

Optimal Treatment of ST-segment Elevation Myocardial Infarction: An Obstacle Race

Tratamiento óptimo del infarto con elevación del segmento ST: una carrera de obstáculos

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For two decades, primary angioplasty for ST-segment elevation acute myocardial infarction (STEMI) has shown to be more beneficial than thrombolysis. Effectively, numerous randomized clinical studies and meta-analyses have shown a reduced rate of mortality, reinfarction, reocclusion, need for urgent revascularization and hemorrhagic stroke, among other benefits, compared with thrombolysis. (1, 2) Since then, clinical practice guidelines consider this invasive treatment as the gold standard method, provided it is carried out by an expert team, in a center of excellence, and at the recommended time window (<120 min. since electrocardiographic diagnosis) within a regional network of STEMI care. (3) However, the implementation of these recommendations has neither been universal nor uniform across all counties. To date, there are still evident regional differences in the care of STEMI patients. The barriers identified for the development of these regional networks are usually common (Table 1). Globally, it is not an economical problem; even more, the development of a network can be cost-efficient. (4) In this sense, there is classically evidence of very high primary angioplasty reperfusion rates in countries with lower income per capita than in countries with higher income. (5) It is more about achieving consciousness at all levels: political, medical and social. From the political point of view, the infarct code must become a care priority. Administrative stimulus and leadership are key factors. This must work in coordination with the medical emergency services and the professionals from different hospitals and healthcare centers involved in the process and circuit of the patient suffering from STEMI. A clinical protocol of consensus must be designed between all the parties and a division in sectors of patient flow must be agreed upon, according to the area where he/she lives and the referral hospital with invasive treatment capability. As an essential part of the protocol, the patient must learn to recognize the alarm signals and know the way to activate the emergency. In this sense, awareness campaigns, (6) repeated at regular intervals, will help to keep the population forewarned. Finally, and not less important, the health-

Table 1. Barriers for the implementation of primary angioplasty programs

Presence of regional health systems with different healthcare models (priorities) even within the same country.
Lack of general knowledge about the benefit of primary angioplasty as a life-saving treatment for STEMI.
Absence of regulations on STEMI patient transfer for primary angioplasty in most regions.
Poor political support (scant perception of the interest of this initiative for the population).
Limited regional healthcare budget.
Lack of information in the general population about the alarm symptoms and the procedure to follow in case of suspect symptoms. Single telephone call: e.g. 112.
Poor motivation to enter data in an individual patient registry.
Professionals unwilling to initiate a program without institutional support.

care activity and results should be recorded to define improvement areas and specific points on which to act. The infarction network must be dynamic to adapt to different changes (opening of new centers, population migration, introduction of new treatments, etc.)

In this issue of the Journal, Blanco et al. (7) present the 20-year experience in STEMI treatment of a high-volume center. They have analyzed the data during the first decade (2000-2009), in which treatment barriers were identified and care improvements were implemented that have been reflected in the second decade (2010-2019). The work done by the center is commendable and deserves our acknowledgement. These data should be the basis to stimulate the political authorities to work jointly and coordinately with all the regional actors and centers to give another step forward to reach more population at risk. The authors of this study have shown that it is possible to implement a STEMI action protocol, amending it after registering and identifying the fields of improvement. If a global and coordinate work is done, we will certainly not have to wait another 10 years to obtain the benefits.

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As future lines of work, one should consider the super specialization of some centers to treat cardiogenic shock secondary to myocardial infarction. This entity has an ominous prognosis (40%-50% mortality at 30 days) and unfortunately, there are currently no therapeutic measures that have shown efficacy beyond early revascularization. There are different ongoing randomized trials with the use of ventricular support devices, (8, 9) that can shed light on their benefit. Nonetheless, the experience with these devices should be focused in high volume centers with the design of a specific circuit for the immediate transfer of patients with cardiogenic shock (shock code).

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/ Supplementary material)

Ethical considerations

Not applicable.

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