EDITORIAL

Organizing the emergency care of patients with chest pain

La organización de la atención al dolor torácico en urgencias

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Acute chest pain is a worrying symptom for patients, who often associate it with myocardial infarction and the need for immediate care. It accounts for 5-10% of hospital emergency department (ED) visits and in less than 20% of cases it is caused by acute coronary syndrome (ACS). Emergency physicians are aware of the importance of early identification and treatment of high-risk ACS and other life-threatening situations (such as acute aortic syndrome, pulmonary thromboembolism, or tension pneumothorax), which is why initial care of chest pain is one of the best protocolized processes in the ED. Recommendations from clinical practice guidelines include early electrocardiography (ECG), serial determination of cardiac troponin and the use of ischemic risk scales (such as GRACE or TIMI) to guide therapeutic decisions in patients with ACS[1-4].

Patients with no signs of ischaemia on the ECG and negative troponin represent a challenge for the emergency physician, who is faced with the decision to prolong admission to continue the diagnostic process (with the risk of subjecting the patient to unnecessary tests) or to discharge after the initial assessment assuming the risk of short-term complications[1,2]. If an ischemic origin is suspected, clinical practice guidelines recommend an ischemia challenge test before discharge or within the first 72 hours[2,3] to try to detect underlying coronary disease and reduce the risk of adverse events (MACE, major adverse cardiovascular event) within the following 4-6 weeks. The ED has implemented these chest pain protocols with different modalities of functional organization, generally using observation units[5], or structural chest pain units (CPU) as is the case in the article published in this issue of EMERGENCIAS[6]. There is evidence that these alternatives are more cost-effective than conventional hospitalization, but they involve significant resource consumption and increase the average stay of patients in the ED[1,5].

López-Barbeito et al.[6] analyze the evolution of the clinical and epidemiological characteristics of 34,552 care operations carried out in a CPU over 10 years, using a care protocol that included the use of conventional troponin and the performance of an ischemia induction test in patients classified as possible ACS and troponin negative. Among the limitations of the study, it should be noted that the final diagnosis of ACS was established with the results obtained in the CPU itself and that there was no follow-up data to detect diagnostic errors or ischemic events after the emergency care. The study offers a new perspective on time, with interesting results such as the progressive increase in the number of visits, the increase in consultations made by younger patients with less history of coronary disease and with less suggestive pain of coronary origin, or the increase in the average length of stay required to reach the final diagnosis.

The inclusion of fewer selected patients in the CPU may be due in part to increased demand induced by the very existence of the care circuit, a phenomenon described previously[7] and noted by the authors in their paper[6]. Another factor contributing to a conservative attitude in the assessment of chest pain is the low tolerance for diagnostic error: most emergency physicians consider an error rate of 1% or less acceptable for detecting patients with ACS or at risk of suffering from ACS after discharge[8]. This threshold is less than 1-2% that the ACEP (American College of Emergency Physicians) establishes as reasonable based on the performance of diagnostic tests[2] and could influence the indication of complementary studies in patients with very low probability of the disease, without considering that this decision increases false positives and exposes the patient to a risk that could exceed the possible benefits[2].

Is it possible to identify among patients with negative ECG and troponin patients with a low risk of MACE (< 1% at 30 days) and discharge them from the ED early and safely? At present we have ultrasensitive troponins[3,4] and risk scales developed in the EDs (the HEART scale is the most studied[1,2]) that improve the low diagnostic accuracy of unstructured clinical assessment in patients with possible ACS[1,2,9]. The ACEP recommends, with a C level of evidence, three diagnostic strategies to identify low-risk patients with a sensitivity above 99% to predict MACE at 30 days[2]: first, the so-called HEART *Pathway* (patients with a HEART score of less than 3 and two serial determinations of high-sensitivity troponin at 0 and 3 hours below the 99th percentile of the upper reference limit)[10]; second, acce-

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lerated diagnostic protocols based on a TIMI score of 0 and two serial determinations of ultrasensitive troponin at 0 and 2 hours[11]; finally, a single determination of ultrasensitive troponin below the detection level at patient arrival[12]. The increase in early discharge from conventional management can be as high as 21%[2,10]. Low-risk patients included in these protocols should not be tested for ischemia prior to discharge, since this does not influence the reduction of MACE at 30 days (recommendation with level of evidence B)[2], nor does there appear to be a difference in the frequency of events among patients in whom the test is performed after discharge (before or after 72 hours) or is not performed at all[13].

We can state that EDs have sufficient tools to identify patients with chest pain who are candidates for early discharge, but studies are needed to validate the efficacy and safety of these recommendations and to take into account the available resources according to the type of hospital or geographical area, including the organizational differences of the health system in the different autonomous communities[14]. Finally, shared decision making with the patient[1,15], after providing adequate information and discussing the risks and benefits of the available alternatives, should be incorporated as an essential element in the clinical practice of our EDs.

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