127 - MOTOR PHYSIOTHERAPY CONDUCTION IN PATIENTS WITH AMYOTROPHIC LATERAL SLCEROSIS: BRAZILIAN LITERATURE REVIEW

ANDRESSA APARECIDA LORENÇO DE SOUZA[1];
EDUARDO LINDEN JÚNIOR[1];
SANDROVAL FRANCISCO TORRES[2];
RACHEL SCHLINDWEIN-ZANINI[3];
GECIELY MUNARETTO FOGAÇA DE ALMEIDA[1]
1 - Centro Universitário Unifacvest – Lages – Santa Catarina – Brasil
2 - Universidade do Estado de Santa Catarina – Florianópolis – Santa Catarina – Brasil
3 - Universidade Federal de Santa Catarina – Florianópolis – Santa Catarina – Brasil
doi: 10.16887/85.a1.127
andressalorenco@yahoo.com

INTRODUCTION

Amyotrophic Lateral Sclerosis – ALS, according to studies by Cassemiro e Arce (2010), is a degenerative and incapacitating pathology of the nervous system, characterized by loss of neurons in the cortex, cerebral stem and spinal cord. ALS is also known as Lou Gehrig disease in the United States, Charcot disease in France and motor neuron disease in the United Kingdom.

In a recent study by Linden Júnior (2013) the incidence of ALS in world's population is relatively uniform with a proportion of 1,5 and 2,5 cases per 100.000 inhabitants a year. Researches results show that the incidence increases after 40 years of age, reaching a peak between 60 and 75 years. Men are slightly more frequently affected than women.

Researches indicate that from 5 to 10% of people suffering from ALS, show hereditary disease, or hereditary ALS, which means that the individual inherits a dominant autosomal trait. 90 to 95% of the patients with amyotrophic lateral sclerosis, do not show family history of the disease, known as sporadic ALS, for which the cause is not yet completely determined (CASSEMIRO E ARCE, 2010).

For Silva et al (2013) ALS is a pathology that starts between 50 and 60 years of age, promoting degeneration and death of upper motor neurons (cerebral cortex and encephalic stem) and lower motor neurons (spine medulla). Main clinical signs are spasticity, muscular atrophy, hyperreflexia, areflexia, muscular weakness, fasciculations, psychosocial stress, sleep disorders, symptoms with bulb origin such as dysarthria and dysphagia.

When the respiratory muscles responsible for ventilation are affected, the patient evolves to death in few years as a result from respiratory insufficiency. ALS patients do not show sensitive, visual, and vesical alteration or alteration in upper cortex functions such as intelligence or memory (ORSINI et al, 2009).

Clinical condition of muscular weakness and fatigue implies in a reduction of his or her daily life activities – DLA's and a general physical deconditioning evolving to immobility. This results in a cycle that favors the permanence in bed and worsens life quality, because besides physical immobility the permanence in bed decreases de deficit of strength evolving to muscular atrophy resultant from disuse. Consequently, muscular strength may cause muscular constracture, articular stiffness, pain and deformities (BANDEIRA, 2010).

Hobaika and Neves (2009), realized a study reporting that the disease has no specific treatment, however currently Riluzol, a drug approved by Food and Drug Administration, reduces the neuronal degeneration, inhibiting glutamate and prolonging patient's life in some additional months.

It is right to affirm that the treatment of patients with ALS is a big challenge. The rarity and etiology of the pathology are two factors that make difficult the development of a clinical research. Studies show that a multidisciplinary approach is preferable, because patients that receive multidisciplinary care show prognostic improvement. (LINDEN JÚNIOR, 2013).

This article is justified by the big lack of Brazilian articles regarding to physiotherapeutic conduction in patients suffering from ALS.

METHODOLOGY

For the realization of this article of systematic review, scientific articles were found by means of a wide range research in three databases: Scielo, Lilacs and Capes periodics, between April and July of 2014, using the following key words: “amyotrophic lateral sclerosis” and “motor neuron disease”. Articles from Neurosciências Magazine were also selected.

Criterion of inclusion were articles published in Portuguese, without screening for year of publication and that crosse dover the key words. Recurrent references were excluded from the research.

The articles were screened by title and respective resume, and only those reporting physiotherapy in patients with amyotrophic lateral sclerosis were selected. At last, the articles were integrally read and individually analyzed. These data were organized in Excel charts and then analyzed.

RESULTS AND DISCUSSION

Initially 35 articles were found in Scielo database, 202 in Capes periodics, 585 in Lilacs database and 25 in Neurosciências Magazines, resulting in 851 scientific articles. After the screening, applying the criterion of exclusion, only eight articles that approached the theme related to motor physiotherapy in patients with ALS remained.

There are few therapeutic resources to be used in the treatment of ALS and among the authors, there is no consensus regarding to the best physiotherapeutic intervention, or a treatment protocol.

Table 1 shows the analysis of the main aspects of the scientific articles found in Brazilian literature.

Table 1 – Articles found in Brazilian literature that approach motor physiotherapy for ALS

TÍTLE	YEAR/ AUTHOR	OBJECTIVE	MÉTHOD	RESULTS
Physiotherapeutic approach in Amyotrophic Lateral Sclerosis:updating article	Linden Junior. (2013)	Know the state of art around physiotherapeutic approach in ALS.	Literature review on Scielo, Lilacs and Medline databases, including the most relevant articles.	Results show that physiotherapy has an important role in the treatment of patients with ALS.
Risks of excessive exercises in Amyotrophic Lateral Sclerosis: literature updating.	Facchinetti et al. (2009)	Collect data from the literature on risks of excessive exercises.	Literature review on Lilacs, Medline, Pubmed and Scielo databases between 1958 a 2008.	A strengthening exercises program can be an essential part in the treatment. The stage of the disease and load of exercises must be considered before the elaboration of a treatment plan.

Neuromuscular Proprioceptive Facilitation in Lateral Sclerosis	Junior, et al. (2013)	Evaluate the therapeutic effects of the Neuromuscular Proprioceptive Facilitation method	Case study: 50-year-old patient with ALS. Physiotherapeutic Intervention: respiratory and motor NPF for a term of three months, twice a week.	NPF improved motor and respiratory functionality, being of great importance in the treatment of patients with ALS. It also motivated and improved life quality of the patient.
Ground and aquatic exercises in patients with ALS.	Campos, Favero. (2008)	Verify the effects of ground and aquatic exercises.	Bibliographic survey, including articles about exercises performed on ground and in water, with ALS patients.	The exercises have positive effect in patients with ALS, when realized moderately and in the absence of fatigue.
Strength Exercises in the treatment of Amyotrophic Lateral Sclerosis (ALS): updating	Cascon, et al. (2008)	Literature data review on the practice of physical exercises on ALS.	Literature review in Bireme, Scielo and Pubmed databases with the key words: (ALS), physical exercise, strength exercise, neuromuscular disease, life quality, in the last 24 years.	Most of the material analyzed showed evidences that the practice of physical activities promote benefits for the life quality of the patients and attenuates the disease's progression
Physiotherapeutic Intervention in the initial phase of the Amyotrophic Lateral Sclerosis	Soares, et al. (2008)	Demonstrate the importance of physiotherapy in the retard of ALS symptoms	Case report: conduction with frequency of 3 weekly sessions and duration of 50 minutes. Stretching, motor coordination, diagonal stretching exercises based on Kabat method	Considerable improvement in motor coordination, self-esteem, and maintenance of muscular strength, showing positive effects in the retard of the most severe symptoms of ALS, preventing greater functional complications.
Hydrotherapy for patients with Amyotrophic Lateral Sclerosis (ALS): case report	Chaves, et al. (2009)	Demonstrate the importance of aquatic rehabilitation in the treatment of ALS.	Case study: evaluation of four patients with ALS. Hydrokinesiotherapy conducted for 16 weeks, with duration of 45 minutes per session in swimming pool with water heated at 33ºC. The following aspects were analyzed: functionality, muscular strength, fatigue and pain.	Hydrokinesiotherapy showed good results in improving the life quality, functionality, muscular strength, fatigue and pain. It is a good therapeutic resource for the treatment of ALS.
Physical rehabilitation on Amyotrophic Lateral Sclerosis	Orsini, et al. (2009)	Alert health professionals about physical rehabilitation, regarding to the risks from excessive use or atrophy for disuse	Literature review based on what was published about the theme in the last 50 years with descriptive analysis.	There are no studies on the intervention involving exercises for muscular strength gain in patients with ALS. However, the therapist must use exercises in submaximal levels expecting to attenuate strength loss, considering excessive use prevention and atrophy for disuse.

The treatment of ALS is still complex and lacks of more accurate researches in the search for the cure or better treatment protocols available to patients. The disease natural course can be divided in six stages, based on the progressive loss of the functionality of the stem and extremities muscles. Although the disease is unhealable, a multidisciplinary approach can improve the life quality of the patients and increase the lifetime of the individuals who suffer from ALS. The identification of the stages of the pathology can help the Physiotherapist determine a specific intervention during the disease's process (ORSINI et al, 2009).

Hydrokinesiotherapy

In the study presented by Chaves et al (2009) it was found that Hydrokinesiotherapy can be considered a good therapeutic resource in the treatment of patients with ALS, because adding water at 33ºC to exercises promotes an appeasement of pain, preventing muscular contracture and fatigue, helping the maintenance of muscular strength, providing functionality and a good life quality to the patient with ALS.

In the year of 2008, Campos and Favero realized a bibliographic survey aiming to verify the benefits of the exercises performed on the ground along with Hydrokinesiotherapy, with no restrictions for year or language. Five articles that served all the criterion were included. These articles demonstrated that the exercises have positive effects on patients, when performed moderately and in the absence of fatigue.

Proprioceptive Neuromuscular Facilitation (PNF)

For Júnior, et al (2013) Proprioceptive Neuromuscular Facilitation (PNF) improves the respiratory and motor functionality. A study was realized with a 50-year-old patient, with ALS, having PNF applied for 12 weeks, totalizing 24 sessions. At the end, an improvement in the clinical conditions and in the life quality could be noticed, evidencing that Kabat method can be an important technique in the conduction of Amyotrophic Lateral Sclerosis.

Through a case study with a patient in the initial stage Soares, et al (2008) verified in his article the importance of Motor Physiotherapy in the retard of the symptoms of ALS. Physiotherapeutic cares were realized three times a week, with 50 minutes for each session, applying therapeutic resources such as global active stretching, motor coordination exercises, diagonal stretching exercises based on Kabat method (PNF), along with respiratory exercises. The results obtained were considerable improvement in the motor coordination, self-esteem, maintenance of muscular strength, retard of the symptoms, preventing greater functional complications and improving patient's emotional aspect.

Resisted Exercises e Kinesiotherapy

Cascon, et al (2008) developed a bibliographic review with the theme "Strength Exercises in the Amyotrophic Lateral Sclerosis: up-to-date review". Reviewing Bireme, Scielo and Pubmed databases with key words: ALS, physical exercise, strength exercise, resisted exercise, neuromuscular disease and life quality, in the last 24 years. The conclusion was that the practice of physical activity provides benefits such as life quality improvement thus retarding the progress of the disease.

In his article Orsini et al (2009), elaborated a review on the literature aiming to alert about the risks in the physical rehabilitation as treatment for ALS, where he reports the excessive load of exercises or atrophy for disuse. The review concluded that there are few studies on the intervention involving exercises for gain of strength in affected individuals; however, it is possible to strengthen the musculature with submaximal levels expecting to attenuate the loss of strength.

According to study by Durán (2006) the role of physiotherapy is to evaluate, prescribe exercises of the maintenance of the movement amplitude, optimizing the remaining muscular functionality, preventing complications resultant from the disuse of the musculature, thus, promoting maintenance of the muscle tonus and preventing the appearing of peaks or edemas. Moderate and low resistance exercises are suggested; where the prescription is made according to the clinical condition presented by the patient, determining the intensity, duration and series of repetitions, in order to avoid fatigue and pain.

A program of exercises of strengthening can be an essential component in the treatment. However, the stage of the

disease, the load of exercises must be considered, aiming the improvement on the motor deficit, functional capacity and quality of life, making necessary to constantly analyze and evaluate in which stage of the disease the patient is. (FACCHINETTI, et al (2008).

Positioning and Daily Life Activities (DLAs)

Durán (2006), reports in his study that the evolution of the disease is fast and that consequently there will be loss of functionality. That is why the therapist needs to have auxiliary resources for the rehabilitation and improvement on the daily life activities (DLA's). The physiotherapist must monitor the functional abilities of the patient, determining effective modalities for the realization of his or her DLA's. Explaining the body mechanics intending to facilitate the change in the postures, evaluating the patient's residence, and suggesting the necessary changes in the environment with the intention of providing the patient with a greater and safer mobility, teaching techniques of transference to him or her, and his or her care takers. Regardless of the moment in which the physiotherapeutic treatment is, it is needed to dialogue honest and objectively with the patient and his or her family members, in order to provide a better care. These are aspects that besides providing benefits to the treatment can increase trust and respect for the therapist's work, and not only demonstrates professionalism but also humanity and solidarity.

The prescription of orthesis and equipment such as canes, splints, walkers, ankle supports and crutches may be a strategy to optimize deambulation. In the initial phase of neck's muscular weakness it is important to suggest the use of a neck support, just as the use of appropriate mattresses and cushions to prevent decubitus ulcers and at last to suggest the use of an adapted wheel chair. (CASCON, et al, 2008).

Articular Mobilization and Stretching

The maintenance of the movement amplitude (MA) is always an important goal to be achieved in the neurological disorder, because reduced MA may cause muscular contractures and movement limitation. The articular mobilization and the stretching are used to treat articular disorders, being manually and passively applied, aiming to increase the extensibility of the tissues and articular mobility, controlling pain, decreasing the spasticity and reducing edemas in soft tissues. In his study Júnior (2013) reports other techniques used in the treatment of ALS as daily life activities, positioning, resisted exercises, aerobic exercises and respiratory support, describing these as good therapeutic resources. However, there are few studies published about the subject, making it necessary the realization of more detailed researches in order to prevent the effects of current physiotherapeutic interventions and find new therapies.

CONCLUSION

Physiotherapy performs an important role in the treatment of Amyotrophic Lateral Sclerosis. Considering the diagnosis of the pathology, the disease stages and the aggressive prognostic, although it does not improve life expectancy of these patients, physiotherapy can actuate in many different positive aspects, promoting the increase of functionality and providing better life quality.

Through this research, it was possible to find out that Motor Physiotherapy in patients with ALS is poorly reported in Brazilian literature. Investing in new researches in this area is highly recommended, in order to verify the improvement of the therapeutic resources currently in use in the treatment of the disease or to find new techniques and therapies aiming to improve the life quality of patients.

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End.: Av. Coronel Córdova, Centro. Condomínio Residencial Portinari,
10ª andar, Apto: 108. Lages/SC. CEP:88502-000

MOTOR PHYSIOTHERAPY CONDUCTION IN PATIENTS WITH AMYOTROPHIC LATERAL SLCEROSIS: BRAZILIAN LITERATURE REVIEW

ABSTRACT

Introduction: Amyotrophic Lateral Sclerosis (ALS) is a neurodegenerative progressive disease, relatively rare and fatal, caused by a degeneration of the upper and lower motor neurons. Main symptoms of ALS are weakness, atrophy, fasciculation, cramps, spasticity, dysarthria, dysphagia and dyspnea. After the diagnosis, the condition takes from 3 to 5 years to present progressive incapacity resulting in respiratory insufficiency and death. In front of the interventions available, this

condition requires a multidisciplinary teamwork, in order to promote better quality of life for the patients. Objective: Collect data from Brazilian literature about the physiotherapeutic motor treatment in patients with Amyotrophic Lateral Sclerosis – ALS. Method: Bibliographic research, realized between April and July of 2014, on Scielo and Lilacs databases, Capes periodic and Neurosciências Magazine, restricting the research to articles about motor physiotherapy published in Portuguese with no screening for year of publication. Results and Discussion: 851 articles were found in the databases, but only eight served the criterion of inclusion. The techniques more frequently reported were Hydrokinesiotherapy, Resisted exercises, Kinesiotherapy and Prospective Neuromuscular Facilitation. Conclusion: Motor physiotherapy in patients with ALS is being insufficiently reported in Brazilian literature. Investment in new studies in this area is needed because physiotherapy has an important role in the functional performance, actuating in different positive aspects aiming a better life quality for the patients.

KEYWORDS: Physiotherapeutic treatment, Amyotrophic Lateral Sclerosis, Motor Neuron Disease.

PROCÉDURE PHYSIOTHÉRAPEUTHIQUE MOTRICE CHEZ LES PATIENTS ATTEINTS DE LA SLA: ANALYSE BIBLIOGRAPHIQUE DE LA LITTÉRATURE BRÉSILIENNE.

RÉSUMÉ

Introduction: La Sclérose Latérale Amyotrophique (SLA) est une maladie neurodégénérative progressive, relativement rare et fatale, causée par la dégénérescence des motoneurones supérieurs et inférieurs. Les principaux signes et symptômes de la SLA sont faiblesse, atrophie, fasciculations, crampes, spasticité, dysarthrie, dysphagie, dyspnée. Après le diagnostic, dans une période de 3 à 5 ans le patient présente une invalidité progressive conduisant à une insuffisance respiratoire et à la mort. Face aux interventions, cette condition nécessite un travail en équipe pluridisciplinaire afin de fournir, de cette manière, une meilleure qualité de vie aux patients. Objectif: Effectuer une collecte de données dans la littérature brésilienne sur le traitement physiothérapeutique moteur des patients atteints de la La Sclérose Latérale Amyotrophique - SLA. Méthode: Recherche bibliographique, avec recherche d'articles pour la période allant d'avril à juillet 2014, dans les bases de données Scielo, Lilacs, Periódicos Capes et Revista Neurociências, étant limitée à la recherche d'articles publiés sur la physiothérapie motrice, écrits en portugais, sans filtres pour les années. Résultats et Discussion: 859 articles ont été trouvés dans les bases de données, et seulement 8 articles ont répondu aux critères d'inclusion. Les techniques les plus discutées sont l'Hydrothérapie, les Exercices de Résistance, la Kinésithérapie et la Facilitation Neuromusculaire Proprioceptive. Conclusion: La physiothérapie motrice chez les patients atteints de la SLA est rarement abordée dans la littérature brésilienne, il est nécessaire d'investir dans de nouvelles recherches dans ce domaine car le traitement physiotherapeutique joue un rôle important dans la performance fonctionnelle, agissant positivement à bien des égards, visant la meilleure qualité de vie pour les patients affectés.

MOTS-CLÉS: Traitement Physiotherapeutique, Sclérose Latérale Amyotrophique, Maladie du Motoneurone.

CONDUCTA FISIOTERAPEUTA MOTORA EN PACIENTES CON ESCLEROSIS LATERAL AMIOTRÓFICA: REVISIÓN DE LA LITERATURA BRASILEÑA

RESUMEN

Introducción: La Esclerosis Lateral Amiotrófica (ELA) es una enfermedad neurodegenerativa progresiva, relativamente rara y fatal, causada por la degeneración de las neuronas motoras superiores e inferiores. Los principales signos y síntomas de la ELA son debilidad, atrofia, fasciculaciones, calambres, espasticidad, disartria, disfagia e disnea. Después del diagnóstico, en el período de 3 a 5 años presenta incapacidad progresiva llevando a insuficiencia respiratoria y la muerte. Delante de las intervenciones, esta condición requiere un trabajo en equipo con diversas especialidades para así proporcionar una mejor calidad de vida a los pacientes. Objetivo: Realizar un levantamiento de datos en la literatura brasileña acerca del tratamiento fisioterapéutico motor en pacientes portadores de Esclerosis Lateral Amiotrófica - ELA. Método: Pesquisa bibliográfica, con busca de artículos entre período de abril a julio de 2014, en las bases de datos Scielo, Lilacs, Periódicos Capes y Revista Neurociencias, siendo restricta a pesquisa de artículos publicados sobre fisioterapia motora, escritos en portugués, sin filtros para año. Resultados y Discusión: Fueron ubicados 859 artículos en las bases de datos, siendo que solamente 8 artículos atendieron a los criterios de inclusión. Las técnicas más abordadas son hidrocinesioterapia, Ejercicios Resistidos, Cinesioterapia y Facilitación Neuromuscular Propioceptiva. Conclusión: La fisioterapia motora en pacientes con ELA, es poco abordada en la literatura brasileña, es necesario investir en nuevas pesquisas en esta área, pues el tratamiento fisioterapéutico tiene un papel importante en el desempeño funcional, actuando en diversos aspectos positivamente, visando la mejor cualidad de vida a los pacientes acometidos.

PALABRAS CLAVES: Tratamiento Fisioterapéutico, Esclerosis Lateral Amiotrófica, Enfermedad de la Neurona Motora.

CONDUTA FISIOTERAPÊUTICA MOTORA EM PACIENTES COM ESCLEROSE LATERAL AMIOTRÓFICA: REVISÃO DA LITERATURA BRASILEIRA.

RESUMO

Introdução: A Esclerose Lateral Amiotrófica (ELA) é uma doença neurodegenerativa progressiva, relativamente rara e fatal, causada pela degeneração dos neurônios motores superiores e inferiores. Os principais sinais e sintomas da ELA são fraqueza, atrofia, fasciculações, cãibras, espasticidade, disartria, disfagia e dispnéia. Após o diagnóstico num período de 3 a 5 anos apresenta incapacidade progressiva levando a insuficiência respiratória e a morte. Diante das intervenções esta condição requer um trabalho em equipe multiprofissional, assim proporcionando uma melhor qualidade de vida aos pacientes. Objetivo: Realizar um levantamento de dados na literatura brasileira sobre o tratamento fisioterapêutico motor em pacientes portadores de Esclerose Lateral Amiotrófica - ELA. Método: Pesquisa bibliográfica, com busca de artigos entre período de abril a julho de 2014, nas bases de dados Scielo, Lilacs, Periódicos Capes e Revista Neurociências, sendo restrita a pesquisa de artigos publicados sobre fisioterapia motora escritos em português e sem filtros para ano. Resultados e Discussão: Foram encontrados 851 artigos nas bases de dados sendo que apenas 8 atenderam aos critérios de inclusão. As técnicas mais abordadas são Hidrocinesioterapia, Exercícios Resistidos, Cinesioterapia e Facilitação Neuromuscular Proprioceptiva. Conclusão: A fisioterapia motora em pacientes com ELA está sendo pouco abordada na literatura brasileira. É necessário investimento em novas pesquisas nesta área pois o tratamento fisioterapêutico possui um papel importante no desempenho funcional, atuando em diversos aspectos positivos visando a melhor qualidade de vida aos pacientes acometidos.

PALAVRAS-CHAVE: Tratamento Fisioterapêutico, Esclerose Lateral Amiotrófica, Doença do Neurônio Motor.