EDITORIAL

Reperfusion of Myocardial Infarction: A Drama with a Happy Ending?

FERNANDO BOTTO[MTSAC, 1]

FIRST ACT: THE OTHER SIDE OF THE COIN

Acute myocardial infarction (AMI) and its complications are the leading cause of death in our country. (1) There is abundant scientific evidence and recommendations pointing out the need for reperfusion therapy at the right time to reduce mortality. Unfortunately, AMI management in our area has been reported recently as "a serious problem of public health" in a document issued by a work group from important scientific societies (SAC, FAC, SATI, CACI, FCA, SAPUE, AND CONAREC), due to the delays in diagnosis and referrals to specialized centers for a high number of patients. These have been due to late arrival, lack of hemodynamics, or the incredible "unavailability" of fibrinolytics. (2)

This issue of the *Revista* publishes an interesting experience by Blanco et al. (3) based on the use of primary angioplasty (CA) in a tertiary public hospital (Hospital Argerich). The authors show us "the other side of the coin" of the sad Argentine reality, through an system organized by the Outpatient Emergency Room, which includes consulting a cardiologist, calling for an hemodynamics team that arrives at the hospital as soon as possible, and half of the patients operated during weekends or out of working hours. In 1997, a series of 509 patients with AMI treated in 11 public hospitals of the Government of the City of Buenos Aires, showed that, during the course of the first month, the indication of coronary arteriography reached 18.6%, and 1.18% for MLCA. (4) We may have endless discussions concerning whether primary MLCA is better than fibrinolytics or not, but what we can confirm is its superiority in very high-risk cases, whose number is much larger than those from such 1997 registry. For this reason, Blanco et al.'s article is commendable, considering they organized a major medical strategy at the service of a low-income community, and considering that almost half of the population did not have medical coverage.

Regarding times reported in the outcomes, a detailed analysis is necessary:

1. The patient time, that is, from the beginning of symptoms to consultation at the Emergency Room, measured as median and interquartile range 25-75, was 60 (40-150) minutes. This is the shortest one, at most, of all the international registries and clinical trials that were published. The value shows that half the patients arrived "within" 60 minutes, broken down in 25% between 40 and 60 minutes, and 25% before 40 minutes. It sounds like too quickly… SAC surveys from 1987 to 2005 (about 2,500 patients) show a median of about 4 hours. (5) While that information may evidence some bias, a possible explanation could be that the time was "shortened" due to including in the analysis the patients whose first medical contact was precisely the *Hospital Argerich*, and due to excluding the referred patients from other centers for primary angioplasty, in which case they would have probably "lengthened" the window. The prospective registries in our area should analyze the times under this aspect, that is, considering the first medical contact, making a difference between referring and receiving centers so that the delays resulting from a patient's referral to another hospital are also considered. I think it is appropriate to mention that the advantage of the CA versus the fibrinolytics is questioned during the first two or three hours, since this is an ideal window for pharmacological reperfusion. Consequently, fibrinolytics could be used for these cases, and the primary CA could be used for windows of more than 2 hours, or for patients with symptoms of heart failure (Killip-Kimball >1), from the perspective of leveraging resources, and as a valid model to be implemented in primary or secondary hospitals.
2. The medical care time, that is, door-to-balloon time, was 93 (72-128) minutes. We should be careful when interpreting this median. The AHA/ACC Guidelines (6) recommend "up to" 90 minutes, and in this case it means that 50% was "above" 93 minutes, even 25% with more than 128 minutes delay. Those hospitals that meet the less than 90-minutes window usually have a median between 60 and 70 minutes. The authors make a sound criticism on this point, and list possible solutions. Certainly, measures that include training for the administrative, medical, and paramedic personnel should be implementend. Fibrinolytics indication could even be justified when a delay of over 90 minutes to balloon inflation is projected.

[MTSAC] Full Member of the Argentine Society of Cardiology
[1] Chief of Admission and Coronary Unit. Instituto Cardiovascular de Buenos Aires

SECOND ACT: FROM REPERFUSION TO REPERCUSSION (IS DREAMING ALLOWED?)

The “other side of the coin”, that is, motivating to improve health care practice, designing a system that includes 24 hours-365 days call for CA, with time registries, training for providers, self-criticism and reconsideration of objectives, should work as a “viral marketing”, with immediate replication in other hospitals. These would allow us to dream about the implementation of a network for AMI treatment or its regionalization, as occurs in important European cities. *Primary and secondary hospitals admit the low-risk patients and treat them with fibrinolytics, and efficiently refer the high-risk ones for primary or rescue CA to an “already predetermined” tertiary hospital*. It works like the already known Trauma Centers, even in our country. This structure must be applied in other places throughout the national territory, both at public and private levels. As part of the largest objective, this proposal must also consider the development of safe and efficient patient transport, targeting mainly at ambulance services. An ambitious program should also consider the possibility of having some air transport means, such as law enforcement helicopters, which would be used only for emergencies demanding no delays, like bullet-injuries or catastrophes.

Finally, I would like to emphasize that scientific societies are willing to help, as mentioned in the accompanying document cited above. (2) And, as always, nothing reliable and long lasting will be possible if health authorities do not take matters firmly into their own hands or get political support for that purpose.

In the meantime... an unknown (but large) number of patients die without option.

BIBLIOGRAPHY

1. Ferrante D, Tajer C. *How Many Infarctions are there in Argentina?* Rev Argent Cardiol 2007; 75:161-2.

2. SAC, FAC, SATI, CACI, FCA, SAPUE, and CONAREC document. *Facts about handling acute myocardial infarction with elevation of the ST segment in Argentina*. Rev Argent Cardiol 2008; 76:226-32.

3. Blanco F, Riccitelli MA, García Escudero A. *Delay in performing primary angioplasty: is it due to the patient or to the healthcare system?* Rev Argent Cardiol 2009; 77:XX-XX.

4. Piombo A, Salzberg S, Lowemberg T, Grasso C, Finaret B, Golub S et al. *Epidemiology of Acute Myocardial Infarction in Public Hospitals of Buenos Aires City*. Rev Argent Cardiol 1999; 67:201-7.

5. Gagliardi J, Charask A, Higa C, Blanco P, Dini A, Tajer C, Sarmiento R. *Acute Myocardial Infarction in Argentina. Contrastive analysis during the past 18 years. SAC surveys results*. Rev Argent Cardiol 2007; 75:171-8.

6. *2007 Focused updated of the ACC/AHA 2004 Guidelines for the management of patients with ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines*. Circulation 2008; 117:296-329.