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LETTERS TO THE EDITOR

SMART: Is saline on the tightrope?☆

SMART: ¿está el suero salino en la cuerda floja?

Dear Editor,

Back in October 2015, the results from the SPLIT trial[1] confirmed that the use of a balanced crystalloid solution as a resuscitation fluid in critically ill patients did not reduce the risk of developing acute renal failure compared to the use of a saline solution (SS). Contradicting important prior studies,[2] those conclusions complicated a fundamental debate.

Two years later, October 2017, the results from the SMART trial were published: ''Balanced crystalloids versus saline in the intensive care unit: study protocol for a cluster-randomized, multiple-crossover trial''.[3]

The SMART trial is a cluster-randomized, multiple-crossover trial that was conducted between July 1, 2015 and April 30, 2017 in 5 American ICUs of one single university hospital. Patients over 18, who had been admitted to 5 selected ICUs (medical, surgical, neurological, trauma, and cardiac), and who had been prescribed one IV crystalloid solution were included in the study. Same as the SPLIT trial, the SMART trial compared to use of a SS to a balanced crystalloid solution. The primary goal of the study was to determine the MAKE composite score (Major Adverse Kidney Events: intra-hospital death, renal replacement therapy, or renal dysfunction) within the first 30 days after the ICU admission (MAKE-30).[4]

The results presented, with 15,802 patients recruited, show that the outcome of MAKE-30 was present in 14.3% of patients from the group who received balanced SS compared to 15.4% of the patients from the second group ($p = 0.04$), with a 0.91 adjusted odds ratio in favor of the balanced fluids (95% CI: 0.82–0.99). In this case, the difference between the arms was triggered by the hospital mortality rate (11.1 versus 10.3%; $p = 0.06$).[5]

These findings, that are consistent with the different mortality rate seen in patients from the SPLIT trial (7.6 versus 8.6% in favor of the balanced solution), cannot be considered a casual finding.[1,5]

With the data presented from the SMART trial, the number of patients needed to treat (NNT) to save just one life would be 94. And even though this figure may be underestimated, it is really important to think about the impact that such a routine daily measure as picking up this or that resuscitation fluid can have on the costs and human lives here at our ICUs.

Also, balanced crystalloid solutions are more expensive. However, if we could use these fluids to avoid the occurrence of major adverse renal events, we would definitely find it cost-effective to use them, even if it wasn't a short-term cost-effectiveness.

Conflict of interests

Dr. González-Castro, MD declares as a possible conflict of interest his job for Baxter.

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Increasing time to stop cardiopulmonary resuscitation in out of hospital cardiac arrest☆

Aumento del tiempo para cesar la reanimación cardiopulmonar en la parada cardiaca extrahospitalaria

Dear Editor,

Back in 2015, the European Resuscitation Council established a maximum of 20 min of caldiopulmonary resuscitation (CPR) maneuvers for non-shockable rhythms without specifying the time in the case of cardiac arrests (CA) with shockable rhythms.[1]

The excellent review from López-Messa provides, based on the scarce series available, a wider CPR window, particularly in certain groups of population, and addresses the use of the available diagnostic and therapeutic elements in and out of the hospital (capnography, ultrasound, etc.).[2]

Based on his proposal on CPR times, we hereby present the following case: thirty-nine-year-old male fire fighter without a significant personal history who back in his home suffers a cardiac arrest witnessed by his wife who immediately calls 112. This emergency service explains to her how to perform CPR maneuvers. Then the wife calls a neighbor who happens to be an ER doctor. Using her phone hands-free functionality, this ER physician explains to her how to perform CPR maneuvers and gives her personal support until her arrival. After 20 min performing basic CPR maneuvers, the EMT arrives with a SAED capable of identifying shockable rhythms and extends CPR for another 19 min with advanced life support plus 3 electric discharges. The victim recovers spontaneous circulation, the trace in the ST segment elevation is detected, and the patient is transferred to a hospital with hemodynamic laboratory capabilities, and then admitted to the Intensive Care Unit.

After the hospital discharge and after patient's follow-up for one full year, no neurological or any other kind of sequelae have been identified; the patient has remained asymptomatic and without any new cardiological events (Appendix A additional material).

Our case is similar to the 11 patients from Grunau et al.'s series who went over the 30 min-threshold performing CPR maneuvers. Eight (8) of these patients kept their neurological capabilities intact after hospital discharge.[3] Similarly, Loma-Osorio's study on out-of-hospital sudden death due to cardiac causes with Coronary Intensive Care Unit admission established a series of negative prognostic factors that we also saw in our patient, such as the need for invasive ventilation for over 10 days, CPR maneuver times <30 min, and shock and lactic acidosis upon arrival at the hospital.[4] However, our case shares good prognostic factors such as, among others, being a witnessed out-of-hospital sudden death, the implementation of SAED with initial shockable rhythm, the induction of hypothermia, and the ST-segment elevation myocardial infarction (STEMI) as the underlying cause. As the OHSCAR study establishes, we believe that the initial phone support given to the CA witness also contributed to a successful PCR in the aforementioned case.[5]

As López Mesa,[2] at least in the subgroup of young and healthy patients, with a witnessed CA and initial shockable rhythm, we should think about the possibility of extending the time of CPR maneuvers up to 40 min, even more so if a STEMI has been the cause leading to the CA.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.medine.2018.05.008.

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