

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,<sup>7</sup> and even something as basic as having external defibrillators in dialysis units also has a limited efficacy.<sup>8</sup>

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. *Nefrología*. 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.

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## Reply to: «Sudden death in patients with advance chronic kidney disease»<sup>☆</sup>

### 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<sup>1</sup> 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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that encompasses longer periods of development might have a greater epidemiological interest for examining the population's access to diagnostic and advanced treatment units for cardio- and/or neurovascular disease.

In addition to the results obtained in pre-dialysis patients, we have monitored also the progress of the 662 patients in the same group who started dialysis (data not published); Out of the 264 deaths (median: 27.7 months), 32 cases (12% of all deaths) were considered as SD. Thus, the SD incidence rate was 16.2 (95% CI: 11.5–22.9) cases per 1000 patient-years. This impact of SD on dialysis is similar to that observed by Dr. Sánchez Perales and Dr. Vázquez and it is significantly lower than that published on dialysis patients in other developed countries (19–153 cases × 1000 patient-years).<sup>2–5</sup>

These results illustrate the high quality of the renal replacement therapy we have in Spain.

## REFERENCES

- 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.
- Wanner C, Krane V, März W, Olschewski M, Mann JF, Ruf G, et al. Atorvastatin in patients with type 2 diabetes mellitus undergoing hemodialysis. *N Engl J Med.* 2005;353:238–48.
- Parekh RS, Plantinga LC, Kao WH, Meoni LA, Jaar BG, Fink NE, et al. The association of sudden cardiac death with inflammation and other traditional risk factors. *Kidney Int.* 2008;74:1335–42.
- Shastri S, Tangri N, Tighiouart H, Beck GJ, Vlagopoulos P, Ornt D, et al. Predictors of sudden cardiac death: a competing risk approach in the hemodialysis study. *Clin J Am Soc Nephrol.* 2012;7:123–30.
- Jadoul M, Thumma J, Fuller DS, Tentori F, Li Y, Morgenstern H, et al. Modifiable practices associated with sudden death among hemodialysis patients in the Dialysis Outcomes and Practice Patterns Study. *Clin J Am Soc Nephrol.* 2012;7:765–74.

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