

- the thiazide-sensitive Na-Cl cotransporter. *Nat Genet.* 1996;12:24-30, <http://dx.doi.org/10.1038/ng0196-24>.
3. Keller K, Beule J, Dippold W. Gitelman syndrome DD thiazide diuretics abuse. *cent.eur.j.med.* 2014;9:495-9, <http://dx.doi.org/10.2478/s11536-013-0341-8>.
 4. Gitelman HJ, Graham JB, Welt LG. A new familial disorder characterized by hypokalemia and hypomagnesemia. *Trans Assoc Am Phys.* 1966;79:221-35.
 5. Riveira-Munoz E, Chang Q, Godefroid N, Hoenderop JG, Bindels RJ, Dahan K, Devuyst O. Belgian network for study of gitelman syndrome. Transcriptional and functional analyses of SLC12A3 mutations: new clues for the pathogenesis of Gitelman syndrome. *J Am Soc Nephrol.* 2007;1:1271-83, <http://dx.doi.org/10.1681/ASN.2006101095>.
 6. Takeuchi Y, Mishima E, Shima H, Akiyama Y, Suzuki C, Suzuki T, et al. Exonic mutations in the SLC12A3 gene cause exon skipping and premature termination in Gitelman syndrome. *J Am Soc Nephrol.* 2015;26:271-9, <http://dx.doi.org/10.1681/ASN.2013091013>.
 7. Bouwer ST, Coto E, Santos F, Angelicheva D, Chandler D, Kalaydjieva L. The Gitelman syndrome mutation, IVS9+1G>T, is common across Europe. *Kidney Int.* 2007;72:898, <http://dx.doi.org/10.1038/sj.ki.5002504>.
 8. Blanchard A, Bockenbauer D, Bolognani D, Calò LA, Cosyns E, Devuyst O, et al. Gitelman syndrome: consensus and guidance from a Kidney Disease: improving Global Outcomes (KDIGO) Controversies Conference. *Kidney Int.* 2017;91:24-33, <http://dx.doi.org/10.1016/j.kint.2016.09.046>.
 9. Desmet F-O, Hamroun D, Lalande M, Collod-Bérout G, Claustres M, Bérout C. Human Splicing Finder: an online bioinformatics tool to predict splicing signals. *Nucleic Acids Res.* 2009;37:e67, <http://dx.doi.org/10.1093/nar/gkp215>.
 10. Ito Y, Yoshida M, Nakayama M, Tsutaya S, Ogawa K, Maeda H, et al. Eplerenone improved hypokalemia in a patient with Gitelman's syndrome. *Intern Med.* 2012;51:83-6, <http://dx.doi.org/10.2169/internalmedicine.51.5723>.
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Home haemodialysis, the perfect opportunity to stay at home

Hemodiálisis domiciliaria, la oportunidad perfecta para quedarte en casa

Dear Editor,

In the last decade, the number of patients treated with home haemodialysis (HHD) has increased considerably,¹ and the treatment has seen growing interest worldwide due to the benefits it provides with respect to other options.² However, although more and more people opt for this method, currently only an estimated 0.3% of patients of patients on renal replacement therapy (RRT) are treated with this technique. There are some differences between the different autonomous communities in Spain, but in general the number of patients who choose this option remains small.³

According to a survey carried out among nephrologists, published in this journal,⁴ it has been observed that as HHD programmes are developed, the initial barriers derived from the lack of practical knowledge of the technique gradually disappear, and only those dependent on financial and training resources remain⁴ (staff dedicated exclusively to HHD with specific training).

For this reason, it seems appropriate to present our experience performing a retrospective analysis of the patients included in the HHD programme, their characteristics and

adverse events suffered from January 2018 to June 2020, at the Haemodialysis Unit of the Torrecárdenas University Hospital (Almería). In **Table 1**, we present the characteristics of the five patients included in the HHD programme.

It should be noted that the patients not only complied with an optimised quality treatment guideline, as demonstrated both at an analytical and clinical level, but also patients may adapt the prescribed regimen to each individual case which facilitate work and social integration, continuing with a their life as normal as possible, with their kidney disease.

It is noteworthy that in this high-risk patient profile, HHD prevents exposure and the consequent increase in the incidence of infections related to the healthcare setting, of much greater importance during the SARS-CoV-2 pandemic.⁵

For further justification of the importance and advantage of starting HHD at a time like the one we are currently experiencing, we refer to the official records of the Spanish Society of Nephrology regarding SARS-CoV-2 infection of November 2020, in which it is highlighted that, although the incidence among patients on RRT has grown in the second wave of infection in a similar manner as in the general population, with a decrease in the average age of affected patients (–7 years with respect to the first wave), we should bear in mind that we are dealing with a fragile patient, with an state of immunosup-

Table 1 – Characteristics of patients in the HHD Unit.

Patient variables (n = 5)	
Gender (M/F)	(3/2)
Mean age	47.6 years (± 2.3 years)
BMI	21.5 kg/m ²
AHT	80%
Dyslipidaemia	40%
Smoker	20%
Work activity	80%
CKD aetiology	- Malformation of the urinary tract: 2 - Extracapillary glomerulonephritis: 1 - Unidentified: 2
Average length of time on HD	78 months (± 56 months)
Average length of time on HHD	26.4 months
Average duration of HD session	168 min (± 16.4 min)
Number of weekly sessions	5.8 sessions/week (± 0.5)
Blood flow	350–400 ml/min
Dialysis flow rate	350–600 ml/min
Average ultrafiltration rate	0.66 l/h (± 0.16)
HHD machine	- NxStage System One: 2 - Physidia S3: 3
Prior kidney transplant	100%
Included on the transplant waiting list	60%
Type of vascular access	AVF with buttonhole puncture technique: 100%
Adverse events at home	0

BMI: body mass index; AHT: arterial hypertension; CKD: chronic kidney disease; HD: haemodialysis; HHD: home haemodialysis; AVF: arteriovenous fistula.

pression associated to the technique of renal replacement and from which they derive many other comorbidities.⁶

Analysing the data to date, during the first wave, haemodialysis in both hospitals and peripheral health centres was the RRT modality with the highest percentage of SARS-CoV-2 infections (60%), followed by transplant patients (37%). Peritoneal dialysis (PD) accounted for 2.7% of cases. It should be noted at this point that HHD accounted for only 0.5% of RRT patients infected. However, in the second wave, transplant patients were the most affected (49%), slightly above patients on in-centre haemodialysis (48%). Overall, 2% of the cases occurred in patients on PD and 1% in those on HHD. Making a global summary of COVID-19 infection, 5.7% of the total population on haemodialysis in Spain were infected vs. 2.6% of kidney transplant recipients and 2% of patients on peritoneal dialysis.

It is more than possible that these figures are biased due to the large difference in the number of patients in each of the different RRT modalities used in Spain. However, it is also evident that the probability of contagion will decrease if the patient does not have to come into contact regularly with other people outside their usual home environment, and they only interact with their cohabitants, as indicated in the action protocols of the Spanish Ministry of Health.⁷

It is also worth highlighting that despite the established protocols to minimise the risk of contagion there is a notable incidence of SARS-CoV-2 infection among health personnel; this is due to exposure to asymptomatic patients attending scheduled sessions. Reducing the care load in these dialysis centres with patients undergoing HHD, provided they are candidates for it, would maximise precautions and the rate of exposure to the virus.⁸

To conclude, we want to emphasise that HHD is much more than a prescription for medical treatment: it is a lifestyle that allows patients to participate actively in their disease and increase their independence.

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Conflicts of interest

The authors declare no conflict of interest in preparing this article.

REFERENCES

- Collins AJ, Foley RN, Chavers B, Gilbertson D, Herzog C, Ishani A, et al. US Renal Data System 2013 Annual Data Report. *Am J Kidney Dis.* 2014;63:A7.
- Pérez Alba A, Reque Santiváñez J, Segarra Pedro A, Torres Campos S, Sánchez Canel JJ, Fenollosa Segarra M, et al. Low rate of adverse events in home hemodialysis. *Nefrología.* 2018;38:347–458.
- ERA-EDTA. Annual Report 2015. 2017. Available from: <https://www.era-edta.org/>.
- Pérez Alba A, Slon Roblero F, Castellano Gasch S, Bajo Rubio MA. Barreras para el desarrollo de la hemodiálisis domiciliaria en España. Encuesta a nefrólogos españoles. *Nefrología.* 2017;37:563–670.
- O'Brien FJ, Kok HK, O'Kane C, McWilliams J, O'Kelly P, Collins P, et al. Arterio-venous fistula buttonhole cannulation technique: a retrospective analysis of infectious complications. *Clin Kidney J.* 2012;5:526–9.
- Sociedad Española de Nefrología. Registro S.E.N. COVID-19. Informe 17 (18 marzo-7 noviembre). 2020, <https://mailchi.mp/senefro/registro-epidemiologico-vhc-vhb-vih-1314930>.
- ISC/CNE/Red Nacional de Vigilancia. Informe n° 53. Situación de COVID-19 en España. Casos diagnosticados a partir 10 de mayo. 2020, <https://www.isciii.es/QueHacemos/Servicios/VigilanciaSaludPublicaRENAVE/EnfermedadesTransmisibles/Documents/INFORMES/Informes%20COVID-19/Informe%20COVID-19.%20N%C2%BA%2053.18%20de%20noviembre%20de%202020.pdf> [Retrieved 23 November 2020].
- Gobierno de España/Ministerio de Sanidad/SEN/SEDEN. Recomendaciones para el manejo, prevención y control de COVID-19 en Unidades de Diálisis. <https://www.mscbs.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov/documentos/COVID19-hemodialisis.pdf> [Retrieved 23 November 2020].

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