Should hospitals keep cardiac catheterization labs open on weekends?

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For patients experiencing non-ST-segment elevation acute coronary syndromes (NSTE-ACS), a rapid invasive strategy (within 24 hours) using coronary angiography and other interventions is beneficial for high-risk as well as low-risk patients. However, this treatment may be constrained on weekends by the need to mobilize on-call catheterization teams. A new study published in the *Canadian Journal of Cardiology* evaluated costs associated with an early versus delayed invasive intervention strategy for patients presenting on weekdays and weekends. Investigators determined that early invasive strategy for Canadian NTSE-ACS patients significantly reduced costs, even on weekends, because of resulting shorter length of hospital stays (LOS).

According to lead investigator Andre Lamy, MD, MHSc, Population Health Research Institute, and Professor in the Department of Surgery and Department of Clinical Epidemiology, McMaster University, "Hospitals that currently tend to delay stable patients in favor of weekday catheterization instead of mobilizing the on-call team for an earlier invasive management of NSTE-ACS patients should consider the latter as the savings from adhering to the timing of an early intervention approach would outweigh additional costs."

The research team analyzed data from 479 Canadian patients from the Timing of Intervention in Acute Coronary Syndromes (TIMACS) multinational trial, which included 238 in the early strategy group and 241 in the delayed strategy group in order to assess the impact from the perspective of the Canadian healthcare system.

By the end of the trial patients who had received a strategy of early coronary angiography and intervention saved CAN $2,938 per patient compared to those who underwent a delayed strategy. These significant savings were driven by lower costs associated with LOS ($9,761 for those who underwent an early strategy compared to $12,569 for delayed; a savings of $2,808), especially in ICU/CCU and ward units. There was no significant difference in cost for study percutaneous coronary interventions, drugs, procedures or diagnostic procedures.

"The results of our Canadian-led multinational trial shows that early intervention is a cost saving strategy for all patients with acute coronary syndromes. In higher risk patients, early intervention also appears to improve clinical outcomes," added TIMACS lead investigator Shamir R. Mehta, MD, MSc, Professor of Medicine, McMaster University, and Director, Interventional Cardiology, Hamilton Health Sciences.

One factor that could potentially lower the savings is that many cardiac catheterization labs (CCLs) do not handle non-emergent cases on weekends, thus preventing the early strategy. The investigators were able to show that in Canada, the early invasive intervention group spent 2.3 days less in hospital (8.6 days for early invasive intervention versus 10.9 for delayed) than those in the delayed intervention group, which translated into significant savings even when it was necessary for a larger number of those patients to be catheterized on the weekend.

"Early invasive intervention is similar to a delayed invasive approach for prevention of cardiovascular death, myocardial infarction, or stroke, but in low or high risk patients, it is a dominant economic strategy," commented Dr. Lamy. "Given many high-risk NSTE-ACS patients receive delayed intervention due to weekend catheterization lab status, these findings support opening catheterization labs on weekends to facilitate the use of early invasive intervention."

In an accompanying editorial commenting on stable NSTE-ACS patients, Stéphane Rinfret, MD, SM, Clinical and Interventional Cardiology, Multidisciplinary Cardiology Department, Quebec Heart and Lung Institute, and Associate Professor, Laval University, and Brian J. Potter, MDCM, SM, Interventional Cardiology and Healthcare Services Research Centre Hospital, University of Montreal, caution that "While the evidence for cost savings utilizing an earlier catheterization strategy certainly appears robust, the authors' conclusions about the need to mobilize the CCL team during weekends for patients with NSTE-ACS merit further discussion." They note that the original TIMACS study design was somewhat inconsistent with the actual Canadian hospital practice of eliminating unnecessary delays whenever possible. This difference between the study cohort and current patients might cause the actual savings to be less.

They write, "Ultimately, any economic benefit (which remains an open question) of performing these cases on weekends must be weighed against its potential negative impact on already-stretched weekend call teams, including on morale, healthcare workers' physical or mental health, and, possibly and most importantly, patients' safety."

More information: "Cost Implication of an Early Invasive Strategy on Weekdays and Weekends in Patients with Acute Coronary Syndromes," by Andre Lamy, MD, MHSc; Wesley Tong, BSc; Kevin Bainey, MD, MSc; Amiram Gafni,PhD; Purnima Rao-Melacini, MSc; and Shamir R Mehta, MD, MSc. DOI: DOI: 10.1016/j.cjca.2014.11.025

Editorial: "Weekend Warriors: Can Early Invasive Management of Stable Non-ST Elevation Acute Coronary Syndromes Save Healthcare Dollars?" by Stéphane Rinfret, MD, SM; and Brian J Potter, MDCM, SM. DOI: DOI: 10.1016/j.cjca.2014.12.027

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