

Ischemic heart disease: the role of emergency health services in improving survival

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Cardiovascular disease is the main cause of death in the industrialized world, despite a declining trend¹. Several recent studies have documented a significant decrease in the incidence of acute myocardial infarction (AMI). The Californian database Kaiser Permanente has revealed that its incidence (with and without ST elevation) has decreased by more than 50% in only 10 years². In Spain, analysis of data from the studies PRIAMHO I, PRIAMHO II and MASK (involving patients hospitalized for AMI between 1995 and 2005)³ shows that the average age of hospitalized patients was stable (63.8 to 63.2 years), but mortality declined from 9.5 to 5.9%, with a fully adjusted odds ratio (OR) for mortality of 0.62 at 28 days. Interestingly, the OR was 0.43 on including in the multivariate model only the variable form of presentation, but the inclusion of the variable management, such as reperfusion therapy or prescription medication recommended by clinical guidelines, resulted in a higher OR (0.62), which attests to the importance of appropriate early treatment. The improved performance was not only related with the use of medication or recommended interventions, but also with a more appropriate integral approach in AMI patients. In this issue of EMERGENCIAS, Fortuny et al. show how adherence to pharmacological recommendations increases patient survival⁴.

Reperfusion strategy in AMI patients, either by thrombolysis or primary angioplasty when indicated, shows similar survival rates⁵. It seems logical to adapt the treatment strategy to those actually available in each geographical area, and to the final cost one is willing to pay. Basically, economic factors are vital in decision-making (hemodynamic laboratory test availability and appropriate management of times). Clearly, it is in the management of times where the emergency services,

both prehospital and hospital EDs, have been more effective, thus contributing to increased survival of patients with ischemic heart disease⁶. The times involving the emergency services can be divided into three sections. The first is the time between the onset of symptoms and first medical attention, the second is the time between notification and registration and interpretation of the first electrocardiogram (ECG) (which determines the type of acute coronary syndrome and therefore the strategy to be adopted), and the third is the time between ECG diagnosis and reperfusion therapy. The first period is partially independent of the ED since it depends mainly on patient-related factors. Improvement here is crucial and requires health education of the general population, but educational campaigns have not had a significant impact to date. So much so that, in patients with coronary disease the time lapse between symptoms and first medical attention is only slightly lower than for people without a known heart condition. The European Heart Survey 2009, which collected data on AMI patients from 485 centers involving 47 countries, reported that the median time between first onset of symptoms and the arrival on the scene of medical emergency services was 105 min. The vitally important second and third periods (initial call-out to ECG, and ECG to reperfusion therapy) are where the emergency services have shown great awareness, especially since the implementation of structured triage. Recent guidelines on STEMI by the European Society of Cardiology recommend, in patients with chest pain, that ECG diagnosis be performed within 10 minutes of initial contact, preferably in the pre-hospital setting⁷. Also in this issue of the journal is a more detailed analysis of this aspect, where Sanchez et al. present the results of the MUSICA register, which shows differ-

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ences in emergency service times and the treatment received according to type of hospital⁸.

Once the diagnosis has been established, the type of reperfusion has to be decided, which involves transfer to the best available center, considering that primary angioplasty or intravenous thrombolysis can and should be performed as early as possible, but also recalling the possibility of pre-hospital systems administering the latter therapy. The problem, which seems simple on paper, is complicated in reality, since there must be a transfer of the patient from the scene to hospitals without cardiac catheterization facilities and from these to centers with hemodynamic units. Once again, what seems optimal initially is not necessarily so, since these transfers mean delays in assistance⁹ that increase the risk of mortality. Having a single intervention strategy may result in delays, as described in some recent work, which makes dual treatment worth reconsidering¹⁰. Returning to the data obtained in the European Heart Survey of 2009, the median time between ECG and primary angioplasty was 115 min and the median time between the ECG and fibrinolysis was 50 min, implying that a significant percentage of patients received reperfusion therapy late, according to the time limits set by the clinical guidelines, a result that was also reported in a study previously conducted in Spanish EDs¹¹. The population is aging, and simply visiting the ED of any Spanish hospital makes one realize what this entails. These patients have peculiarities which affect the points mentioned above: difficulty interpreting their symptoms, barriers of knowledge and ability to contact pre-hospital care services, and difficulty for health professionals when making the diagnosis of patients, because of the characteristics their clinical symptoms and their ECGs. In this issue of EMERGENCIAS, Montiel et al. report on the RESIM register data relating to the attention of elderly patients and show that age and the performance of angioplasty are the factors that best predict survival at 30 days¹². However, these results cannot be generalized since there was a selection bias: the elderly with multi-morbidity are often not indicated for this type of reperfusion due to

their underlying conditions. On the other hand, monitoring was limited to 30 days so it is unknown whether this therapy actually extends life beyond 30 days. Undoubtedly, the elderly will represent a major challenge in the ED in terms of handling attention times properly and optimizing the treatment they should receive, especially considering the current economic crisis with reduced healthcare resources¹³.

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