124 - ANALYSIS OF THE FUNCTIONAL CAPACITY OF INDIVIDUALS WHITH KIDNEY DISEASE IN HEMODYALISIS AT CASCAVEL - PR

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INTRODUCTION

Recently, the Brazilian Society of Nephrology endorsed the definition of CKD proposed by the American National Kidney Foundation as a lesion of the renal parenchyma and / or the renal functional decline gifts for a period exceeding three months.

One way to maintain this patient 's life by hemodialysis . Patients on hemodialysis (HD) usually show physical weakness that can be linked to several factors , including anemia, uremic myopathy, cardiomyopathy, neuropathy, hypertension, hyperparathyroidism, malnutrition, metabolic, cardiovascular, respiratory, musculoskeletal, and immune depression (ADAMS, 2006). These factors hinder the physical capacity may exacerbate the reduction of functional activity of these patients. The reason for this weakness is still not completely elucidated, but physical inactivity is a contributing factor (KOUIDI, 2002).

You can assess functional exercise capacity of chronic renal, analyzing the impact of this disease in these patients. Commonly they have low tolerance to exercise limitation in functional capacity limited mainly by fatigue and dyspnea, reduced aerobic capacity and general muscle strength when compared to the healthy population (DINWIDDIE, 2006).

Information about the level of functional capacity in this population may be important to identify those who need targeted exercise and establish criteria for evaluation. Information about the level of functional capacity in this population may be important to identify those who need targeted exercise and establish criteria for evaluation and rehabilitation of these patients , it is extremely important to create a physical rehabilitation protocols , with the aim of improving functional exercise capacity and quality of life of these individuals.

Some studies show benefits of exercise in this population, such as increased muscle strength, flexibility, agility in the tasks of daily life, but without standardization in evaluating and applying these exercises among these patients. Many studies demonstrate the application of physical exercise in interdialysis in physical therapy clinics, rehabilitation centers , residences, hospitals or even in dialysis services before the start of hemodialysis . And this might bring improvement in quality of life of these individuals (MEDEIROS, 2002).

The CKD have multiple signs and symptoms of a systemic process with serious cardiovascular function and aerobic capacity. Despite technological advances in care for patients with CKD advances, mortality and morbidity remain high and are estimated to be 3.5 times more than the general population , adjusted for age (LEVEY, 2003). There is need for more studies exploring the importance of assessment and rehabilitation for physical exercise in these patients. This study aimed to analyze the functional exercise capacity in a population with chronic kidney disease on hemodialysis in clinical nephrology Cascavel - PR.

METHODOLOGY

This is a clinical, cross-sectional, quantitative study approved by the Ethics Committee on Human Research of the State University of West Paraná (UNIOESTE). Individuals formally consented to the study by signing the term sheet savvy before inclusion in the study. Sample: The sample consisted of 12 subjects with a mean age of 51.7 ± 0.7 years.

I**nclusion criteria:**

- Inclusion: included individuals with chronic kidney disease on hemodialysis for at least 3 months, aged between 18 and 60 years.

- Not included: patients with myocardial revascularization for less than six months of lower limb musculoskeletal limitations that would preclude performing the functional tests, symptomatic cardiovascular disease, chronic obstructive pulmonary disease (COPD), cognitive limitations, uncontrolled hypertension, acute infarction (AMI) or stroke (CVA).

Materials and Methods

We used the SF -36 questionnaire (FITTS, 1999) for analysis of quality of life , with the following parameters : CF (functional capacity), LAF (physical aspects limitation) , Pain, EGS (general health), V (vitality), AS (social aspects) , LAE (role emotional) and SM (mental health) . The incremental test Shuttle Walk Test (SWT) following the procedures described by Singh et al (1994) , where patients were instructed to walk around two cones separated by 10 meters , as long as possible, according to the velocities growing under the guidance of a standard beep issued by an audio CD (disc player), and terminated by the patient for his intolerance to maximum effort . The maximum functional exercise capacity measured by SWT allowed indirect calculation of the maximum oxygen consumption (VO2max) in ml / kg / min , by formula 4.19 + (0.025 * total distance), used in patients with obstructive lung disease chronic (SINGH et al, 1994) . For the 1RM test was used dumbbells and an apparatus for bodybuilding Kemkorp EMK 2610, using the test system error and increasing weight, for both lower and upper limbs . For all tests, we used a stopwatch, a frequency, stethoscope and sphygmomanometer. To evaluate the functional autonomy of the group of Latin American development to maturity used the GDLAM where the individual makes a walk of 10 meters , rises from a sitting position , rises from prone position , rises the chair and move around , using a stopwatch, a tape measure, a mattress and a chair with 50 cm seat height to the ground . The GI was calculated by a process of normalization between the four tests of (10m + LPS +independence to estimate a value of

score by the index: $IG = \frac{(10m+LPS+LPDV)x2+LCLC}{3}$, where:

C10m , LPS , and LPDV LCLC = time measured in seconds . IG = GDLAM index scores (poor, fair, good and very good) . LPS = getting up from a sitting position ; LPDV = Rise of the ventral decubitus position ; LCLC = get up from the chair and around the house (DANTAS, 2004) . For applicability of this classification , we use the average for C10m , LCLC and IG and median for LPS and LPDV , as the results for the coefficient of variation (CV) . For analysis of the effort used the Borg scale (BORG, 2000).

Data Analysis

For statistical analysis of quantitative variables, the results were expressed as means, medians and standard deviations. The results of the qualitative variables were expressed as percentages.

RESULTS

This study consisted of a sample of 12 patients, 7 men and 5 women, mean age 51.7 ± 0.7 years. The mean distance traveled by shuttle walk test was 367.3 ± 109 meters and VO2max calculated by data obtained in SWT showed that patients in this sample had a mean exercise capacity of 14.1 ± 2 ml/kg/min. Table 1 shows the results using mean and standard deviation obtained in the test GDLAM twelve patients with CKD on hemodialysis studied.

Table 1. GDLAM variables (n = 12) test.

	C10m (seg)	LPS (seg)	LPDV (seg)	LCLC (seg)	IG (escore)
Média ± DP	8,06 ± 2,0	10,7 ± 3,0	5,6 ± 2,0	42,5 ± 1,0	37,38 ± 3,0

IG = GDLAM index scores (poor, fair, good and very good). LPS = getting up from a sitting position; LPDV = Rise of the ventral decubitus position; LCLC = get up from the chair and around the house; C10m = walk 10 meters from the chair. Table 2 shows the results as mean and standard deviation obtained from the Shuttle Walk Test (SWT).

Table 2. Variables Shuttle Walk Test (n = 12).

Variáveis	Média ± DP
SWT (m)	367,3 ± 109
FCrep (bpm)	83,8 ± 12
PASrep (mmHg)	135,5 ± 23
PADrep (mmHg)	84,1 ± 12
VO2máx (ml/kg/min)	14,1 ± 2

SWT = shuttle walk test; HRres = resting heart rate, SBP = systolic blood pressure at rest; PADrep = diastolic blood pressure at rest, VO2max = maximal oxygen uptake.

As to the results of the SF-36 is obtained for an average of 63.6 CF ± 27; averaging 30.0 ± 34 for LAF; pain to an average of 56.0 ± 20, for an average of EGS 59.2 ± 25, V for an average of 49.3 ± 18; AS for an average of 64.1 ± 26; LAE for an average of 57.7 ± 44; SM for an average of 65.3 ± 21.

DISCUSSION

According to Coelho , Ribeiro and Smith (2008) exercise has promoted improvement in VO2max of these patients , although the results achieved still appeared lower than expected for healthy individuals . Data from the present study corroborate the study of Peres (2009), which evaluated patients with chronic kidney disease on hemodialysis , through various instruments, including the SWT. The results showed that the distance on the incremental test performed lowered comparing with the general population, reflecting the maximal oxygen uptake (VO2max), which also showed reduced.

The literature presents several studies that demonstrate change in functional exercise capacity in chronic renal failure (KOUIDI, 2002; PAINTER et al, 2002; CHEEMA , SMITH and Singh , 2005; RABBIT, RIBEIRO and SOARES, 2008) . However, few of these studies in hemodialysis population have been conducted in Brazil . Information regarding the low level of physical ability of these individuals which contributes to the high cardiovascular risk is considered a cause of approximately 50 % of deaths in CKD (MANSUR, LIMA and NOVAES , 2007; OH PARK et al, 2002).

This sample was obtained reduced values of VO2max , indicating that functional exercise capacity reduced this in agreement with previous studies (Johansen et al., 2001; OH PARK et al, 2002.) . However , this low exercise tolerance is still poorly understood in this population (CHEEMA et al., 2007).

It is believed in the existence of not yet fully established multifactorial causes related to exercise intolerance, such as age, duration of disease, duration of hemodialysis, which together promote the pathophysiological changes associated with chronic hemodialysis manifestations of kidney disease resulting in disability in the production of hemoglobin, muscle atrophy, muscle weakness, hyperparathyroidism, bone diseases, heart diseases, in addition to physical inactivity itself.

In a study of elderly (DANTAS, 2004), showed the time spent on testing and GDLAM classified as poor according to our results . But there is a difference in the type of samples, in this study, subjects have a chronic disease but muscle weakness is present in both samples.We can observe that the time in LCLC test was also higher in the study presented Dantas, 2004. By analyzing the obtained times observed in most tests a low rating on the glycemic index, except for one individual that resulted in regular . We can say that this classification may indicate that the CRF are inactive as to the physical activity and the achievement of physical exercise can improve its performance and quality of life.

As the result of the perception of quality of life by SF -36, we can observe the lowest value in the LAF, which is consistent with the result obtained by the IG in GDLAM test, consistent with the study by Dantas (2004). Demonstrating that the physical aspect is greatly compromised in this population.

Future studies are needed to evaluate the root cause of physical deconditioning , using a larger and homogeneous population, a similar range of selected patients age, considering that this is a risk factor for these individuals , requiring studies with multivariate analysis of other factors as, duration of disease, duration of dialysis treatment, comorbidities, among others.

CONCLUSION

We conclude that individuals with chronic kidney disease treated at the hemodialysis center in Cascavel - PR , exhibit impairments primarily physical conditions indicating the need for use of physical exercise as an important adjunct in the interdisciplinary treatment of this population.

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ABSTRACT

Chronic kidney disease (CKD) is considered a public health problem worldwide. In Brazil, the incidence and prevalence of renal failure are increasing , the prognosis is still poor and the cost of treating the disease are very high. The improvement in quality of life of these patients is directly related to the kind of life they lead, feeding and care in physical activity for better health maintenance thereof. Objective: To compare the results obtained in different exercise protocols applied in CRF patients. Methods: The sample consisted of 12 patients with chronic kidney disease undergoing hemodialysis 3 times a week for at least 1 year in the Nephrology Clinic in Cascavel PR . The subjects underwent an interview based on the quality of life questionnaire (SF -36), test functional exercise capacity (shuttle walk test), and evaluation of the functional autonomy of the group of Latin American development to maturity (GDLAM). Conclusion: We concluded that individuals with chronic kidney disease treated at the hemodialysis center in Cascavel - PR, exhibit impairments primarily physical conditions indicating the need for use of physical exercise as an important adjunct in the interdisciplinary treatment of this population.

KEYWORDS: Chronic kidney disease, functional capacity, hemodialysis

RÉSUMÉ

La maladie rénale chronique (IRC) est considéré comme un problème de santé publique dans le monde entier . Au Brésil , l' incidence et la prévalence de l'insuffisance rénale augmentent, le pronostic est encore faible et le coût de traitement de la maladie sont très élevés . L' amélioration de la qualité de vie de ces patients est directement liée à la nature de la vie qu'ils mènent, l'alimentation et les soins de l'activité physique pour une meilleure préservation de la santé de celui-ci. Objectif: comparer les résultats obtenus dans les protocoles d'exercices différents appliqués des patients en IRC . Méthodes: L'échantillon était composé de 12 patients atteints de maladie rénale chronique sous hémodialyse trois fois par semaine pendant au moins 1 an dans la clinique de néphrologie à Cascavel PR. Les sujets ont subi une entrevue axée sur la qualité de vie questionnaire (SF- 36), épreuve la capacité d'exercice fonctionnel (test de marche de la navette), et l'évaluation de l'autonomie fonctionnelle du groupe de développement de l'Amérique latine à l'échéance (GDLAM) . Conclusion: Nous avons conclu que les personnes atteintes de maladie rénale chronique traités au centre d'hémodialyse à Cascavel - PR, dépréciations d'exposition des conditions physiques principalement indiquant la nécessité d'utiliser de l'exercice physique comme un complément important dans le traitement interdisciplinaire de cette population.

Mots-clés: maladie rénale chronique , de la capacité fonctionnelle , hémodialyse .

RESUMEN

La enfermedad renal crónica (ERC) se considera un problema de salud pública en todo el mundo . En Brasil, la incidencia y la prevalencia de la insuficiencia renal están aumentando , el pronóstico sigue siendo pobre y el costo del tratamiento de la enfermedad son muy altas. La mejora en la calidad de vida de estos pacientes está relacionada directamente con el tipo de vida que llevan , la alimentación y la atención en la actividad física para mejorar la conservación de la salud de los mismos . Objetivo: Comparar los resultados obtenidos en los diferentes protocolos de ejercicios aplicados en pacientes con IRC. Métodos: La muestra consistió en 12 pacientes con enfermedad renal crónica sometidos a hemodiálisis 3 veces a la semana durante al menos 1 año en la Clínica de Nefrología en Cascavel PR . Los sujetos fueron sometidos a una entrevista basada en el cuestionario de calidad de vida (SF- 36) , prueba de funcionamiento la capacidad de ejercicio (prueba de la lanzadera) , y la evaluación de la autonomía funcional del grupo de desarrollo de América Latina a la madurez (GDLAM) . Conclusión: Concluimos que los individuos con enfermedad renal crónica atendidos en el centro de hemodiálisis en Cascavel - PR,

impedimentos exhiben principalmente las condiciones físicas que indican la necesidad de una utilización del ejercicio físico como un complemento importante en el tratamiento interdisciplinario de esta población.

PALABRAS CLAVE : Enfermedad renal crónica , la capacidad funcional de hemodiálisis.

ANÁLISE DA CAPACIDADE FUNCIONAL DE INDIVÍDUOS COM DOENÇA RENAL CRÔNICA EM HEMODIÁLISE EM CASCAVEL - PR

RESUMO

Introdução: A doença renal crônica (DRC) é considerada um problema de saúde pública em todo o mundo. No Brasil, a incidência e a prevalência de falência de função renal estão aumentando; o prognóstico ainda é ruim e os custos do tratamento da doença são altíssimos. A melhora na qualidade de vida destes pacientes está relacionada diretamente ao tipo de vida que estes levam, cuidados na alimentação e prática de atividades físicas para uma melhor manutenção da saúde dos mesmos. Objetivo: comparar os resultados obtidos em diferentes protocolos de exercícios físicos aplicados no paciente renal crônico. Métodos: a amostra foi composta por 12 pacientes com doença renal crônica, submetidos à hemodiálise 3 vezes por semana, há pelo menos 1 ano numa Clínica de Nefrologia em Cascavel PR. Os indivíduos foram submetidos a uma entrevista baseada no questionário de qualidade de vida (SF-36), teste de capacidade funcional de exercício (Shuttle Walk Test), e avaliação da autonomia funcional do grupo de desenvolvimento latino-americano para a maturidade (GDLAM). Conclusão: concluímos que indivíduos com doença renal crônica atendidos no serviço de hemodiálise em Cascavel – PR, apresentam comprometimentos principalmente ás condições físicas indicando a necessidade de aplicação de exercícios físicos como importante coadjuvante no tratamento interdisciplinar desta população.

PALAVRAS-CHAVES: Doença renal crônica, capacidade funcional, hemodiálise.