REUE | Scientific letter

Satisfaction of health care providers with the use of ultra-sensitive troponin "point-of-care testing" in emergency settings

Satisfacción de los profesionales sanitarios con el uso de "point of care testing" de troponina ultrasensible en los servicios de urgencias

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Currently, the use of point-of-care testing (POCT) for portable and rapid analytical determinations is becoming increasingly advanced. Since the initial use of glucometers more than 20 years ago, devices have been developed that are capable of analyzing certain analytical parameters in just a few minutes. These increasingly widespread tools allow healthcare professionals to make safer and faster decisions when caring for patients, both in hospital and out-of-hospital settings.[1-3] In recent years, various POCT models have been introduced to the market, including devices that allow for the analysis of high-sensitivity troponin (hs-cTn). These provide analytical results much more quickly and with similar reliability to determinations from the hospital core laboratory (HCL).[4,5]

Of note, non-traumatic chest pain remains one of the most frequent reasons for consultation in Emergency Departments (EDs), accounting for 5-20% of all emergency care. Acute coronary syndrome (ACS) is the most common clinical sign of coronary artery disease and one of the main causes of morbidity and mortality in Europe.[6] The final diagnosis of ACS is based on clinical evaluation, electrocardiogram (ECG) analysis, and the measurement of cardiac enzymes. Currently, in cases of suspected non-ST-segment elevation acute coronary syndrome (NSTEACS), hs-cTn determination is crucial and decisive for diagnosis, risk stratification, and treatment selection.[7] The latest consensus guidelines on NSTEACS recommend further studying the use of hs-cTn POCT for its introduction into care protocols.[8]

Therefore, we conducted a study was conducted on the diagnostic performance of hs-cTn in the assessment of non-traumatic chest pain with suspected NSTEACS in a hospital ED. The result was that the hs-cTn values obtained using a Siemens Atellica® VTLi hs-cTn POCT (Siemens Healthcare GmbH Henkestr. 127 91052 Erlangen, Germany) were equivalent to HCL determinations in terms of sensitivity, specificity, and predictive values. Furthermore, a significant reduction was observed in the time needed to obtain hs-cTn values using the POCT device vs the HCL.[9]

Given the usefulness of using rapid hs-cTn POCT, we decided to conduct a study aimed at analyzing the degree of satisfaction and opinions on the utility of the analyzed POCT among the nursing and medical professionals who had been involved in the previous study. For this purpose, an anonymous survey was conducted via Microsoft Forms with the following questions: Have you received prior information about the study? Was the device complex to use? Did it add a burden to your usual work? Do you think the use of this POCT is useful for managing patients with chest pain in the ED? Do you think its use should be protocolized in nursing triage for patients with non-traumatic chest pain along with the ECG? Do you think devices like this or similar should be incorporated for routine use in the ED? Finally, the professional category was asked: nurse or doctor. The study was approved by the Ethics and Research Committee of the reference health area.

The survey was answered by 86 professionals, of whom 48 (55.8%) were nurses and 38 (44.2%) were doctors. Table 1 shows the responses obtained. 95.3% of the professionals received prior information, and 94.6% of all respondents considered that using the device was not complex. Regarding perceived usefulness, 96.5% answered that the use of this POCT could be considered useful in the clinical management of chest pain. In relation to the routine use of these devices, 95.8% of nurses and 100% of doctors believed that their use should be incorporated ($P > .05$). However, 36% of respondents thought that this type of

Table 1. Responses of surveyed professionals according to professional category

Question	Total n (%)	Nursing n (%)	Medicine n (%)	*P*-value
Have you received prior information about the study and materials?				> .05
Yes	81 (95.3)	45 (93.7)	36 (97.3)	
No	4 (4.7)	3 (6.3)	1 (2.7)	
Did you find the use of the device complex?				> .05
Yes	5 (5.9)	3 (6.3)	2 (5.4)	
No	80 (94.6)	45 (93.7)	35 (94.6)	
Do you think the use of this POCT is useful for managing patients with chest pain in the ED?				> .05
Yes	82 (96.5)	45 (95.7)	37 (97.4)	
No	3 (3.5)	2 (4.3)	1 (2.6)	
Has it increased your usual workload?				
Yes	31 (36)	25 (52.1)	6 (15.8)	
No	55 (64)	23 (47.9)	32 (84.2)	< .001
Do you think its use should be protocolized in the nursing triage for non-traumatic chest pain patients along with the ECG?				> .05
In all patients with CP	18 (20.9)	8 (16.7)	10 (26.3)	
It should not be done in triage	5 (5.8)	2 (4.2)	3 (7.9)	
Only in cases referred from PC				
Only in suspected cases as indicated by the EP	28 (40.7)	26 (54.2)	2 (5.3)	
Do you think devices like this or similar should be incorporated for routine use in the ED?	35 (40.7)	12 (25.0)	23 (60.5)	< .001
Yes	84 (97.7)	46 (95.8)	38 (100)	
No	2 (2.3)	2 (4.2)	0 (0)	

PC: primary care; CT: chest pain; ECG: electrocardiogram; EP: emergency physician; POCT: point-of-care testing; %: percentage; ED: Emergency Department.

device could represent an overload in current clinical practice. In the analysis by professional category, 52.1% of nurses understood this as an overload vs only 15.8% of doctors ($P < .001$). In a hypothetical use of these POCTs, only 4.2% and 7.9% of nurses and doctors, respectively, considered that this determination should not be performed in initial triage ($P < .001$). Most professionals (81.4%) believed that its use should be reserved for patients with some suspicion of ACS upon arrival, although 16.7% of nurses and 26.3% of doctors believed it could be done for all patients with non-traumatic chest pain during triage.

With these data, we can affirm that hs-cTn POCTs are considered very useful among emergency professionals who have handled them in the context of research work, and that they could be helpful in the initial assessment of patients with non-traumatic chest pain.10 Furthermore, our results coincide with other studies that affirm that healthcare professionals' perception of POCTs is that their use provides benefits.[1] Koehler et al. observed that the use of POCT troponin I in an ED was satisfactory among the involved health care professionals and this was associated with improved workflow, better care, improved communication among healthcare professionals, and a reduction in patient care times.[5] Therefore, the implementation of these systems seems to demonstrate significant improvements in the care flow and allows for a faster classification of patients with chest pain, achieving an early diagnosis of ACS.[11]

On the other hand, we observed that their use can represent an overload, especially among nursing professionals who perform the initial triage of patients with chest pain. This fact has already been described as a possible barrier to their implementation in Eds,[12] potentially hindering their use during moments of excessive care workload. However, proper management of this type of POCT, with a prior classification of each patient rather than systematic use, aligns with the general use of POCTs in EDs. Indeed, these devices should be managed in a protocolized manner, aiming for improved quality of care, greater patient safety, improved patient flow, and better risk management. We believe that these tools should, in any case, be implemented within the context of applying what is known as advanced triage, a global instrument that improves various aspects of emergency care, such as length of stay, safety, and satisfaction for both patients and professionals.[10,13]

Of note, the widespread use of hs-cTn POCTs can lead to other problems, such as an indiscriminate increase in tests due to increased accessibility, which can lead to uncertain diagnoses and more unnecessary tests,[12] as well as an increase in the economic cost generated by the introduction of POCTs compared to centralized tests.[14] Therefore, although we have not found specific cost/effectiveness studies of hs-cTn POCT vs HCL, studies that evaluate the general use of POCT in EDs have found contradictory results, varying depending on the aspects analyzed.[15,16] Future studies should assess the cost-effectiveness relationship and also the benefits of implementing this type of device, such as the reduction in waiting times in EDs, an aspect probably not fully considered in cost/effectiveness analyses when they do not include ED professionals.[11] Finally, another limiting factor for the introduction of these tests is the need for training of ED professionals who have to run the test.[12] However, we observed that most participants recognized that run-

ning the test was not a complex thing to do. Furthermore, this factor may be important in the initial implementation but will surely improve over time, as familiarity with these analyzers increases.[12] Other aspects to consider in the future are their usefulness in Primary Care emergency points and Spanish advanced life support vehicles. We are aware that some Spanish Autonomous Communities (CC.AA.) and Emergency Medical Services (SEM) are conducting studies in this regard.

In conclusion, the use of hs-cTn POCT in the analyzed ED has great acceptance among healthcare professionals, although it is also necessary to protocolize its use in the context of triage for patients with chest pain, with the need to coordinate its use among the different levels involved in the care of these patients, in order to optimize its safe and efficient utilization in these care settings.[17]

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