Functional training – effects on blood parameters in hemodialyzed patients

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INTRODUCTION

Chronic kidney disease (CKD) is characterized by a progressive and irreversible decline in kidney function and that affects all other organs and systems (Bastos, Bregman & Kirsztajn, 2010). Patients with CKD on hemodialysis have reduced functional capacity and sedentary behavior, which results in increased morbidity and mortality. (Johansen *et al*., 2012). Over the past few years have been developed and implemented programs to maximize functionality with demonstrated beneficial effects, in this specific population (Segura-Ortí, 2010). Changes in the blood profile, resulting from these intervention programs, are not yet sufficiently studied (Henrique, Reboredo, Chaoubah & Paula, 2010). The scientific literature on the modification of the hemodialysis patient's anemia markers by physical exercise remains quite limited. Research efforts are few and those that exist do not always present clearly the values of these analytical parameters.

OBJECTIVE

The objective of this study is to analyze the changes in the blood profile of the hemodialyzed patients after the implementation of a training program to maximize functionality.

METHOD

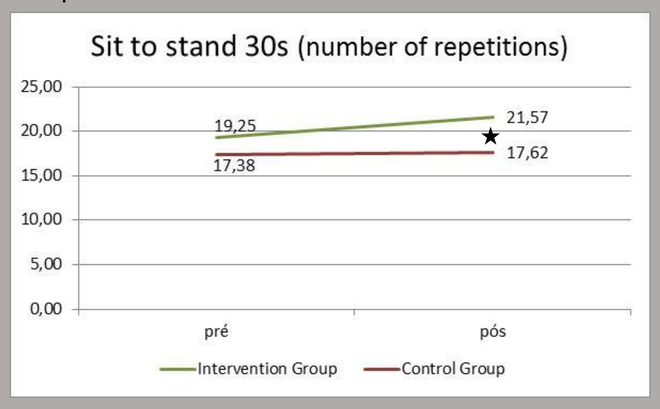
To achieve this objective was drawn a causal comparative research at a hemodialysis clinic of monitored during 4 months. 24 individuals (intervention group) were included in a program of aerobic training (stationary bicycle and treadmill) during the 2nd and the 3rd months, before hemodialysis and 27 maintained their usual routine (control group). Functional capacity (sit-to-stand test and up and go test) was evaluated before and after the exercise program; the blood profile was monitored (hemoglobin, hematocrit and iron) monthly throughout 4 months. The duration of hemodialysis and the administered dosage of darbepoetin were assessed.

RESULTS

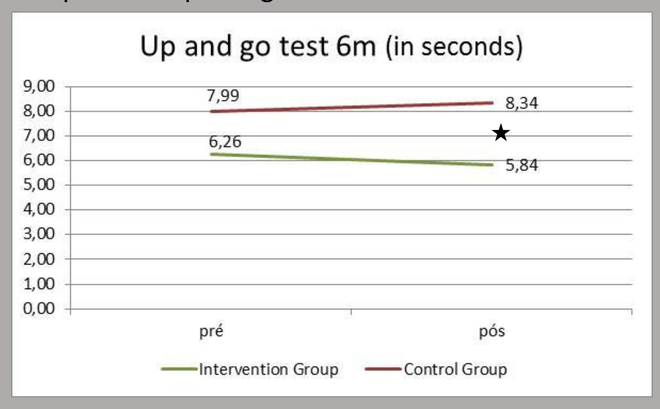
Table 1 – Age and time in hemodialysis

		Age (years)	Years in hemodialysis
Intevention Group	N	24	24
	Mean	53,51	6,04
	Standard Deviation	12,19	6,59
Control Group	N	27	27
	Mean	66,53	3,41
	Standard Deviation	9,24	2,88

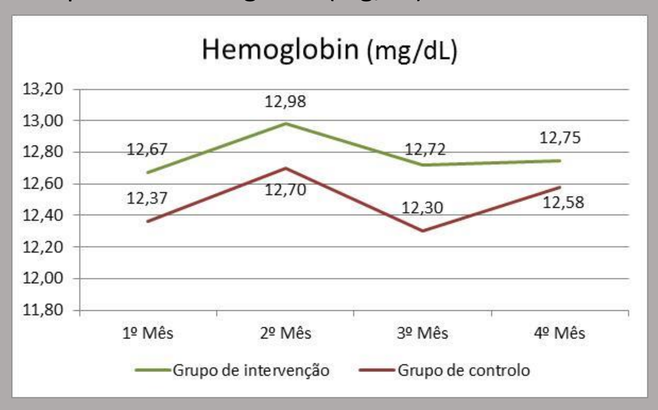
Graphic 1 – Sit to stand test



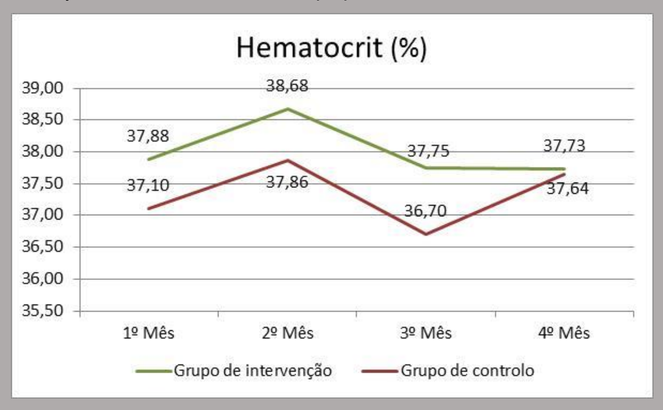
Graphic 2 – Up and go test



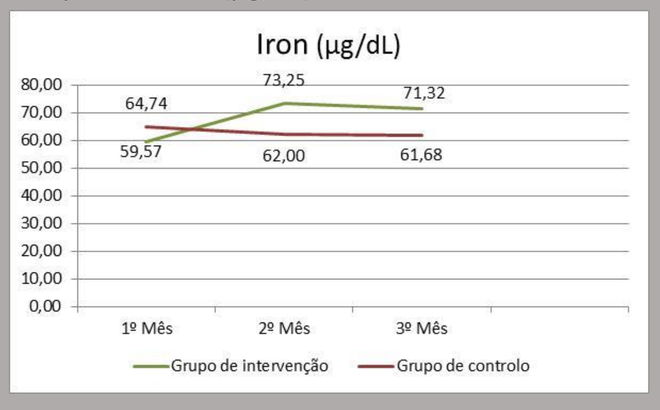
Graphic 3 – Hemoglobin (mg/dL)



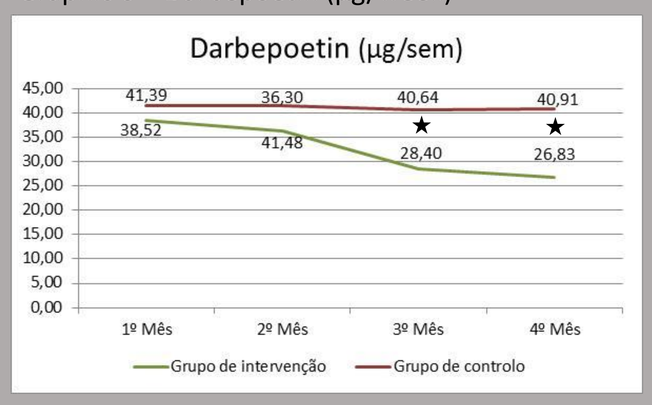
Graphic 4 – Hematocrit (%)



Graphic 5 – Iron (µg/dL)



Graphic 6 – Darbepoetin (µg/week)



CONCLUSION

The exercise program proved to be decisive on improving the functional capacity of these patients which translates into clear gains in autonomy to performing activities of daily living. In the intervention group the darbepoetin administration dosage has decreased, keeping the anemia parameters unchanged, which is an advantage for patients and reduces treatment costs. Hemodialyzed patients will benefit of rehabilitation care, with programs to maximize functionality, in daily treatment, therefore rehabilitation professionals must take part on multidisciplinary teams in hemodialysis clinics.

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