Opportunities for Improving Global Cardiovascular Quality of Care and Outcomes

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An estimated 17 million people worldwide die of cardiovascular disease, particularly acute myocardial infarction and stroke, each year. Fortunately, a number of therapies have been demonstrated to substantially reduce morbidity and mortality in patients presenting with acute myocardial infarction and stroke. Many of these evidence-based, guideline-directed therapies are readily available worldwide. However, a vast array of studies have demonstrated that numerous patients still fail to receive effective, safe, high-value acute myocardial infarction and stroke treatments in a timely fashion, even for therapies as inexpensive and readily available as aspirin. There are also substantial hospital-level, regional, and global variations in the use of evidence-based care, as well as patient-level disparities in care, particularly among certain vulnerable patient populations. Thus, many acute myocardial infarction and stroke patients are having recurrent events, disabilities, hospitalizations, and deaths that could have been prevented with more reliable quality of care. While coordinated and comprehensive prevention efforts are critical, one of the high-impact strategies to respond to the global epidemic of acute myocardial infarction and stroke is to ensure more consistent implementation of evidence-based care.

To address the gaps, variations, and disparities in quality of care and to improve outcomes for patients with acute myocardial infarction and stroke, a number of cardiovascular performance improvement systems have been developed and deployed over the last 2 decades. Initiated in 1994, the UCLA Cardiovascular Hospitalization Arteriosclerosis Management Program reported that a novel hospital-based performance improvement system using clinical decision support tools including order sets and discharge checklists resulted in substantially increased adherence for aspirin, β-blocker, angiotensin-converting enzyme inhibitor, and statin treatment for acute myocardial infarction patients at hospital discharge and over the course of 1-year follow-up. This improved use of evidence-based therapies was also accompanied by substantial improvements in 1-year outcomes. The American Heart Association launched the Get With The Guidelines Program in 2000 to improve the quality of care and clinical outcomes of patients hospitalized with cardiovascular disease in the United States, including patients hospitalized with acute myocardial infarction. The Get With The Guidelines Program provides real-time benchmarked performance feedback, clinical decision support tools, webinars, conferences focused on quality improvement, other educational materials, and opportunities for national recognition. In addition, the program provides expert American Heart Association field staff to assist providers in deploying sophisticated quality-improvement strategies. By facilitating real-time hospital and individual physician access to benchmarked performance data, clinicians can compare their performance against other hospitals based on a large selection of performance measures, quality metrics, and patient subgroups. Hospital participation in the Get With The Guidelines Program has been demonstrated to be strongly associated with rapid and sustained improvement in multiple processes of care strongly linked to improved outcomes. This program resulted in improvements in acute cardiac and stroke care and secondary prevention guideline adherence that were independent of secular trends and hospital characteristics and were specific to the targeted performance measures. These benefits were observed in hospitals large and small, teaching and nonteaching, rural and urban, and from all regions in the United States. Furthermore, the demonstrated improvements in care quality have been sustained for over 10 years.

Other programs in the United States including the American College of Cardiology Guidelines Applied into Practice, the National Registry of Myocardial Infarction (NRMI), and Can Rapid risk stratification of Unstable angina patients Suppress ADverse outcomes with Early...
implementation of the American College of Cardiology/American Heart Association guidelines (the CRUSADE Quality Improvement Initiative) have also demonstrated significant improvements in care quality.\textsuperscript{16,17} The Global Registry of Acute Coronary Events Registry also demonstrated improvement in acute coronary syndrome care and outcomes among participating hospitals in Europe.\textsuperscript{18} Collectively, the findings with these programs suggest that the quality of care provided to patients hospitalized with cardiovascular disease and clinical outcomes can be substantially enhanced by using data collection, performance feedback, clinical decision support tools, collaborative care models, and by concentrating on those processes of care that have proved to improve outcomes. Current American College of Cardiology and American Heart Association Guidelines now recommend that performance measures based on professionally developed clinical practice guidelines should be used with the goal of improving quality of care and that participation in quality improvement programs and standardized quality of care data registries designed to track and measure performance measures, complications, and outcomes can be beneficial in improving quality of care.\textsuperscript{2}

With the goal of identifying opportunities for quality improvement of acute myocardial infarction patient care in China, Gao and colleagues analyzed data from the China Patient-centered Evaluative Assessment of Cardiac Events Retrospective Study of Acute Myocardial Infarction (PEACE) study, which enrolled patients with acute myocardial infarction admitted to 162 randomly selected hospitals throughout China in the years 2001, 2006, and 2011.\textsuperscript{19} This study focused on early (first 24 hours) use of aspirin for acute myocardial infarction, demonstrating that of the 14,041 included patients with acute myocardial infarction eligible for early aspirin therapy, the use of aspirin increased from 78.4% in 2001 to 86.5% in 2006 and to 90.0% in 2011. Despite this temporal improvement in aspirin use, the authors noted that in 2011 there were still 15% of hospitals with <80% early aspirin use rates among eligible patients. There was substantial variation in early aspirin use by hospitals, with rural hospitals providing lower rates of treatment. The study also found that early aspirin treatment was less likely in patients who were older, those with non-ST-segment elevation acute myocardial infarction, those who presented with cardiogenic shock, and those who presented without chest pain. The investigators deployed a number of best practices to help ensure representative sampling, reliable data abstraction, and appropriate quality metric constructs with exclusions for documented contraindications and intolerance. However, despite these significant efforts, it should be noted that only 3 of the potential 11 years, 162 of the ≈22,000 hospitals in China, and 16100 cases out of the millions of acute myocardial infarctions patients hospitalized in China during 2001–2011 study period were included in this study.

International comparisons of care quality from broad, potentially representative patient populations can provide valuable insights for identifying opportunities for improvement in cardiovascular patient care and outcomes. In the United States with the Get With The Guidelines Program, the use of aspirin increased from 76.4% at baseline to 88.0% in the first 4 quarters of the program in 2001.\textsuperscript{20} By 2007, the rates of early aspirin use were 98.3%, with even the lowest 10th percentile of hospitals having median rates of early aspirin use of 96.0%.\textsuperscript{11} This overall improved performance was associated with reduced hospital variation, along with the reduction or elimination of age, sex, race/ethnicity-based disparities in care.\textsuperscript{10} In the Euro Heart Survey with 47 countries participating, the rate of early aspirin use was 97% in 2009.\textsuperscript{4} These higher rates of early aspirin use in the United States and Europe likely reflect the influence of the quality improvement efforts and suggest that similar improvements in care quality could be achieved in China for early aspirin and other evidence-based therapies. The American Heart Association and Chinese Society of Cardiology have recently partnered to launch the Improving Cardiovascular Care in China Program. This program builds on the 14 years of experience with Get With The Guidelines and will initially focus on patients hospitalized with acute coronary syndromes and atrial fibrillation among participating Chinese hospitals. While there remains much to learn about adapting and customizing cardiovascular performance improvement programs for various types of health systems and different regions of the world, with the necessary innovations, efforts, and resources, the goal of providing the right evidence-based treatments for every eligible cardiovascular disease patient every time could be achieved globally.

Disclosures

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References


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