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EDITORIAL COMMENT

The Algarve Project: Closest to achieving the aims of the Stent For Life initiative in Portugal☆

Projeto Algarve: a região mais próxima dos objetivos da iniciativa *Stent for Life*

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Several randomized clinical trials[1–5] and meta-analyses[6] have shown that primary percutaneous coronary intervention (PPCI) is superior to fibrinolysis in reducing mortality, reinfarction and stroke following myocardial infarction (MI). The success rate of mechanical reperfusion is over 90%, much higher than fibrinolysis (around 50%). In countries or regions where fibrinolysis has been replaced by PPCI, mortality after MI has decreased sharply.[7]

This does not mean that there is no longer any role for fibrinolysis, particularly in remote areas where PPCI is not readily available. A pooled analysis of the CAPTIM and WEST trials showed that patients treated by pre-hospital fibrinolysis in the first two hours after symptom onset may in fact have significantly lower mortality than those with PPCI.[8]

The European Society of Cardiology (ESC) guidelines on myocardial revascularization state that PPCI is recommended not only for patients admitted directly to a hospital with interventional cardiology facilities but also for those who can be transferred to one within two hours.[9] When fibrinolysis has been used first but was unsuccessful, rescue angioplasty is also indicated. Even when fibrinolysis is successful, there is indication for coronary angiography, and possibly angioplasty, within 24 hours (pharmaco-mechanical reperfusion). It is important to note that the good results obtained with PPCI are dependent on the experience of the team[10]: it is recommended that a PPCI center should perform over 400 interventions a year, of which 36 should be primary angioplasties, and that each operator should perform a minimum of 11 PPCIs per year.

The main limitations of PPCI are logistical, resulting from difficulties in performing the intervention within the necessary time frame.[11] What is important in a complex situation such as MI, in which delays in treatment can have such a negative effect, is to have an organizational structure that is designed to minimize such problems. In general, there are two main sources of treatment delays: those related to the patient, and those related to the health system (pre-hospital and in-hospital).

The lack of awareness in the general population concerning the symptoms suggestive of MI and of what to do when they occur lead to significant delays in beginning appropriate treatment. The Portuguese Registry of Acute Coronary Syndromes[12] for the period 2002–2008 showed that 37.3% of patients underwent no reperfusion procedure and that in 55% of these the reason was arrival at the hospital more than 12 hours after symptom onset.

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In a recent survey by the Portuguese Association of Cardiovascular Intervention (APIC) of centers with PPCI programs, only 30% of patients had telephoned the emergency services before going to the hospital. As a result, 56% of those undergoing PPCI had previously been admitted to hospitals without primary angioplasty facilities before arriving at the center where they were treated. The median delay arising from transport between the two institutions was 120 min (169 ± 183 min).[13]

The ''Stent for Life'' initiative,[14] launched jointly by the European Association of Percutaneous Cardiovascular Interventions (EAPCI) and EuroPCR at the 2009 ESC Congress, aims to improve access to primary angioplasty in countries with lower levels of PPCI per million population.[15] These countries are Bulgaria, France, Greece, Serbia, Spain, Turkey (all since 2009), Egypt, Italy, Romania (since 2010), and Portugal (since February 2011). The main objective of the project, which is to run for three years, is to implement programs that will give patients with ST-segment elevation MI (STEMI) rapid access to PPCI, by achieving the following specific goals: (1) to increase the use of PPCI to more than 70% of all STEMI patients; (2) to achieve PPCI rates of more than 600 per million population per year; and (3) to offer a 24-hours, 7-day service for PPCI at invasive cardiology centers. The role of the ''Stent for Life'' initiative is to catalyze local programs to attain the stated goals.

In an article by Widimsky et al.[16] in the *European Heart Journal* reporting the performance of 30 European countries in terms of primary angioplasty, Portugal had one of the lowest rates of PPCI per million population. Data from the Portuguese Registry of Acute Coronary Syndromes[12] for the period 2002–2008 showed that 37% of STEMI patients underwent no reperfusion procedure, while of the 63% that did, 44% were treated by fibrinolysis. Figures published by the National Coordinator for Cardiovascular Disease[17] show an increase in numbers of PPCI in Portugal from 1118 in 2002 to 2829 in 2010. The latter figure gives a rate of 264 PPCIs per million population, still a long way from the goal of 600 per million.

In the current issue of the *Journal*, Gomes et al.[18] report their experience of a pre-hospital network for the treatment of STEMI by PPCI, the Algarve Project. The study aimed to analyze the project's impact on reperfusion rates, time delays and mortality in patients treated at Faro Hospital, comparing patients admitted via the emergency department with those admitted via the Green Lane for Acute Myocardial Infarction (GL-AMI).[19] Although the baseline characteristics of the two groups were not identical, overall outcomes were significantly better in the GL-AMI group, with a higher percentage reperfused (86.3% vs. 62.2%) and shorter door-to-balloon times: 20 (15–33) vs. 90 (61–147) min. In-hospital (4.3% vs. 9.2%) and 6-month (6.3% vs. 13.8%) mortality were also lower in the GL-AMI group.

The study demonstrates that an organized network can offer PPCI to most patients with MI. Some would argue that, in areas without the necessary organizational structure, fibrinolysis should still be considered a major component of treatment of MI, since it is available more rapidly and virtually everywhere. There is no doubt that fibrinolysis still has a place, but it should be borne in mind that according to European data, lower PPCI rates are not accompanied by higher rates of fibrinolysis, but by lower overall reperfusion rates.[16] In the more remote areas of Portugal, particularly in the interior, fibrinolysis has a role to play, but it is important to establish a system to provide access to coronary angiography and angioplasty within 24 hours. PPCI should be the first-line treatment for MI patients whenever possible.

The Algarve Project is a success story which demonstrates that more resources are not necessarily required to obtain better results; in terms of logistics, the Algarve is no better endowed than other regions of Portugal. A good performance that is close to the goals of the ''Stent for Life'' initiative can be achieved through well-organized pre-hospital networks involving the public, health centers, the emergency services and hospitals.

Conflicts of interest

The author has no conflicts of interest to declare.

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