5. Molina Nuñez M, de Alarcón R, Roca S, Álvarez G, Ros MS, Jimeno C, et al. Citrate versus acetate-based dialysate in on-line haemodiafiltration. A prospective cross-over study. Blood Purif. 2015;39:181–7.
6. Steckiph D, Bertucci A, Petraulo M, Baldini C, Calabrese G, Gonella M. Calcium mass balances in on-line hemodiafiltration using citrate-containing acetate-free and regular dialysis concentrates. In: Abstract ERA-EDTA Congress. 2013.
7. Nilsson LG, Sternby J, Grundström G, Alquist M. Citrate dialysis fluid and calcium mass balance. In: Abstract ERA-EDTA Congress. 2013.

Rafael Pérez-García*, Marta Albalate, Patricia De Sequera, Mayra Ortega

Servicio de Nefrología, Hospital Universitario Infanta Leonor, Madrid, Spain

* *Corresponding author.*
E-mail address: rperezga@salud.madrid.org (R. Pérez-García).

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Sudden death in patients with advanced chronic renal disease☆

Muerte súbita en pacientes con enfermedad renal crónica avanzada

Dear Editor,

We have read the article by Caravaca et al. entitled "Sudden death in patients with advanced chronic kidney disease"[1] and we would first like to congratulate the authors.

It is a subject of great interest among both kidney failure patients and the general population, which is a cause for social concern and requires a complex approach.

We believe its complexity is based on several factors. The first is the definition of sudden death (SD) itself. The one used by the authors is the most widely accepted and includes natural death occurring within an hour of the onset of symptoms, although they also include unexplained death during sleep. The latter definition can be assimilated to those that propose other time intervals (2, 6 and 24 h) between the onset of symptoms and death for specific circumstances such as unwitnessed death, which reduce the probability of heart-related death the longer the time that elapses between death and the onset of symptoms.[2] This variability in the time period in question is one of the factors that contribute to the differences found in the prevalence of SD in different studies. Caravaca et al. found an annual incidence of 1.8%, not including that of death during sleep. In a study conducted at our hospital on a dialysis population, the annual incidence was 1.7% when we considered an interval of one hour, and 2.9% when the interval was extended to 24 h.[3] The lack of autopsies in the Caravaca et al. study, as in ours (something that was particularly inexplicable for the reviewers of the American journal in which it was published), poses many obstacles when it comes to establishing the cause of death. In a Japanese study in which autopsy was performed on 81.4% of patients who had SD, strokes and aortic dissection accounted for more than 45% of the causes of death.[4]

Another aspect to be taken into account when analysing SD is the need to search for those factors that identify the population at greatest risk in order to come up with targeted and profitable prevention strategies. Caravaca et al. found through Cox regression analysis that greater age and greater comorbidity were associated with a higher probability of SD, and the use of antiplatelet therapy had a protective effect. In our study,[3] with the same analysis, we identified a combined variable that included a documented history of coronary disease and electrocardiographic abnormalities (abnormal Q waves, subendocardial lesion, negative T-wave and QRS >120 ms) which clearly identified two risk groups. Patients who had none of the aforementioned findings had almost the same probability of SD as the general population; however, those who had one of them had a probability of SD similar to that shown by patients in the general population with left ventricular dysfunction and who have been included in studies demonstrating the efficacy of the automatic implantable defibrillator.[5,6] The lack of availability of electrocardiography records in the Caravaca et al. study, which the authors point out as a limitation, makes it impossible

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to verify whether the findings of our study can be extrapolated to a renal insufficiency population that is not on dialysis.

The study by Caravaca et al. provides information and raises awareness of the importance of the problem and urges the scientific community and the health authorities to establish measures. The first of these is to give a precise definition of SD in all registers in order to reduce variability between centres. The need to perform autopsies in cases of unexpected, unexplained deaths, even in patients with severe chronic diseases, is undoubtedly an aspect that should be given greater attention.

Finally, the identification of risk subgroups does not necessarily mean that we can extrapolate the prevention strategies that have been shown to be effective in the general population. The automatic implantable defibrillator is less effective in patients with kidney failure,[7] and even something as basic as having external defibrillators in dialysis units also has a limited efficacy.[8]

In conclusion, we again congratulate Caravaca et al. for their contributions to an important issue that has so far not been given the attention it deserves.

REFERENCES

1. Caravaca F, Chávez E, Alvarado R, García-Pino G, Luna E. Muerte súbita en pacientes con enfermedad renal crónica avanzada. Nefrologia. 2016;36:404–9.
2. Kuller LH. Sudden death: definition and epidemiologic considerations. Prog Cardiovasc Dis. 1980;23:1–12.
3. Vázquez E, Sánchez-Perales C, García-García F, García-Cortés MJ, Torres J, Borrego F, et al. Sudden death in incident dialysis patients. Am J Nephrol. 2014;39:331–6.
4. Takeda K, Harada A, Okuda S, Fujimi S, Oh Y, Hattori F, et al. Sudden death in chronic dialysis patients. Nephrol Dial Transplant. 1997;12:952–5.
5. Moss AJ, Hall WJ, Cannom DS, Daubert JP, Higgins SL, Klein H, et al. Multicenter automatic defibrillator implantation trial investigators: improved survival with an implanted defibrillator in patients with coronary disease at high risk for ventricular arrhythmia. N Engl J Med. 1996;335:1933–40.
6. Packer DL, Prutkin JM, Hellkamp AS, Mitchell LB, Bernstein RC, Wood F, et al. Impact of implantable cardioverter-defibrillator, amiodarone, and placebo on the mode of death in stable patients with heart failure: analysis from the sudden cardiac death in heart failure trial. Circulation. 2009;120:2170–217.
7. Goldenberg I, Moss AJ, McNitt S, Zareba W, Hall WJ, Andrews ML. MADIT-II investigators relations among renal function, risk of sudden cardiac death, and benefit of the implanted cardiac defibrillator in patients with ischemic left ventricular dysfunction. Am J Cardiol. 2006;98:485–90.
8. Lehrich RW, Pun PH, Tanenbaum ND, Smith SR, Middleton JP. Automated external defibrillators and survival from cardiac arrest in the outpatient hemodialysis clinic. J Am Soc Nephrol. 2007;18:312–20.

Carmen Sánchez Perales[a,*],
Eduardo Vázquez Ruiz de Castroviejo[b]

[a] *Unidad de Gestión Clínica de Nefrología, Complejo Hospitalario de Jaén, Jaén, Spain*
[b] *Unidad de Gestión Clínica de Cardiología, Complejo Hospitalario de Jaén, Jaén, Spain*

* *Corresponding author.*
E-mail address: mcsanchezp@senefro.org (C. Sánchez Perales).

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Reply to: «Sudden death in patients with advance chronic kidney disease»☆

Respuesta a la carta: «Muerte súbita en los pacientes con enfermedad renal crónica avanzada»

Dear Editor,

We thank Dr. Sánchez Perales and Dr. Vázquez for their complimentary comments on our work and, with due respect, we feel we must give our reasons as to why the invaluable results from their study[1] were not cited or mentioned in ours.

Our paper was written during the first half of 2014 and was accepted for publication in the journal NEFROLOGÍA in the last quarter of that year. Due to problems related to a change of publisher and therefore outside the authors' control, the paper was 'stuck' between publishers, until we were finally able to reactivate its publication – without modification – in April 2016.

We agree with Dr. Sánchez Perales and Dr. Vázquez in the difference to be expected in sudden death (SD) incidence rates depending on the criteria defining it. Perhaps a definition of SD

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