

## EDITORIAL COMMENT

## Tokyo Trends\*



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State and nation-wide acute myocardial infarction registries are important sources of information that provide for the temporal and geographic comparison of metrics for an important cause of morbidity and mortality. Most Western countries have shown reductions in myocardial infarction incidence and case fatality rates; however, data from Asia have been sparse, and there is uncertainty as to how much medical care is comparable across regions even with similar socioeconomic status.<sup>1,2</sup> Because Japan is a well-developed nation with one of the oldest populations in the world, there is particular interest in how patients with myocardial infarction fare there as compared with the developed Western world. In this issue of *JACC: Asia*, the study by Miyachi et al<sup>3</sup> provides some insight on the outcome of this group of patients in metropolitan Tokyo.

The Tokyo Cardiovascular Care Unit Network Registry is large, spanning 10 years and including 95% of patients within the greater Tokyo Metropolitan area. Patients >70 years of age accounted for 40% of men and 70% of women, respectively, reflecting the advanced age of patients. This registry considered all patients undergoing invasive coronary angiography with percutaneous coronary intervention (PCI) within 24 hours of presentation to the hospital and admitted to the cardiac care unit (CCU). The majority were ST-segment elevation myocardial infarction (STEMI) cases.

Annual fluctuations in mortality were observed, but there was a general trend towards decreasing mortality. A striking finding was the increase in emergency intervention rates among the very elderly

and those with Killip IV heart failure. What is gratifying is the reduction in mortality rate, especially in those >80 years of age, and those with cardiogenic shock. This improvement in outcome was demonstrated despite not showing a reduction in door-to-balloon (D2B) time. This benefit is likely consequent to the high level of advanced medical care available, as well as a willingness to intervene, even in the very elderly and sick.

The D2B time and first medical contact (FMC)-to-balloon time among patients with STEMI and in those with cardiogenic shock and/or age older than 60 years of age were strongly correlated with in-hospital mortality despite not showing demonstrable improvement in the decade studied. In fact, the D2B times were surprisingly longer in later years despite the prevailing universal emphasis on a shorter intervention time; this suggests that reduction in this metric may potentially further improve outcomes.

This study also supports a potential benefit with aggressive intervention in the very elderly. This is in line with previous studies suggesting greater incremental benefit with coronary intervention among the very elderly rather than therapeutic nihilism.<sup>4-7</sup>

Additionally, women remain undertreated with the rate of emergency intervention significantly lower despite an overall increase trend.<sup>8-10</sup> This is a problem that was first recognized in developed Western countries but, as this study shows, is likely prevalent also in Asia.

Improving patient outcomes can be effected in 2 ways: either by reducing the burden of cardiovascular risk factors that leads to myocardial infarction, or improvement in the treatment of myocardial infarction. Although great strides have been made in the acute management of myocardial infarction, the increasing prevalence of cardiovascular risk factors and incidence of myocardial infarction indicate a void in primary prevention.<sup>11</sup> The significantly increased prevalence of cardiovascular risk factors suggests that greater emphasis should be placed in addressing these issues. As usual, the benefits of primary intervention are not immediately gratifiable; however, the

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potential is huge for reducing disease burden in the community. Unfortunately, this is also an area often overlooked in both developed and developing nations.

Similar to all registries, there are intrinsic limitations in this study. An important issue is incomplete data which may result in confounding. Miyachi et al<sup>3</sup> have relied on the Tokyo CCU network which provides additional information beyond the acute myocardial infarction demographic survey. This increased granularity of information increases the value of this database and allows one to better tease out the factors that are associated with mortality trends. Unfortunately, the results from this study were driven largely by STEMI cases and those deemed not sick enough for CCU care were excluded. Hence, important information on non-STEMI cases and intervention are not readily available.

Although this is a Japanese study it provides insight to myocardial infarction in a broad group of nations with similar socioeconomic situations within Asia. In summary, it reiterates prevailing gender

inequality with women generally undertreated compared to men. Despite the increase in incidence of emergency PCI among the elderly, mortality was observed to be reduced. However, the temporal trends of onset-to-FMC, FMC-to-door, D2B, and FMC-to-balloon times did not decrease during the decade, suggesting possible further improvement in these areas.

This and other similar state or nationwide data support the development of infrastructure that supports access to early PCI. Just as new cultural trends in Tokyo have influenced broad swathes of society, the trends as elucidated in this study also epitomize a modern society and provide insights to decisions on medical care in Asia and beyond.

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