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POS-745

THE EFFECT OF INTRADIALYTIC CONCURRENT EXERCISE ON METABOLIC ACIDOSIS, NUTRITIONAL STATUS, BONE DISORDERS AND PHYSICAL FUNCTION IN HEMODIALYSIS PATIENTS: A RANDOMIZED CONTROLLED TRIAL



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Introduction: Disorders like an increase in the generation of acid, bicarbonate loss and decreased renal acid excretion can trigger metabolic acidosis in CKD patients. The latter one is the cause of major disorders inducing metabolic acidosis in hemodialysis (HD) patients.

Increased protein decomposition, malnutrition, functional limitation, bone disorders, cardiovascular disease, musculoskeletal and metabolic abnormalities can result from metabolic acidosis. These adverse effects increase mortality in HD patients.

Although risks of uncorrected metabolic acidosis and the benefits with its treatment are evident, not more than 50% of HD patients have received proper treatment. Moreover, the current methods applied to correct metabolic acidosis entail limitations and side-effects.

Studies suggest that exercise in healthy people can regulate the blood acidosis, and with increased buffer capacity, increase the generation of bicarbonate.

Since exercise without proper adjusting can increase the lactic acid severity, the question is whether intradialytic exercise improves the metabolic acidosis or aggravates it

Methods: This study is a single center, randomized, controlled, 9 months (6 months intervention, 3 months follow-up) trial.

Participants were 42 non-diabetic HD patients with dialysis history of more than 12 months and mild levels of metabolic acidosis during the preceding 3 months. The concurrent exercise for the intervention group consisted of 3 sessions per week carried out in the 2nd hour of dialysis, for as long as 60 minutes. There was no change in their diet.

The primary outcome measure was rate of changes of serum bicarbonate concentration. Secondary outcome measures included nutritional status (by Geriatric Nutritional Risk Index), Parathyroid Hormone (PTH), physical function (by 6 Minute Walk Test) and hemoglobin (HGB). Linear mixed-effect models were used to analyze the resulted data adjusting for age, sex, dialysis history and comorbidities.

Results: Intradialytic exercise resulted in significant improvement in serum bicarbonate level ($\beta=2.8$, 95% CI: 1.9_3.7). The average level of serum bicarbonate before the intervention was 19.6 ± 1.5 which started increasing during the intervention, reaching 22.9 ± 0.85 .

According to statistical analyses the intervention proved to have a significant, positive effect on other parameters under study including GNRI ($\beta=11.4$, 95% CI: 8.5_14.3), PTH ($\beta= -170.2$, 95% CI: -191.5_ -148.9), 6MWT ($\beta=47.4$, 95% CI: 37.6_57.2) and HGB ($\beta=1.8$, 95% CI: 1.2_2.4).

During the 3 months period of post exercise follow-up in the intervention group, there were a significant decrease in serum bicarbonate ($\beta= -1.6$, 95% CI: -2.6_ -0.6), a significant decrease in GNRI ($\beta= -5.5$, 95% CI: -7.7_ -3.3), 6MWT ($\beta= -14.5$, 95% CI: -20.2_ -8.8) and HGB ($\beta= -0.7$, 95% CI: -1.1_ -0.3), and a significant increase in PTH ($\beta=77.5$, 95% CI: 59.5_ 95.5).

Conclusions: Intradialytic exercise, as regulated in this study, was able to improve metabolic acidosis.

This method of correction improved nutritional status, reduced bone disorders and, by improving anemia, probably reduced cardiovascular disease in these patients.

Because metabolic acidosis causes muscle wasting, its improvement increased physical function.

Exercise during dialysis can be considered as a therapeutic strategy to improve metabolic acidosis if adjusted with appropriate intensity and duration and probably lead to patients' survival.

No conflict of interest

POS-746

ROLE OF TELENEPHROLOGY IN THE MANAGEMENT OF CKD STAGES 4-5 (NO DIALYSIS) PATIENTS DURING THE COVID-19 PANDEMIC



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Introduction: The Covid-19 sanitary crisis has restricted the management of patients with chronic kidney diseases (CKD). The telenephrology (TN), have enabled the virtual control and monitoring of transplanted or dialysis patients.

This is a report regarding the use of TN to manage patients with advanced CKD, stage 4 (S4) and no dialysis stage 5 (S₅/Nodial), during the COVID-19 pandemic.

Methods: This descriptive study was performed between March 2020 and March 2021 in the Renal Transition Clinic (RTC) of Hospital Las Higueras, Talcahuano, Chile. Due to the sanitary crisis to maintain the continuity of care for CKD ambulatory patients, two kinds of attention were established according to the individual clinical condition: 1) Only telenephrology (video consultations); 2) Mixed, alternating face-to-face (FF) and TN attention (FF/TN). Both kinds had at least once a month phone control. Bi-demographic variables, laboratory exams, initiation of dialysis, COVID-19 infections and mortality were evaluated. A questionnaire determined the degree of satisfaction with TN. Results are expressed as mean \pm SD and percentages.

Results: One hundred and eighty eight of 203 active patients enrolled in the RTC were contacted (93%); of them 54.8% were women and their mean age was 70 ± 13 years. Most patients (54.3%) had CKD S₅/Nodial.

One hundred and fifty one patients were followed only by TN (80.3%) and they did not require FF consultation; 55% were women and 51.7% had CKD S₅/Nodial. The hybrid FF/TN mode included 37 patients (19.7%); 54% were women and the most of them (78.4%) had CKD S₅/Nodial.

The mean age in TN group was 69.1 years and the hybrid group was 62.6 years ($p = 0.007$). Patients treated for FF / TN were 35% more likely to require extra annual care than those in the TN group ($p = 0.038$). No differences for comorbidities were observed between both groups.

Of the attentions, 2570 were phone consultations, 699 were video consultations and 329 were FF medical consultations. The relationship of phone consultations/patient/year was 13.6; that of TN video consultations/patient/year was 4.6.

The lethality and initiation of dialysis between 2019 and 2020 decreased from 17.8 to 13.4% ($p < 0.05$) and 31.8 to 22.9 % ($p < 0.05$) respectively.

Only 8 patients acquired Covid-19 (4.3%), similar to the Chilean general population (4.5%) and much lesser than patients on dialysis (16.8%). There were no deaths from Covid-19.

A 90.9% of the 66 patients that answered the questionnaire were very satisfied with the TN attentions and 77.3% approved this mode to continue their medical controls.

Conclusions: TN permitted the monitorization and continuity of renal care in elderly patients with advanced CKD stages S4 and S₅/Nodial during the pandemic. Moreover, unnecessary transfers and FF consultations were avoided, nephrologic controls were adapted to confinements, and lastly the incidence of COVID-19 infection was decreased in regard to subjects in hemodialysis and was similar to that of the Chilean general population. Periodic phone and video consultations by the integrated renal team permitted timely references to FF evaluations and contrary to expectations the TN group had lower lethality and income dialysis than the pre-pandemic year. After COVID-19 pandemic end the hybrid FF/TN mode should be evaluated as a new option for the ambulatory continues in subjects with advanced CKD.

No conflict of interest