considerable effort has focused on reducing door-to-balloon time with the assumption that quicker care translates into a significant reduction in mortality," says study senior author Hitinder Gurm, M.D., an interventional cardiologist at the U-M Cardiovascular Center.

"When we looked at our data, the reduction in door-to-balloon time was dramatic. However, to our surprise and dismay, we found the number of

patients who died had not changed," he says.

Deaths from these heart attacks remained at about 4 percent.

Current American Heart Association and American College of Cardiology guidelines recommend getting these patients into treatment in 90 minutes or less.

"Our results suggest that a successful implementation of efforts to reduce door-to-balloon time has not resulted in the expected survival benefit," says Anneliese Flynn, M.D., a resident in the U-M Department of Internal Medicine, and lead author of the trends study.

By the end of the study period, nearly 70 percent of Michigan patients received care in the recommended DTB time. The study examined whether patients did better because of it.

"We need to do a better job at educating patients and developing sytems of care so that patients get to the hospital quicker and not only worry about the time involved once they hit the hospital door," Gurm explains.

"To improve patient outcomes we need to focus on the entire event - from the moment a person experiences chest pain to the time they get treated," he says.

Although door-to-balloon time dropped, the study showed no improvement in the time between the onset of symptoms such as chest pain, and when patients arrived at the hospital.

"It could be that the negative impact of the increased symptom-to-door time among high risk patients is sufficient to mask any potential protective effect of the decreased door-to-balloon time," Flynn says.

The Cardiovascular Consortium, called BMC2, is a collaborative network of physicians and hospitals and involves 32 Michigan hospitals that performs percutaneous coronary intervention, such as angioplasty and stents to treat patients with coronary artery diseases.

BMC2 registry is a physician lead quality improvement collaborative that is supported by the Blue Cross Blue Shield of Michigan. The collaborative works to improve outcomes of patients undergoing PCI with a special focus on reducing complications, and improving safety, efficacy and appropriateness of procedures.

The University of Michigan has been the coordinating center for BMC2 since 1997.

More information: To learn more about signs and symptoms of a heart attack www.americanheart.org/presente … html?identifier=4595

Paper: "Trends in door-to-balloon time and mortality in patients with ST-elevation myocardial infarction undergoing primary percutaneous coronary intervention," *Archives of Internal Medicine*, Vol. 170, No. 20, Nov. 8, 2010

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