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Reducing Door-to-Balloon time for acute ST elevation myocardial infarction in primary percutaneous intervention: The role of lean six sigma improvement

Cardiovascular diseases are the leading causes of death in the UAE. Prompt reperfusion access is essential for patients who have myocardial infarction (MI) with ST-segment elevation as they are at relatively high risk of death. This risk may be reduced by primary percutaneous coronary intervention (PCI), but only if it is performed in timely manner. Guidelines recommend that the interval between arrival at the hospital and intracoronary balloon inflation (door-to-balloon (D2B) time) during primary PCI should be 90 minutes or less. The earlier therapy is initiated, the better the outcome. Our aim was to decrease the door-to-balloon time for patients with ST segment elevation myocardial infarction (STEMI) who come through the emergency department (ED) in a tertiary hospital in UAE, to meet the standard of less than 90 minutes. A multidisciplinary team was formed including interventional Cardiologists, catheterization laboratory personnel, emergency department caregivers and quality staff. The project utilized the Lean Six Sigma methodology which provided a powerful approach to quality improvement. The process minimized waste and variation, and a decreased median door-to-balloon time from 75.9 minutes to 60.1 minutes was noted. The percentage of patients who underwent PCI within 90 minutes increased from 73% to 96%. In conclusion, implementing the Lean Six Sigma methodology resulted in having processes that are leaner, more efficient and minimally variable. While recent publication failed to provide evidence of better outcome, the lessons learned were extrapolated to other primary percutaneous coronary intervention centers in our system. This would have marked impact on patient safety, quality of care and patient experience.

Biography

Samer Ellahham has served as Chief Quality Officer and Global Healthcare Leader for SKMC since 2009. He is a Board-certified Internist, Cardiologist and Vascular Medicine Senior Consultant and continues to care for patients. He received his Undergraduate Degree in Biology and his MD from the American University of Beirut, Beirut, Lebanon. He has obtained his fellowship in Cardiology at the Medical College of Virginia (MCV) in USA. He has worked in Washington DC in several clinical and leadership positions before moving to UAE in 2008. He led the First AHA GWTG Heart Failure Initiative outside US and was the recipient of the AHA GWTG Award in Washington, DC. He is the champion of the AHA GWTG in the region. He continues to be an active Clinician. He is board certified in internal medicine, vascular medicine, Cardiology and quality. He was recently recertified in 2017 by the American Board of Cardiology (ABIM). He is a Fellow of the American College of Cardiology and key member in Heart Failure and Transplant, Adult Congenital and Pediatric Cardiology, Cardio-oncology and Peripheral Vascular Disease sections.

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