10 - INFLUENCE OF EXERCISE ON THE FUNCTIONAL CAPACITY OF PATIENTS WITH CHRONIC KIDNEY DISEASE

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INTRODUCTION

The characteristics of the physical capacity of patients with Chronic Kidney Disease (CKD) are still largely unexplored and has not been established. The low exercise tolerance and physical deconditioning, although not fully understood, there are negative factors for multifactorial and complex, resulting from changes in muscle perfusion, substrate and transfer of state-mediated accumulation of catabolites (Peres, 2009, Rabbit, 2008, Guedes, 2006, Moreira, 2000, Adey, 2000). Metabolic acidosis occurs, release of corticosteroids, proinflammatory cytokines, among other substances. This table is related to muscle atrophy, myopathy and malnutrition (Johansen et al. 2000; Storer et al., 2005, Adams and Vaziri, 2006, Quintanilla, 1998). And so, with the decrease in muscle function in chronic renal failure, the activities of their daily lives are affected (Adams and Vaziri, 2006).

Patients tested for exercise capacity by submaximal walking test recommended for patients with chronic disease, the Shuttle Walk Test (Singh et al, 1994), before and after 6 months of treatment. For the test patients were instructed to walk for 10 meters, surrounding two cones, as long as possible, increasing speeds, under the direction of a sound signal and terminated by exercise intolerance máximo.Diante addition, we sought to evaluate the exercise capacity of patients with chronic kidney disease by testing for distance shuttle walk test (SWT), (Bradley, 2000; Cheema, 2004)

METHODS

This study was conducted at the Physiotherapy UNIOESTE, Cascavel - Paraná, and approved by the Ethics in Research Involving Human Subjects at the State University of West Paraná (unions).

Inclusion criteria were patients diagnosed with CKD evaluated and treated at the Center for Physical Rehabilitation of the Union (CRF). Exclusion criteria were patients who had treatment interruption, which did not complete the test, which after starting the study changed their routine physical activity and initiate other treatment parallel to the study.The sample consisted of 18 individuals, of which four had interruption of treatment and were excluded, so that the sample consisted of 14 patients.Subjects were tested for functional exercise capacity Shuttle Walk Test (SWT) following the procedures described by Singh and colleagues (1994), before and after 6 months of physical therapy in CRF Unioeste. Data collection took place in January-July 2011. During this period the subjects received physiotherapy care twice a week for 1 hour with stretching exercises, strengthening and aerobic exercise bike and treadmill with. In the test patients were instructed to walk a straight line encircling two cones separated by 10 meters away, as long as possible, in accordance with the increasing speeds, under the guidance of an audible standard, issued by a CD player (disc player), and completed by the patient for his intolerance of effort. The test was interrupted by the examiner when the patient failed to achieve the milestone of two meters away from the cone or show signs of physical exhaustion, according to the standardization of the test. Before and after the test, were measured blood pressure, heart rate and breathing, but was assessed dyspnea and lower limbs according to a numerical scale of 0 to 10 Borg scale, defined according to assessed. Heart rate was monitored before, during and at the end of the test frequency counter 810S. After collecting data for SWT, can be calculated indirectly maximal oxygen uptake (VO2max) in ml / kg / min, using the formula 4.19 + (0.025 * total distance). For statistical analysis of quantitative variables, the results were expressed as means and standard deviations. To analyze the normality of the data we used the Kolmogorov-Smirnov test. For comparison of repeated measurements, we used analysis of variance ANOVA (One-way) followed by Bonferroni post hoc test. Statistical significance was set to $\alpha = 5\%$ (p 0.05).

RESULTS AND DISCUSSION

This study consisted of a sample of 14 patients, 8 men and 6 women, mean age 51.7 ± 0.7 years. Before treatment, the mean values of the distances traveled, was 339.2 ± 1.9 meters and after treatment, the average was 382.8 ± 141 meters, an increase of 11% (43.6 meters), was statistically significant ($p < 0.02$). VO2max calculated from the data obtained in SWT showed that patients in this sample had very low exercise capacity before treatment was 12.6 ± 2.8 ml / kg / min and increased to 13.7 ± 3.5 ml / kg / min after treatment, which was statistically significant ($p < 0.02$).

According to Coelho, Ribeiro and Smith (2008) exercise has generated improvement in VO2max of these individuals, despite the results achieved still appeared to be lower than expected for healthy individuals.

The data from this study corroborate the study of Peres (2009), which assessed the effect of an eight-week exercise program in patients with terminal chronic kidney disease (ESKD) during hemodialysis (HD), using various instruments, including SWT. We selected 58 patients who participated in a supervised exercise program. Patients were assessed two months before the start of the program, starting immediately before and after eight weeks of physical training complete. The results showed that the distance walked in SWT and VO2max increased significantly ($p < 0.01$).

The functional exercise capacity in this sample had a low, perhaps because of comorbids disease and developed by the very long term use of hemodialysis machine.

CONCLUSION

The present study revealed that exercise capacity in this sample was low and showed that after 6 months of treatment with physical therapy, a significant increase in this variable, promoting improved quality of life.

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INFLUENCE OF EXERCISE ON THE FUNCTIONAL CAPACITY OF PATIENTS WITH CHRONIC KIDNEY DISEASE

SUMMARY

Introduction: Patients with chronic kidney disease (CKD) have reduced exercise tolerance compared to healthy subjects, which complicates the implementation of activities of daily living. The reasons for this reduction are not fully elucidated. Objective: Therefore, we assessed the exercise capacity of patients with CKD treated at the physiotherapy clinic of the Union. Methods: Patients tested for exercise capacity, the Shuttle Walk Test, before and after 6 months of treatment. For the test patients were instructed to walk for 10 meters, surrounding two cones, as long as possible, increasing speeds, under the guidance of a sound signal and stopped by intolerance to maximum effort. Before and after the test, were measured blood pressure, heart rate and breathing, and was valued at the lower limbs and dyspnea according to Borg scale and the test was done during cardiac monitoring. Results: The sample comprised 14 patients, 8 men and 6 women, mean age 51.7 ± 0.7 years. Before treatment the average distance traveled, was 339.2 ± 1.9 meters and after treatment, the average was 382.8 ± 141 meters, an increase of 11%, which was statistically significant (p <0 , 02). The patients had very low exercise capacity before treatment was 12.6 ± 2.8 ml / kg / min and after 13.7 ± 3.5 ml / kg / min, which was statistically significant (p <0.02). Conclusion: We conclude that 6 months of treatment increased exercise tolerance, promoting improved quality of life and preventing the progression of the lesions.

KEYWORDS: Exercise capacity, physical therapy, chronic renal disease

RÉSUMÉ

Introduction: Les patients atteints de maladie rénale chronique (IRC) ont réduit tolérance à l'exercice comparativement aux sujets sains, ce qui complique la mise en œuvre des activités de la vie quotidienne. Les raisons de cette réduction ne sont pas totalement élucidés. Objectif: Par conséquent, nous avons évalué la capacité d'exercice des patients atteints d'IRC traités à la clinique de physiothérapie de l'Union. Méthodes: Les patients testés pour la capacité d'exercice, le test de marche navette, avant et après 6 mois de traitement. Pour les patients de test ont été invités à marcher pendant 10 mètres, entourant deux cônes, aussi longtemps que possible, des vitesses croissantes, sous la direction d'un signal sonore et arrêté par l'intolérance à l'effort maximal. Avant et après le test, on a mesuré la pression artérielle, fréquence cardiaque et respiratoire, et a été évalué à des membres inférieurs et de la dyspnée selon l'échelle de Borg et le test a été fait pendant la surveillance cardiaque. Résultats: L'échantillon comprenait 14 patients, 8 hommes et 6 femmes, âge moyen 51,7 ± 0,7 ans. Avant traitement, la distance moyenne parcourue, était 339,2 ± 1,9 mètres et après le traitement, la moyenne était de 382,8 ± 141 mètres, soit une augmentation de 11%, ce qui était statistiquement significative (p <0 , 02). Les patients avaient la capacité d'exercice très faible avant le traitement était de 12,6 ± 2,8 ml / kg / min et après 13,7 ± 3,5 ml / kg / min, ce qui était statistiquement significative (p <0,02). Conclusion: Nous concluons que 6 mois de traitement accrue tolérance à l'exercice, de promouvoir une meilleure qualité de vie et de prévenir la progression des lésions.

MOTS-CLÉS: capacité d'exercice, thérapie physique, les patients chroniques rénales.

INFLUENCIA DEL EJERCICIO EN EL CAPACIDAD FUNCIONAL DE PACIENTES CON INSUFICIENCIA RENAL CRÓNICA

RESUMEN:

Introducción: Los pacientes con enfermedad renal crónica (ERC) han reducido la tolerancia al ejercicio en comparación con sujetos sanos, lo que complica la ejecución de las actividades de la vida diaria. Las razones de esta reducción no están completamente dilucidados. Objetivo: Por lo tanto, se evaluó la capacidad de ejercicio de los pacientes con enfermedad renal crónica atendidos en la clínica de fisioterapia de la Unión. Métodos: Los pacientes que la prueba de la capacidad de ejercicio, la prueba de marcha Shuttle, antes y después de 6 meses de tratamiento. Para los pacientes de prueba fueron instruidos para caminar 10 metros, alrededor de dos conos, el mayor tiempo posible, una velocidad cada vez mayor, bajo la dirección de una señal sonora y se detuvo por la intolerancia al esfuerzo máximo. Antes y después de la prueba, se midieron la presión arterial, frecuencia cardiaca y respiratoria, y se valoró en los miembros inferiores y disnea según la escala de Borg y la prueba se llevó a cabo durante el monitoreo cardíaco.Resultados: La muestra está compuesta por 14 pacientes, 8 hombres y 6 mujeres, edad media de 51,7 ± 0,7 años. Antes del tratamiento la distancia media recorrida, fue 339,2 ± 1,9 metros y después del tratamiento, el promedio fue de 382,8 ± 141 metros, un aumento del 11%, lo que fue estadísticamente significativa (p <0 , 02). Los pacientes tenían la capacidad de ejercicio muy bajo antes del tratamiento fue de 12,6 ± 2,8 ml / kg / min y después de 13,7 ± 3,5 ml / kg / min, que fue estadísticamente significativa (p <0,02). Conclusión: Se concluye que los 6 meses de tratamiento aumentó la tolerancia al ejercicio, la promoción de una mejor calidad de vida y prevención de la progresión de las lesiones.

PALABRAS CLAVE: La capacidad de ejercicio, terapia física, el paciente renal crónico.

INFLUÊNCIA DO EXERCÍCIO FÍSICO NA CAPACIDADE FUNCIONAL DE PACIENTES COM DOENÇA RENAL CRÔNICA

RESUMO:

Introdução: Os pacientes com doença renal crônica (DRC) possuem tolerância reduzida ao exercício em comparação a indivíduos saudáveis, o que dificulta a realização das atividades de vida diária. As razões dessa redução não são totalmente elucidadas. Objetivo: Diante disso, busca-se avaliar a capacidade de exercício dos pacientes com DRC atendidos na clínica de fisioterapia da UNIOESTE. Métodos: Os pacientes realizaram o teste de capacidade de exercício, o Shuttle Walk Test, antes e depois de 6 meses de tratamento. Para a realização do teste os pacientes foram orientados a caminhar por 10 metros, circundando 2 cones, o maior tempo possível, com velocidades crescentes, sob orientação de um sinal sonoro e finalizado pela intolerância ao esforço máximo. Antes e após o teste, foram aferidas a pressão arterial, freqüência cardíaca e respiratória, e foi avaliado a dispnéia e os membros inferiores de acordo com a Escala de Borg e durante o teste foi feito o monitoramento cardíaco. Resultados: A amostra foi composta por 14 pacientes, 8 homens e 6 mulheres, com média de idade 51,7±0,7 anos. Antes do tratamento a média de distâncias percorridas, foi de 339,2±1,9 metros e após o tratamento, a média foi de 382,8±141 metros, apresentando um aumento de 11%, com diferença estatisticamente significativa (p<0,02). Os pacientes apresentaram capacidade de exercício muito baixa, antes do tratamento de 12,6±2,8 ml/kg/min e após 13,7±3,5 ml/kg/min, com diferença estatisticamente significativa (p<0,02). Conclusão: Conclui-se que com 6 meses de tratamento a tolerância ao exercício aumentou, promovendo a melhora da qualidade de vida e evitando a progressão das lesões.

PALAVRAS-CHAVE: Capacidade de exercício, fisioterapia, paciente renal crônico.