BMJ 2014;349:g7858 doi: 10.1136/bmj.g7858 (Published 30 December 2014)

NEWS

Death rate is lower in high risk heart patients at US teaching hospitals during cardiology conferences

Michael McCarthy

Seattle

High risk patients with heart failure and cardiac arrest who are admitted to major US teaching hospitals during national cardiology meetings, when some of the cardiology staff would be expected to be away, had a lower 30 day mortality rate than comparable patients admitted in the weeks before and after the conferences, a study has found.

"One explanation for these findings is that the intensity of care provided during meeting dates is lower and that for high risk patients with cardiovascular disease, the harms of this care may unexpectedly outweigh the benefits," the researchers wrote.[1]

About 13 000 to 16 000 healthcare professionals attend the annual meeting of the American Heart Association, and roughly the same number attend that of the American College of Cardiology.

The study's lead author was Anupam B Jena, of Harvard Medical School in Boston, Massachusetts. Jena and colleagues hypothesized that, with so many cardiologists away at the conferences, mortality rates would be higher during the meetings and the use of such interventions as percutaneous coronary intervention (PCI) and mechanical circulatory support would be lower. The study was reported in *JAMA Internal Medicine*.

Using data from Medicare records the researchers identified hospitalizations for acute myocardial infarction (AMI), heart failure, or cardiac arrest among Medicare fee-for-service beneficiaries aged 65 or older during the two cardiology conferences, as well as those admitted on corresponding days in the three weeks before and after the conferences, from 2002 to 2011. The main outcomes were 30 day mortality, procedure rates, and length of stay.

Patients were considered high risk after AMI or heart failure if their predicted mortality was in the top quartile for the respective condition and at low risk if their predicted mortality was in the lower quartiles. All patients with cardiac arrest were considered to be at high risk.

The researchers found that patients who were hospitalized during the meeting dates and non-meeting dates were similar. In all patients admitted to non-teaching hospitals no differences were found in mortality or treatment utilization among low and high risk patients, the researchers reported. They also found no significant differences in mortality or utilization among low risk patients admitted to teaching hospitals.

Surprisingly, however, the 30 day mortality rate was significantly lower in high risk patients with heart failure or cardiac arrest who were admitted to teaching hospitals on meeting dates than in those admitted on non-meeting dates (heart failure 17.5% (95% confidence interval 13.7% to 21.2%) *v* 24.8% (22.9% to 26.6%; P<0.001); cardiac arrest 59.1% (51.4% to 66.8%) *v* 69.4% (66.2% to 72.6%; P=0.01)).

The researchers also found that, although adjusted PCI rates were lower in teaching hospitals during the meeting dates than during non-meeting dates (20.8% *v* 28.2%; P=0.02), the adjusted mortality among high risk AMI patients was similar (39.2% (31.8% to 46.6%) *v* 38.5% (35.0% to 42.0%); P=0.86).

The differences seen in teaching hospitals may be due to more of their cardiology staff attending the conferences, the researchers said, and the cardiologists who stay behind may be reluctant to perform interventions on patients for whom they are not the primary provider or to perform difficult procedures without adequate backup.

"Interventions foregone during meeting dates are more likely to be those for which the risk-benefit trade-off is less clear and may involve harms that outweigh benefits in high risk patients," the researchers wrote. "Our finding that substantially lower PCI rates for high risk patients with AMI admitted to teaching hospitals during cardiology meetings are not associated with improved survival suggests potential overuse of PCI in this population."

In an accompanying commentary Rita F Redberg, editor in chief of *JAMA Internal Medicine*, said the findings showed that more interventions in high risk patients with heart failure and cardiac arrest might lead to higher mortality.[2]

"Indeed, some high risk interventions, such as balloon pumps or ventricular assist devices, are being used in populations in which they are not shown to improve outcomes, and recent reports have raised concerns about high rates of fatal complications from pump thrombosis and other problems," Redberg wrote.

"It is reassuring that patient outcomes do not suffer while many cardiologists are away," she concluded. "More important, this analysis may help us to understand how we could lower mortality throughout the year."

1 Jena AB, Prasad V, Goldman DP, Romley J. Mortality and treatment patterns among patients hospitalized with acute cardiovascular conditions during dates of national cardiology meetings. *JAMA Intern Med* 2014; published online 22 Dec; doi:10.1001/jamainternmed.2014.6781.

2 Redberg RF. Cardiac patient outcomes during national cardiology meetings. *JAMA Intern Med* 2014; published online 22 Dec; doi:10.1001/jamainternmed.2014.6801.

Cite this as: *BMJ* 2014;349:g7858