EDITORIAL COMMENT

Time to reperfusion in high-risk patients with myocardial infarction

Tempo até à reperfusão em doentes de alto risco com enfarte agudo do miocárdio

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Primary percutaneous coronary intervention (PCI) is the preferred reperfusion therapy for ST-segment elevation myocardial infarction (STEMI), reducing mortality, reinfarction, and stroke compared to thrombolytic therapy.[1] This is true if performed expeditiously by an experienced team in centers with a high volume of PCI procedures.[2] Therefore, it is important to organize STEMI networks to reduce time delays and improve prognosis.[3,4]

In the Portuguese Registry of Acute Coronary Syndromes (ProACS), the use of fibrinolysis has decreased steadily and is nowadays rare, while PCI has been used in more cases from 2007 onward. However, this progress has not been accompanied by significant improvements in time delays in recent years, and there is considerable room for improvement, both through more campaigns aimed at the prehospital stage and by improving referral after first medical contact.[5]

Stent for Life (SFL), founded in 2008 as a joint initiative of the European Society of Cardiology, the European Association for Percutaneous Cardiovascular Interventions and EuroPCR in collaboration with EUCOMED, aimed to increase the use of primary angioplasty for STEMI reperfusion therapy and to improve qualitative parameters, in order to reduce mortality.[6]

Portugal participated in SFL from 2011, and a national program was implemented to increase patient access to PCI and to improve its quality, particularly by reducing the time between symptom onset and PCI.

The SFL Portugal Task Force set out an action plan with three main aims: to launch a national campaign to raise public awareness of the symptoms of STEMI and of the actions to be taken to ensure timely and appropriate treatment; to cooperate with the emergency medical system (EMS) in order to improve patient routing, by enabling direct admission to a hospital with PCI facilities and transfer from hospitals without such facilities to a PCI-capable hospital; and to improve hospital performance in the treatment of STEMI by PCI.[7]

To monitor the implementation of the initiative, SFL carried out snapshot surveys during a one-month period in six consecutive years.

This issue of the *Journal* sees the publication of an article based on these surveys by Calé et al.,[8] which evaluates performance indicators in high-risk populations (elderly, female and diabetic patients).

There were no differences in the way elderly patients requested medical assistance after symptom onset compared to younger patients (age <75 years), but older patients had longer patient and system delays, resulting in greater delay to reperfusion treatment. As a result, elderly patients were less compliant with the times recommended by the European guidelines[2]: only 32.2% of these patients presented first medical contact to electrocardiogram (ECG)

time ≤10 min; 43.6% presented door-to-balloon time ≤60 min; 11.3% presented system delay ≤90 min; and 2.9% presented treatment delay ≤120 min. Multivariate analysis after adjustment of the variable 'age' for gender and presence of diabetes showed that age was an independent predictor of patient delay longer than the median and of system delay >90 min. Patient and system delays did not decrease significantly over the study period.

The authors draw attention to the fact that in elderly patients it is more likely that the clinical picture will be atypical and that the first ECG will be delayed, leading to delays in diagnosis and time to reperfusion. This reveals the importance of the need to perform an early ECG, even in patients who do not present typical STEMI symptoms, regardless of their classification on the Manchester triage system. Other reasons for system delay are comorbidities, presentation at a hospital without PCI capability, and delay in inter-hospital transfer.

Women had longer system and treatment delays than men, but after adjustment for age and presence of diabetes, the variable 'women' was not a predictor of system delay >90 min. The authors draw attention to the need for educational campaigns emphasizing that cardiovascular disease, specifically STEMI, is the leading cause of death in women.

Diabetic patients more often called the EMS number 112 than non-diabetic patients, but the percentage of patients transferred to a hospital with PCI capability by the EMS was not significantly higher in diabetic patients. This may be related to a higher probability of prehospital system error in medical triage of diabetic patients with STEMI, possibly due to difficulties in interpreting symptoms. However, in multivariate analysis the presence of diabetes did not increase the risk of patient delay longer than the median or of system delay >90 min.

The authors identify three risk groups (elderly, female and diabetic patients) in whom myocardial infarction is more difficult to diagnose, since the forms of presentation are often atypical. Thus, in addition to comprehensive and ongoing population campaigns on the need to call 112 even with less typical symptoms, medical personnel at both pre-hospital and hospital admission stages need to be more aware of the need to perform an early ECG in these circumstances. If there is an ECG diagnosis of STEMI, and the patient is in the reperfusion window, immediate transfer for PCI should be considered.

Thus, if the groups with greater delays and greater risk of cardiovascular events are treated faster, the quality of reperfusion in Portugal can be improved, with consequent reduction in cardiovascular mortality.

Conflicts of interest

The author has no conflicts of interest to declare.

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