14 - ANALYSIS OF A REHABILITATION PROGRAM IN HOSPITALIZED PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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INTRODUCTION

It's known that chronic obstructive pulmonary disease now affects a large portion of the population, leading to significant functional impairment. These are caused mainly by dyspnea and according Jardim (2009), patients with the disease also have difficulty performing exercises, due to commitment pulmonary and cardiovascular function, suffering several years from this disease and end dying of its complications, which is characterized by chronic airway obstruction, limiting airflow and not fully reversible but may be feasible prevention and treatment. This obstruction is progressive and associated with an anormal inflammatory process, due to inhalation of toxic particles or gases mainly by smoking.

According to Dourado and Godoy (2004), exercise intolerance is a common manifestation in patients with COPD. This fact occurs due to alteration in pulmonary function, situation that debilitates the patient causing a decrease their mobility and consequently a reduction in peripheral skeletal muscle mass.

For Kong, Belman and Weingarten (1997), patients with COPD present in the course of disease, worsening pulmonarcapacity and perform activities of daily living. Therefore the realization of physiotherapy and exercise in goal to improve functional physical capacity these patients is considered the gold standard in treatment.

According Buist et al, (2006) the diagnosis of COPD is given when you have a cough, sputum production, dyspnea and history of exposure to risk factors for disease development, the diagnosis is confirmed by spirometry. Beyond muscle strengthening the physiotherapist must also intervene with bronchial hygiene in these patients.

To assess the condition of the functionality in these patients can use the Functional Independence Measure (FIM), is an instrument assessment of disability in patients with functional restrictions of various origins (RIBERTO et al, 2004).

The FIM originated in the 1980s and was developed to assess people in the rehabilitation process and has been validated for portuguese language, in Brazil of 2000 (RIBERTO et al., 2001). It's widely used and accepted as a measure of functional assessment, internationally is divided into two domains, the motor and the cognitive, where the evaluator will interview the patient through a questionnaire and will be given a score referent on the results.

According to the above this work aims is to assess whether aerobic exercise generates a change in the scale FIM in patients with COPD hospitalized at São Lucas/FAG Hospital.

MATERIALS AND METHODS

This study is characterized with uncontrolled clinical trial, with transverse design, which was conducted at São Lucas/FAG Hospital in the city of Cascavel, PR, Brazil in the period June to October 2014.

To participate in this research was defined as inclusion criteria: the minimum age of 35 years and maximum age of 75 years, diagnosis of COPD, score 15 on the Glasgow Coma Scale, using of oxygen therapy or not. Exclusion criteria was established hemodynamic instability, associated pathologies, heart disease, Borg Scale greater than 5 points and disabling musculoskeletal conditions to perform correctly the proposed aerobic protocol.

When filled the inclusion criteria in this study, patients were informed about their participation, contribution and signaturea Free andClarifieldConsent Term, being granted

permission to the researcher on completion the work.

All patients underwent 8 sessions of rehabilitation, totaling four days of care being one in the morning and another in the afternoon according to the following protocol.

After hospitalization of patients and being the same clinically stabilized, was given start to the protocol of aerobic exercise, being held before the start of the exercises the FIM, which was also held after the last session. Patients were instructed to rest for five to ten minutes sitting in a chair and after was carefully described all procedures for the exercises. Before the start of the protocol was measured blood pressure, respiratory rate, heart rate, saturation of peripheral oxygen, and subjective effort by the Subjective Effort of Borg Scale. Blood pressure was measured with the patient sitting, feet on the floor and column resting on chair using the stethoscope Littmann Classic II ® and the sphygmomanometer More Fitnes®. Then use of pulse oximetryOxyn® was measured resting heart rate and saturation of peripheral oxygen (all data concerning the characteristics of the sample are presented on Table I).

Conducted to collect data initial was initiated series of active stretching of the respiratory chain, being supported by 30-second in flexion, extension, rotation and lateral-flexion in the cervical region, and flexion, extension, adduction, abduction in the shoulder, respecting this sequence of exercises.

Subsequent to stretching, started anaerobic exercises in upper limbs, using the dumbbells of 0.5 kg for female and 1 kg for male and lower limbs using shields for 1 kg for female and 2kg for male and for all individuals calisthenics exercises with monitoring of heart rate and saturation of peripheral oxygen, with the possibility of changing load and repetitions as reported by the patient through the Borg scale.

The exercises had the following sequence of application: in upper limbs, patient in orthostatism and performed flexion/extension of elbow flexion/ extension, adduction/abduction, internal and external rotation of the shoulder. In the lower limbs, patient supine, performed flexion of hip, in lateral decubitus adduction and abduction of hip, in orthostatism extension of hip, in standing extension of knee. How calisthenics exercises was done squat and plantar flexion in orthostatism position, where all performed 2 sets of 10 repetitions, seeking muscular endurance and finally the cycle ergometer was held for a minimum of 2 minutes and maximum 10 minutes, oxygen was supplied to the patient who showed saturation less than 90% but hasn't interrupted exercise.

In the end of the last session, were measured all parameters evaluated in the first session and compared to be conclusion if there was hemodynamic and MIF changes.

In terms of statistical probability about the protocol, was performed the mean and standard deviation the analyzed data and using the Student t test for analysis of paired results, considering $P = <0.05$ for statistical significance.

RESULTS

The variables related to sample characteristics are presented in Table I.

Table I. Characteristics of the sample

	AGE	SEX	HEIGHT	WEIGHT	BMI	DAYS OF HOSPITALIZATION
1	60	M	1,75	68	22,46	6
2	74	M	1,78	96	30,3	5
3	68	M	1,72	68	22,99	7
4	75	M	1,74	65	21,47	5
5	57	M	1,67	58	20,8	9
6	62	M	1,58	73	29,24	7
Mean	66	100%	1,71	71,33	24,54	6,5
S.D	6,86		0,07	11,91	3,77	

S.D. Standart Deviation
BMI – Body Mass Index

Hemodynamic variables of the patients were measured two times a day throughout the study, no significant according to Table II.

Table II - Hemodynamic variables

	Systolic	Diastolic	R.R	H. R	Sat. O2	Borg
Mean	13,11	8,92	24,19	105,02	89,84	4,08
S.D	1,13	1,00	4,47	9,64	3,51	1,29

S.D. Standart Deviation
R. R. – Respiratory Rate
H.R. – Heart Rate
Sat. O2 – Saturation of peripheral oxygen
Borg – Perception effort subjetive

When analyzing the results of the study, it was observed that patients obtained improvement from approximately 1.5 points compared to initial assesment in some áreas: bathing, march, wheelchair and stairs are presented in Table III.

Table III - Results FIM

	FIM	
	Pre	Post
Mean	106,83	110,00
S.D	25,10	24,79
P value	0,89	

S.D. Standart Deviation
FIM - Functional Independence Measure

DISCUSSION

According Buist et al (2006) patients with COPD present cough, sputum production and dyspnea, therefore perceive in addition to of muscular strengthening the physiotherapist must also intervene with bronchial hygiene and training of respiratory muscles in these patients, another important dysfunction is also presented by Marquis (2002) mentions that the loss of muscle mass in patients with COPD as a predictor of mortality, that these data agree with the data found in this research.

Dourado et al (2006) says there is now evidence that strength training can result in improved quality of life significantly higher when compared with aerobic exercise. Already Wehrmeister et al (2011) tells us that when programs that use different types of exercise are compared, there seems no superiority of one type of exercise over another, which corroborate the findings of this research.

The strength and endurance training have positive influences on symptoms of dyspnea, exercise tolerance and quality of life of subjects aged 50-82 years (MANGABEIRA; Macedo 2012), this study noted that all the patients studied showed changes in subjective Borg scale, and through the exercises could improve this amendment.

Through a review study Mangabeira and Macedo (2012) show that the training of endurance and strength seem to interfere with the symptoms of COPD to optimize muscle function. In the present study through the FIM we note that having a better gain within motor in activities such as climbing stairs, walk, patients also showed improved functional independence, decreasing the oxygen requirement, this fact caused by the improvement of the general condition of the patient.

Zanchet et al (2005) in a study with 27 participants shows that pulmonary rehabilitation can break the vicious cycle of COPD, improving the quality of life and functional exercise capacity of patients. Dourado; Godoy (2004) emphasizes that undoubtedly, the most effective components of pulmonary rehabilitation are those related to physical activity such as aerobic exercise, peripheral resistive exercises and respiratory, besides the association of these two modalities.

Strength training associated with the training of the respiratory muscles according Kunikoshita et al (2006) seemed to be the best alternative therapy among those investigated in their study, because in addition to providing improvement in respiratory muscle strength, exercise tolerance and quality of life of patients, also brought an additional effect on physiological adaptations.

This study show that aerobic exercise of upper and lower limbs along with the cycle ergometer generated improvement in FIM, but not significant due the low number of patients in the sample, we also found that performing these exercises not alter hemodynamic variables corroborating the study by Neto et. al. (2013) which shows that the use of cycling is well accepted by critical patients and generates little cardiovascular alteration.

CONCLUSION

Physical exercise is the fundamental importance in COPD patients, the higher your cardiorespiratory capacity, better functional performance. Through this study we can see that anaerobic exercises of the lower, upper limbs and a cycle ergometer brought in increased by approximately 1.5 points in some areas of FIM, improving thus the functional independence of patients. Also realize that the proposed protocol not brought significant hemodynamic variation, no showing risk to patients.

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ANALYSIS OF A REHABILITATION PROGRAM IN HOSPITALIZED PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

ABSTRACT

The chronic obstructive pulmonary disease is a disease that causes more damage and that kills the world, reach about 5% of the population and is more common among men and after 40 years, bringing major functional impairment to patients. This is characterized by chronic airway, airway inflammation, limiting airflow and that not is fully reversible and may be more possible prevention and treatment. This study is characterized by a clinical trial uncontrolled, with a transverse design, aiming to assess whether anaerobic exercises of upper limb and lower limb and exercise on a cycle ergometer generates a change in the FIM scale in patients with COPD hospitalized at São Lucas/FAG Hospital. Six patients with COPD were studied, and found that despite the improvement in the values of the FIM this was not statistically significant. We conclude the proposed protocol showed no hemodynamic change significant, nor in the variables of FIM.

KEYWORDS: COPD, Independence, Functional, Physical Exercise.

ANALYSE D'UM PROGRAMME DE REHABILITATION CHEZ LES PATIENTS HOSPITALISÉS SOUFFRANT DE MALADIES CHRONIQUES MALADIE PULMONAIRE OBSTRUCTIVE

RÉSUMÉ

La bronchopneumopathiechroniqueobstructive est une maladiequi provoque plus de dégâtsetquituele monde, atteignantenviron 5% de lapopulation et est plusfréquente chez leshommes et après 40 ans, cequi porte atteintefonctionnellemajeurepourlespatients. Elle est caractérisée par une inflammationchroniquedesvoies respiratoiresetdesvoiesrespiratoireslimitantledébit d'airqui n'est pascomplètementréversible et peutêtrelaprévention et letraitementplusfacile. Cetteétude se caractérise par êtreunessai clinique non contrôlé, avecunobjectif de conceptiontransversaleétait d'évaluer si l'exerciceanaérobiepourmembressupérieursetinférieursexercice de branchesur une bicycletteergométrique et génèreunchangementdansl'échelle de la mesure d'indépendancefonctionnelle chez lespatientsatteints de BPCO admis à l'hôpital Luke / Fag. Sixpatientsatteints de BPCO ontétéétudiés, etontconstaté que malgrél'améliorationdanslesvaleurs de la MIF ce n'étaitpasstatistiquementsignificative. Grâce à cetteétude, nousconcluons que le protocole proposémontréaucuneffetsignificatifnisurlesvariables de MIF changementshémodynamiques..

MOTS-CLÉS: BPCO, l'indépendance, l'exercicedesfonctions.

ANÁLISIS DE UN PROGRAMA DE REHABILITACIÓN EN PACIENTES HOSPITALIZADOS CON LA EPOC
RESUMEN

Enfermedad pulmonar obstructiva crónica es una enfermedad que causa más daño y que mata el mundo, llegando a alrededordel 5% de lapoblación y es más común entre loshombres y después de 40 años de edad, conlo que el deterioro funcional importante para los pacientes. Este se caracteriza por lainflamación de lasvíasrespiratorias crónica de lasvías aéreas y flujo de aire restricción que no es completamente reversible y puede ser laprevención y eltratamiento más factible. Este estudio se caracteriza por ser unensayo clínico controlado, conun objetivo de diseño transversal fueevaluar si elejercicioanaerobio para elmiembro superior y elejerciciodelmiembro inferior enuncicloergómetro y generaun cambio enla escala de la medida de laindependencia funcional enlos pacientes con EPOC ingresados enel hospital Lucas / Fag. Seis pacientes con EPOC fueronestudiados, y encontraron que a pesar de lamejoraenlos valores de la MIF esto no fueestadísticamente significativo. A través de este estudio se concluye que el protocolo propuesto no mostró significativa nienlasvariables de MIF cambio hemodinámico.

PALABRAS CLAVE: EPOC, Independencia, ejercicio funcional.

ANÁLISE DE UM PROGRAMA DE REABILITAÇÃO EM PACIENTES HOSPITALIZADOS COM DOENÇA PULMONAR OBSTRUTIVA CRÔNICA
RESUMO

A doença pulmonar obstrutiva crônica é uma das doenças que mais causa prejuízos e que mais mata no mundo, atingem cerca de 5% da população, sendo mais comum entre homens e depois dos 40 anos, trazendo grandes prejuízos funcionais aos portadores. Esta se caracteriza pela obstrução crônica e inflamação das vias respiratórias limitando o fluxo aéreo e que não é totalmente reversível mais podendo ser de possível prevenção e tratamento. Este estudo se caracteriza por ser um ensaio clinico não controlado, com delineamento transverso tendo como objetivo avaliar se exercícios anaeróbicos de membro superior e membro inferior e exercício no ciclo ergômetro gera alguma alteração na escala de Medida de Independência Funcional em pacientes com DPOC internados no hospital São Lucas/ Fag. Foram estudados seis paciente portadores de DPOC, e encontramos que apesar da melhora nos valores da MIF esta não foi estatisticamente significativa. Concluímos através deste estudo que o protocolo proposto não apresentou nenhuma alteração hemodinâmica significativa, nem nas variáveis da MIF.

PALAVRAS-CHAVE: DPOC, Independência, Funcional, Exercício Físico.