

VIEWPOINT

The Metamorphosis of ST-Segment Elevation Myocardial Infarction Programs

The Changing Role of the Interventional Cardiologist and its Manpower Implications



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In our professional lifetime, the treatment of myocardial infarction (MI) has changed dramatically, incorporating continual innovation and shifting treatment modalities and strategies. This has resulted in an enormous expansion in the number of patients and the extent and severity of disease amenable to percutaneous treatment. Together with these astonishing technical developments, the interventional cardiologist's role has transformed from a strictly consultative/procedural role to being the primary manager of the MI patient. In retrospect, it is clear that there has been a paradigm shift, originating from the necessity of being on call 24/7 for the diagnosis of ST-segment elevation myocardial infarction (STEMI), converting our role into acute care cardiologist for a range of patient presentations.

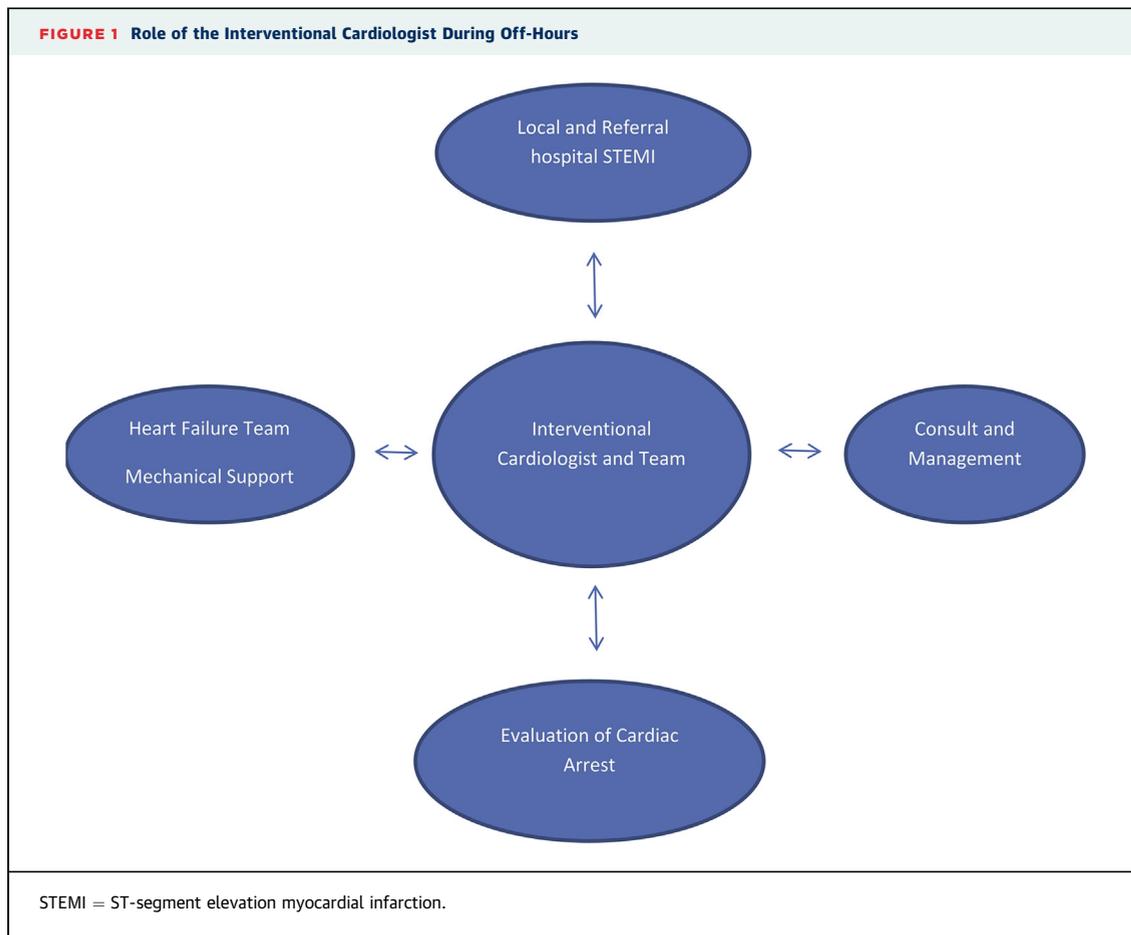
Although our junior colleagues accept this narrative as intuitive, with hindsight it is apparent that the evolution in our function was not intentionally designed or planned. The establishment of cardiac care units (CCUs) (1), followed by fibrinolysis as reperfusion therapy, demonstrated reduction in mortality (2,3) and created an opportunity for a subspecialization in MI supervision. Subsequently, timely primary percutaneous coronary intervention was shown to be superior to fibrinolysis (4), which necessitated that the specialist also be an angiographer. Further proven benefits led to the initiation of local and regional STEMI programs and door-to-balloon time committees in order to standardize and improve

treatment (5-7). Today, the interventional cardiologist and the invasive team assess and treat STEMI patients within 90 min of presentation, an unprecedented time demand necessitating close proximity even during nontraditional working hours (8). Besides having the primary responsibility for those with STEMI and/or acute chest pain, interventionists are consultants for patients with low-risk chest pain, give first-line electrocardiogram interpretations both in the emergency department and the intensive care unit, serve as the first contact for regional hospitals regarding management and treatment of patients who present with acute cardiovascular events who may need emergent invasive procedures, and have the main voice in managing patients with cardiac arrest (9), cardiogenic shock (10) and mechanical support devices (11) (Figure 1). These responsibilities demand a substantial portfolio of skills, including technical, cognitive, and communicative talents.

In 2017, we can see that the interventionist's function has expanded well beyond a limited role as a proceduralist. We now are the primary team; we are called to make the diagnosis (interpret the electrocardiogram, assess the troponin elevation), treat the STEMI rapidly, exclude other diagnoses, and continue to be the primary decision-maker throughout hospitalization and beyond. If bypass surgery or further stenting is appropriate, we are the ones who explain the pros and cons to the patient and family. Consequent to this "super subspecialization," a noninvasive

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Manuscript received May 10, 2017; revised manuscript received June 16, 2017, accepted June 20, 2017.



cardiologist interested in acute coronary disease must either be an imaging expert or a preventative specialist; there is little place for a general or CCU cardiologist in the modern hospital setting.

The manpower implications of this metamorphosis in the interventional cardiologist's responsibilities and of the necessity of experienced personnel in STEMI programs have not been adequately addressed. Cath lab physicians and the highly trained nurses and technicians who form the foundation of the team can no longer be regarded as easily replaceable (12,13). The team must be comfortable interacting with the sickest patients and their families, particularly those likely to not

survive; and it also must be familiar with advanced imaging, physiology, and hemodynamic support technologies, a combination of skills that necessitates years of experience. Workforce planning in interventional cardiology must account for these disparate roles. Recognizing the full breadth of our functions, not just its procedural component, is necessary to appreciate the true value of our profession.

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KEY WORDS metamorphosis, STEMI