Ketoacid analogues in patients with chronic kidney disease☆

Análogos de cetoácidos en pacientes con enfermedad renal crónica

Dear Editor,

Nutrition is a key component of the care of chronic kidney disease (CKD) patients. Management of dietary protein intake is the basis of nutritional treatment of these patients aiming to reduce the uraemic toxin and reduce uraemic toxicity and delay the need for dialysis. To reduce the risk of nutritional disorders in low-protein diets (LPD) and very low-protein diets (VLPD), studies in recent years have proposed supplementation with nitrogen-free ketoacids (KA) in patients with CKD.[1]

The review by Koppe et al.[2] conducted in France and Brazil in 2019 analysed the effects of KA supplementation on renal function. It included 23 randomised clinical trials and 12 experimental studies. The results shows that LPD/VLPD + KA appears to be nutritionally safe. VLPD + KA appears to lower the production of uraemic toxins, but the impact on the intestinal microbiota has not yet been explored. All studies observed a reduction in acidosis, phosphorous and possible sodium intake, while providing an adequate calcium intake. The impact of this diet on carbohydrate and bone parameters is preliminary and needs to be confirmed with further studies. The most recent meta-analyses and clinical trials suggest that these diets may reduce the rate of glomerular filtration loss over and above the beneficial effects of renin inhibitors on the angiotensin–aldosterone system. Current evidence suggests that LPDs supplemented with KA should be included as part of the clinical recommendations for both nutritional prevention and metabolic management of CKD.

The study by Wang et al.[3] conducted in China in 2019 explored alternative mechanisms by which KA supplements influence kidney injury and the effects of KA administration on CKD progression in Chinese patients with different stages of CKD. The results revealed that KA has a protective effect on kidney injury and fibrosis by attenuating inflammatory infiltration and apoptosis through the inhibition of the nuclear factor kappa B and mitogen-activated protein kinase pathways. Stage 4 and 5 patients in the KA group presented a much slower and more delayed incidence of glomerular filtration rate (GFR) reduction compared with those in the group without KA, demonstrating a protective effect of KA on CKD progression. KA improved chronic kidney damage and fibrosis, and appears to be a prospective protective factor in end-stage renal disease.

The study by Zemchenkov et al.[4] conducted in Russia in 2016 assessed the effect of essential amino acids (EAA) and KA on CKD progression. The effect of LPD supplemented by EAA/KA on changes in GFR slope between the first and second treatment periods (five sequential visits per period) in 96 patients with stage 3B-5 CKD was compared with changes in GFR slope in the control group of 96 patients, selected at random from a paired cohort of 320 patients. The results revealed that LPD combined with EAA/KA supplementation leads to a reduction in CKD progression in both well-designed clinical studies and real nephrology practice in very varied diseases and settings. The therapy's effect was strongest in older patients with higher proteinuria, lower phosphate levels, patients with glomerular and interstitial disease and in women.

After analysing the above scientific studies conducted in recent years, it can be seen that KA has potential as a supplement to LPD for patients with CKD. This treatment has the capacity to improve patients' clinical and metabolic status, thereby improving their quality of life and delaying dialysis.

However, although the evidence reviewed appears to indicate that positive results can be expected from KA supplementation, the limited body of research in humans and the low sample numbers in the studies are insufficient for making general recommendations. Hence, there is a need for more studies in this field. This will make it possible to examine the efficacy and possible short- and long-term complications of this treatment, explore its possible synergistic effect with other therapies, and analyse the most appropriate dose and economic viability. This would in turn allow healthcare professionals to offer their patients the best care based on the latest scientific evidence.

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Nursing program to support home hemodialysis. Experience of a center

Programa de enfermería de apoyo a hemodiálisis domiciliaria. Experiencia de un centro

Dear Editor,

In recent years, there has been a gradual increase in the number of patients in Spain's home haemodialysis (HHD) programme.[1] In spite of this, there are difficulties involved in increasing implementation of the technique.[2,3] Therefore, it seems fitting for us to present our experience with the use of an HHD nursing support (HHDN) programme to care for patients at home while haemodialysis (HD) sessions are being carried out. We analysed the reasons for these visits and whether the use of this programme is beneficial for the survival of the HHD technique. The programme was financed by the Asociación de Lucha contra Enfermedades Renales de Castellón (Castellón Association for the Fight against Kidney Diseases — ALCER-Castalia).

From the start of the HHDN programme on 01/07/2017 to 01/03/2020, 402 home visits were made to the 39 patients who received HHD during this period (13 prevalent and 26 incident cases with regard to the HHD technique), with 21,152 cumulative days of patient follow-up and 57.95 patient-years of follow-up.

The mean age of the patients was 52.9 ± 12.3 years, 25 were male (64.1%) and 14 female (35.9%), 12 had diabetes mellitus (30.8%), with a Charlson comorbidity index of 5.2 ± 2.1. Eighteen conventional monitors adapted for the HHD technique (46.2%) and 21 portable monitors (53.8%) were used. Nine patients had an arteriovenous fistula as initial vascular access (23.1%), while 30 had catheters (76.9%). Patients' education levels were: 16 with basic education (41%), 20 further education (51.3%) and three higher education (7.7%). Twelve of the 31 working-age patients were in work (38.7%). At the end of the period, 23 patients (59%) continued in the HHD programme, while the reasons for discontinuation of the technique were: three deaths (7.7%), nine transplants (23.1%) and four centre transfers (10.2%).

The motives for the home visits are described in Fig. 1.

Out of all the patients, nine refused to receive HHDN visits, 14 received a single visit, seven patients received 2–10 visits and nine patients received more than 10 visits; this last group accounted for 90.8% of the visits. There was no statistically significant relationship between the need for HHDN support and age, Charlson index, distance, education level, employment, the vascular access used or the type of monitor.

In total, the nurse travelled 10,541 km, working for 1758.36 hours over 32 months (54.95 hours per month).

We compared technique survival using the Kaplan–Meier method (censoring death and transplant) between the 26 incident patients, who always had the option of accessing HHDN with 15 historic patients from our unit prior to the operation of the HHDN programme (Fig. 2). The groups were comparable in terms of age and Charlson index, with a technique survival in the group with access to HHDN of 96% at six months, 90.9% at one year and 80.8% at two years, versus 86.7% at six months, 80% at one year and 73.3% at two years for the group with-

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