

## LETTERS TO THE EDITOR

**Out-of-hospital cardiopulmonary resuscitation***Reanimación cardiopulmonar extrahospitalaria***To the editor:**

Early recognition, immediate initiation of excellent CPR and early defibrillation are the keys to survival from sudden cardiac arrest. Azeli and his group are conducting impressive and excellent research including the ReCaPTa study on sudden cardiac death in the Camp de Tarragona area with more than 500,000 inhabitants<sup>1</sup>. On this occasion, Azeli et al.<sup>2</sup> report, from a sample of 559 CPR attempts treated by the Emergency Medical Service (EMS), data from 109 cases that did not survive, showing that 63.3% suffered severe rib cage damage (SRD) and 14.7% severe visceral damage (SVD). One of the practical conclusions for teams that will face future resuscitation is that, based on the ratios obtained, SRD are related to thoracic perimeter, abdominal perimeter and age, and that SVD are associated with women.

There is no information on the quality of the resuscitation performed. The authors refer to the EMS protocols prepared in accordance with the resuscitation guidelines in force during the study period<sup>3</sup>, but no incidents that could influence the performance of excellent CPR are reported<sup>4</sup>.

There are no data for 25.7% of the 144 patients admitted alive to the hospital. As the authors themselves consider when commenting on the article by Koster et al.<sup>5</sup>, the results may vary if survivors are also considered. It is easy to assume that resuscitation is more intense if effective resuscitation is not achieved in the course of the manoeuvres. It would also be interesting to know the injuries sustained from the survivors<sup>1</sup>.

Finally, 33% of out-of-hospital cardiac arrests attended<sup>2</sup> were not subject to CPR. It may be asked whether, as a result of the results in the area of study<sup>1</sup>, more and better training of the general population could increase the number of people receiving CPR from the outset.

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**Author's reply***Respuesta de los autores***To the editor:**

Agradecemos los amables comentarios que nos hacen en el artículo sobre el estudio ReCaPTa y el interés mostrado por Bentoldrà et al. en la revisión de nuestro artículo<sup>2</sup>.

Pensamientos sobre la calidad de CPR realizada y el resultado en relación a lesiones secundarias y supervivencia han sido de gran interés para nosotros. Estudios bien diseñados que

que también incluyeron supervivientes no encontraron fracturas de esternón y fracturas de costillas asociadas con una menor tasa de recuperación de circulación espontánea<sup>3</sup>. Lesiones torácicas se han encontrado con un pico significativo en la iniciación de CPR. Si son graves, la deterioración de la elasticidad del tórax ocurre. La representación de su efecto en el diagrama de Campbell muestra una caída en la compliancia del tórax y pulmón, lo que produce un efecto adverso en la hemodinámica durante CPR<sup>4</sup>. Por lo tanto, hasta que se obtengan más datos, es más preciso pensar que lesiones graves del tórax conducen al fracaso de la recuperación de circulación espontánea que a lo contrario. El estudio de cómo preservar la integridad de las propiedades mecánicas del tórax, como la caída temprana de la descompresión torácica que ocurre en mujeres y los ancianos<sup>5</sup>, puede abrir nuevas vías hacia CPR personalizada.

Estudios que combinan datos de un dispositivo que controla la calidad de CPR con el estudio de lesiones secundarias a compresiones torácicas son desafortunadamente muy escasos, pero proporcionan información valiosa que es la que permitió el límite máximo de profundidad de compresión recomendado en las guías para ser establecido<sup>6</sup>. Por lo tanto, para minimizar los incidentes sobre la calidad de CPR durante el transporte al hospital, en nuestro estudio solo incluimos pacientes que recibieron CPR manual en el lugar<sup>7</sup>.

Otro aspecto que nos gustaría comentar se refiere al potencial para mejorar la formación de la población en técnicas de CPR. En nuestro estudio, el 37.6% de los intentos de CPR recibieron supervivencia antes de la llegada de los servicios de emergencia. El mediano europeo es el 50.0% con un rango entre el 6.3% y el 78% según los países estudiados<sup>8</sup>. En el Camp de Tarragona, diferentes actores trabajan en una red para mejorar la formación de la población en CPR. El Consell Català de Resuscitació y la Rovira i Virgili University están exitosamente ejecutando proyectos clave con el apoyo adecuado, pronto nos pondremos entre los equipos líderes en este aspecto fundamental.

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## Prognosis in heart failure: importance of physical frailty at the time of admission

### *Importancia de la fragilidad física en el momento del ingreso en el pronóstico de la insuficiencia cardiaca*

#### To the editor:

The ageing population causes an increased demand for medical care worldwide, especially in the emergency department (ED). For this reason, in the last decade, the flow of elderly patients (> 65 years) has progressively increased over the years. Half of these people are frail and therefore need a gentle approach<sup>1,2</sup>. A frail person is characterized by an increase in symptoms, within a complex clinical context, associated with reduced tolerance to medical interventions<sup>3</sup>. Frailty is also defined as a syndrome of psychological decline that occurs in the last years of life, marked by vulnerability to adverse health outcomes<sup>3,4</sup>. From these definitions, the idea of the need to create a system in the ED that allows the assessment of a complex patient in a multidisciplinary manner and according to his/her needs is extracted<sup>4</sup>.

The article by Llopis Garcia et al.<sup>5</sup> shows that fragility of patients with acute heart failure at discharge may influence the prediction of their clinical evolution after one year. Specifically, to measure the fragility of patients in the study, these authors used the Short Physical Performance Battery (SPPB) tool, since it had demonstrated its usefulness in various clinical trials to characterize physical fragility. Furthermore, the primary objective of the study was to detect the occurrence of revisits or readmissions for heart failure and all-cause mortality during the first year after ED discharge.

Our concern is that the fragility or quality of life of patients has not been assessed prior to admission to the ED. On many occasions, patients with chronic pathology are totally independent for basic daily activities. However, when they suffer decompensation, their quality of life may be affected. Barthel and Charlson-type scales could have provided data on pre-admission status. It would have been very interesting to know how the pre-admission and discharge status influence to provide information on how to act in the ED.

In addition to knowing the baseline status of the patient, the diagnostic-therapeutic approach performed in the ED is crucial in order to provide solutions to the problems associated with fragile patients<sup>4</sup>. For this reason, it would be interesting to create an established protocol to identify complex chronic patients and refer them to a team specialized in this field, which can better guide the cases presented in the ED.

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## Author's reply

### Respuesta de los autores

#### To the editor:

We have read with interest Aguilar's reference to our work documenting the impact of physical frailty on older patients with acute heart failure (AHF) discharged from an emergency department (ED)<sup>1,2</sup>. The main criticism is based on the absence and importance of baseline functional status assessment in the study population. In relation to this, we would like to make a series of comments.

Firstly, it should be clarified that this was a sample of older patients with AHF discharged from an ED with a median basal Barthel index of 90 (IQR 80-100) points<sup>2</sup>. It has been established that physical frailty is a situation prior to disability and it is recommended that older subjects who do not have an established degree of moderate or severe disability be evaluated<sup>3</sup>. If we consider the functional situation as a continuum where physical frailty and disability are different stages of the same, the fact of incorporating a tool such as the Short Physical Performance Battery (SPPB) allowed us to evaluate the entire spectrum of the patient's physical situation, not only the basic activities of daily living. In this sense, it is known that the Barthel index has a significant ceiling effect, which reduces sensitivity in detecting physical frailty<sup>3,4</sup>. Physical performance tests, and especially SPPB, are the most recommended when diagnosing physical frailty<sup>3,5</sup>. One of the main drawbacks for its implementation in the ED is the need to perform a physical task, which makes it difficult to apply in an acute situation. Therefore, this study had the originality of applying this test at the time of discharge planning from the ED in order to detect the frequency of physical frailty, not only disability, with a view to predicting long-term results.

Secondly, the Barthel index is an excellent prognostic marker in older

patients with AHF<sup>6-8</sup> and, in fact, has been incorporated into the models to stratify the risk of patients with AHF<sup>9</sup>. One aspect recently described is that the predictive ability of the Barthel index is greater at the acute stage than in the baseline situation, and even the difference between the two, in patients with AHF<sup>8</sup>. Therefore, considering the co-linearity between baseline and acute Barthel index, we recommend only functional assessment at the time of arrival to the ED in clinical practice<sup>8</sup>. Therefore, the authors decided to use only the SPPB scale as a measure of functional assessment at discharge.

Despite the limitations of this work, we believe that these results open up a new field of research aimed at the feasibility and relevance of detecting physical fragility in units linked to EDs. At present, it is imperative to introduce performance variables other than mortality in emergency care, related to functionality, quality of life and patient preferences, when making decisions. Avoiding disability should be one of our main objectives and therefore, as a priority, this involves detecting patients with physical fragility and implementing intervention strategies to improve outcomes. Currently, the DEED FRAIL AHF study is being carried out with this maxim, and its objective is to demonstrate whether the detection of frailty and the application of a multidimensional discharge plan will improve the health outcomes of elderly patients with AHF<sup>10</sup>.

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