Lessons from a National Registry of Myocardial Infarction with ST Segment Elevation in Argentina

Lecciones de un registro nacional de infarto de miocardio con elevación del segmento ST en la Argentina

RAMÓN CORBALÁN[1]

In the last 20 years we have witnessed a gradual improvement in the treatment of acute myocardial infarction (AMI), mainly due to a prompter diagnosis, an early implementation of myocardial reperfusion strategies and a better use of concomitant evidence-based therapies. Several consecutively published national and international registries of AMI management have reported a progressive decrease of in-hospital and late mortality. (1-5) The importance of these registries is that they have enabled learning whether AMI international management guidelines are met, as well as their deficit areas. Thus, AMI registries have contributed to the implementation of public policies that have supported better management strategies in different countries. (6) Moreover, registries have the advantage of reflecting the "real world" without the selection biases that characterize multicenter clinical trials.

The AMI registries should be representative of a national or multicenter reality. To achieve this they should have an internal audit to assess the quality of the recorded data and prevent the omission of relevant information, as well as the collection of data over short periods of time. This has been a characteristic, for example, of the registries that have sequentially provided information such as the Spanish PRIAMHO registry and the USA (NRMI), French (FAST-MI) and Swedish (RISK) national registries, reporting a change in the clinical presentation of AMI, with a higher proportion of patients without ST segment elevation, an improvement in the therapies employed and a progressive fall in mortality. (4, 7-9)

The SCAR registry, sponsored by the Scientific Research Area of the Argentine Society of Cardiology has gathered information in the same proportion from affiliated centers of the Autonomous City of Buenos Aires and the provinces. (10) Along with the analysis of overall data studied in a sample of 478 patients in 2011, two periods are compared, the 2005 and the 2011 periods, with samples of 203 and 204 patients, respectively. Although the sample size is small and may reflect a bias in the information obtained, the data provide very relevant and probably representative information of ST segment elevation AMI management in Argentina.

The most notable results of the SCAR registry are the significant reduction in overall mortality, from 13.8 to 6.2%, derived from a shorter presentation time and the increased use of primary TCA and adjuvant therapies. The sample composition of the two periods is similar in terms of demographic data and coronary risk factors, highlighting the high percentage of active smoking in the two periods (39%). The latter could encourage intervention of public policies to reduce its prevalence, as is being done in neighboring countries.

One of the most important developments observed in the SCAR registry is the significant decrease in time from onset of symptoms to hospital admission, being much lower when patients are admitted from home than when they are referred from another center. In this regard the authors point out the differences with European registries, where the presentation time and the onset of reperfusion strategies are shorter. These improvements require the implementation of a support infrastructure, which right now is very difficult to accomplish in South American countries. Nevertheless, the SCAR registry reports a significant increase in the use of primary TCA, with an average door-to-balloon time of 107 minutes, reaching 150 minutes when patients are referred from other hospitals. In 19% of cases thrombolysis is performed, mainly using streptokinase. As pointed out by several authors, it is very important to consider the presentation time for decision-making concerning reperfusion strategies (11). In this regard, it is worth noting the strategies implemented in France (FAST) and in the STREAM trial which have successfully used a modern drug invasive strategy with the prompt administration of a thrombolytic agent such as tenecteplase, followed by early TCA when there are no signs of myocardial reperfusion, or elective TCA, 12 to 72 hours later, when there are signs of successful reperfusion. This strategy has significantlyreduced the mortality of patients treated with thrombolytics, attaining similar or lower values than when delayed primary TCA (8.12) is

[1] Division of Cardiovascular Diseases - School of Medicine - Pontificia Universidad Católica de Chile.

performed. The use of streptokinase requires between 60 to 90 minutes infusion, since faster infusion provokes hypotension, forcing the use of vasoactive drugs and reducing the rate of drug administration. Despite being a less effective thrombolytic agent for all the reasons outlined above, streptokinase is still being used in the vast majority of developing countries. Third generation thrombolytics have the advantage of easy administration by non-specialist physicians shortening the time of treatment initiation. At the same time better referral strategies could be established from centers that have no hemodynamics laboratories. Scientific societies can play an important role to achieve these changes, just reporting the results observed in their registries, such as the SCAR.

An outcome not discussed by the authors is the difference observed in mortality between men and women, 7.5% and 14%, respectively. The higher mortality in women has been attributed to their presentation at an older age, a higher burden of coronary risk factors and more atypical symptoms, thus delaying diagnosis and leading to less use of evidence-based therapies. (6, 13) In this sense it is also possible for scientific societies to play a more active role in education campaigns aimed at women and doctors to speed up diagnosis and employ a better treatment.

In conclusion, the SCAR registry results, with the inherent limitations of a selected sample of patients, illustrates the progress made in a short period of time in the management of ST segment elevation acute myocardial infarction, with a significant reduction in mortality, comparable to that observed in most developed countries. As always happens with registries, along with highlighting progress, it leads us to consider how we can do it even better.

Conflicts of interest
None declared

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