EDITORIAL

Medical emergency team interventions in patients with ST-segment elevation myocardial infarction in Poland: how to improve outcomes?

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Reperfusion in acute ST-segment elevation myocardial infarction (STEMI) has revolutionized cardiology and improved patient prognosis.[1] The realization that "time is muscle," together with advances in interventional cardiology, led to a dramatic reduction in in-hospital mortality and morbidity in patients with STEMI. This change required the reorganization of out-of-hospital emergency services, emergency room practices, and catheterization laboratory operation.[2,3] Coordinating all medical professionals involved in the process became a centerpiece in the treatment of STEMI. Guidelines issued in accordance with large bodies of evidence set the door-to-balloon (D2B) time, ie, the time from hospital entry to balloon inflation in the culprit coronary lesion, to less than 90 min, and preferably to less than 60 min.[4,5] However, in a study on patients with STEMI, who were candidates for primary percutaneous coronary intervention in the United States, mortality rates did not decrease despite a significant reduction in the D2B time.[6] That study highlighted the key role of time to first medical contact and prehospital treatment. Since then, the focus in the treatment of STEMI has shifted from the D2B time to the total time of ischemia and to multistage treatment including various steps taken both outside and inside hospitals.[7-9] Based on the sequence of events, during the first medical contact, a 12-lead electrocardiogram (ECG) should be performed and STEMI should be diagnosed, either independently or with assistance. Once a diagnosis is established, the rapid transfer to the catheterization laboratory is crucial. The hospital team should be alerted at the earliest time possible. During

transportation, heparin and antiplatelet therapy, mainly aspirin, should be administered, based on the extensive evidence that early treatment improves patient outcomes.[10,11] In the hospital, the direct transfer to the catheterization laboratory and bypassing the emergency room shorten the D2B time. Finally, a transradial approach is recommended to reduce bleeding complications.[8]

Nadolny et al[12] examined the prehospital management of patients with STEMI in Poland. They showed that 12-lead ECGs were performed during 98.6% of medical emergency team (MET) interventions and transmitted in 37.5% of the interventions. Although patients with STEMI represent a low proportion of the MET workload, the high rate of 12-lead ECGs performed attests to the high-quality work of METs. However, the relatively low rate of ECGs transmitted to the hospital should be improved. Transmitting 12-lead ECGs to the hospital can increase alertness and enable bypassing the emergency room. This can also reduce the rate of false activations of catheterization laboratory teams.[13] It also would be of great interest to examine whether ECG transmission is associated with shorter D2B times.

Nadolny et al[12] reported on administering dual antiplatelet therapy (DAPT) in 72.1% of the interventions reviewed. Clopidogrel was used in 49.7% of them, and ticagrelor in 25.1% ($P < 0.001$). A P2Y12 inhibitor was most often applied in the Wielkopolska (98.4%) and least often in Silesia (40.34%) provinces. The relevance of early antiplatelet therapy, using mainly aspirin, was shown in several studies.[10,11] Benefits associated with the early administration of P2Y12 inhibitors are still inconclusive, though

this is a common practice in Europe. [4,5] The PLATO (Platelet Inhibition and Patient Outcomes) study showed that the use of ticagrelor was superior to that of clopidogrel, although the investigation was not conducted in a prehospital setting. Administering DAPT to patients without STEMI may be deleterious. Thus, it would be interesting to know how many patients of those diagnosed with STEMI by the METs actually had STEMI.

In general, quality improvement should begin with mapping the current situation. Specifically, geographical differences should be addressed with regard to rates of DAPT administration. In this respect, the nature of the study performed by Nadolny et al[12] is of high importance, as shown in a study from our center and a study based on data from a national registry.[14,15] It demonstrated that 12-lead ECGs were performed in almost all patients (but only in one-third of them, ECGs were transmitted to the hospital). The large geographical differences in treatment highlight the potential for improving rates of DAPT administration. Looking at the process timeline, transmitting ECGs to the hospital can increase the rates of DAPT administration after confirming the diagnosis of STEMI. Studies performed on a local and national scale, such as the study of Nadolny et al,[12] are probably the best means of improving care in general and outcomes in patients with STEMI specifically. Thus, the authors should be congratulated on their study, which will inevitably lead to better care and outcomes in this patient population.

ARTICLE INFORMATION

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