

Physiotherapeutic approach for pain and quality of life of a hemophilic patient. Case report

Abordagem fisioterápica na dor e na qualidade de vida de um indivíduo com artrite hemofílica. Relato de caso

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ABSTRACT

BACKGROUND AND OBJECTIVES: Hemophilia is a congenital, uncommon and chronic coagulopathy characterized by recurrent hemarthrosis outbreaks. It affects predominantly males and produces major musculoskeletal disorders, such as movement limitation, joint fibrosis, hemarthrosis and tissue hemorrhages, muscle contractures, muscle strength deficit and hemophilic arthritis, resulting in pain and impaired quality of life. This study aimed at evaluating the effects of a physiotherapeutic intervention program on pain and quality of life of a patient with hemophilic arthritis.

CASE REPORT: Male patient, 23 years old, with hemophilic arthritis. His major complaint was pain in different body sites, especially in ankles and right knee. Pain was evaluated with the visual analog scale and body pain map, and quality of life was evaluated with the Short-Form Health Survey questionnaire. Patient was submitted to eight physiotherapy sessions, once a week, with mean duration of 50 minutes, between May and June 2015. Adopted intervention protocol was based on conventional kinesiotherapy.

CONCLUSION: This study has shown that a physiotherapy program based on kinesiotherapy has decreased the number of tender points and pain intensity, as well as has improved quality of life of a patient with hemophilic arthritis.

Keywords: Hemophilia A, Hemophilia B, Pain, Physiotherapy, Quality of life.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A hemofilia é uma coagulopatia congênita, rara e crônica, caracterizada pelos surtos recidivantes de hemartroses. Predomina no gênero masculino e produz agravos osteomioarticulares importantes como restrição dos movimentos, fibrose articular, hemartroses e hemorragias tissulares, contraturas musculares, déficit de força muscular e artrite hemofílica, resultando em quadros de dor e piora na qualidade de vida. O objetivo deste estudo foi verificar os efeitos de um programa fisioterápico de intervenção na dor e na qualidade de vida de um indivíduo com artrite hemofílica.

RELATO DO CASO: Paciente do gênero masculino, 23 anos de idade, com diagnóstico de artrite hemofílica. Sua queixa principal era a dor em diversos pontos do corpo, especialmente em tornozelos e joelho direito. A dor foi avaliada através da escala analógica visual e do mapa de dor corporal, e a qualidade de vida por meio questionário *Short-Form Health Survey*. O paciente foi submetido a oito sessões de fisioterapia, uma vez por semana, com duração média de 50 minutos, entre os meses de maio a junho de 2015. O protocolo de intervenção adotado baseou-se em cinesioterapia convencional.

CONCLUSÃO: O presente estudo demonstrou que um programa de fisioterapia baseado na cinesioterapia diminuiu o número de pontos dolorosos e a intensidade da dor, bem como melhorou os domínios da qualidade de vida em um indivíduo com artrite hemofílica.

Descritores: Dor, Fisioterapia, Hemofilia A, Hemofilia B, Qualidade de vida.

INTRODUCTION

Hemophilia is a congenital disease caused by blood coagulation factor deficiency and characterized by recurrence of hermarthroses, especially in joints. It has two forms: type A (factor VIII deficit) or type B (factor IX deficit)¹.

Males are more frequently affected, with its peak between 20 and 29 years of age, being that type A is the most frequent². Worldwide, 6.9 million people have some hemorrhagic disorder³ and in Brazil almost 11 thousand people had some type of hemophilia in 2012. In this same period, Rio Grande do Sul had slightly more than 600 cases of the disease².

Hemophilic patients have persistent pain, which varies from moderate to severe. In this population, pain may induce mus-

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culoskeletal complications⁴, such as joint movement limitation, joint fibrosis, contractures, gait and muscle strength changes, hemarthroses, tissue hemorrhage and hemophilic arthritis (HA)^{1,5}. Due to coagulation process changes, hemorrhages are the most frequent complications of hemophilic patients and may be spontaneous or secondary to trauma⁶.

There is currently consensus among health care professionals about the use of physiotherapy for hemophilic individuals because it corrects motor deficits, improves functionality, decreases pain and improves quality of life (QL)¹. Regular exercises aim at better psychosocial conditions, increase or maintenance of muscle strength and trophism, joint mobility and stability, flexibility, balance and functionality, thus improving daily life activities (DLA)^{7,8}. Different physiotherapeutic modalities are welcome to treatment, especially kinesiotherapy^{7,8}. However, literature still lacks sources discussing and exploring the best physiotherapeutic treatment for hemophilic patients^{1,5,7}.

In light of the above, this study aimed at observing the effects of a physiotherapeutic program on pain and QL of a hemophilic arthritis patient.

CASE REPORT

This is a longitudinal, interventionist, case report study. It is part of an umbrella project called “Effects of physiotherapy on patients with rheumatic diseases”, approved by the Ethics Committee for Research with Human Beings of the Universidade de Passo Fundo under protocol 348.381, according to Resolution 196/96 of the National Health Council (NHC).

Male patient, 23 years old, with HA, who participated in 8 physiotherapy sessions from May to June 2015, once a week lasting approximately one hour in the Physiotherapy Clinic of the School of Physical Education and Physiotherapy, Universidade de Passo Fundo, Passo Fundo/RS after signing the Free and Informed Consent Term (FICT).

Baseline evaluation consisted in data collection (age, profession, physical evaluation and others), QL evaluation by means of the quality of life questionnaire – Medical Outcomes Study 36 – Item Short-Form Health Survey (SF-36), translated and validated for the Portuguese language, and pain evaluation by means of the body map of pain and the visual analog scale (VAS), all carried out as interviews after previous explanation of the procedures and the answering of questions. SF-36 is a 36-item scale gathering physical (functional capacity, physical aspects, pain and general health status) and mental (vitality, social aspects, emotional aspects and mental health) components. The higher the score, the better the health-related QL⁹.

Body map of pain is a representation of the human body where patients indicate specific site and distribution of pain at evaluation time¹⁰. VAS is a horizontal straight line with edges numbered from zero (no pain) to 10 (worst imaginable pain). Patients should quantitatively indicate their pain at that moment¹¹.

Intervention protocol was based on global conventional kinesiotherapy with emphasis on lower limbs, and aimed at muscle strengthening, mobility, balance, proprioception and gait training by means of weight bearing. The order of exercises was: initial and final blood pressure measurement; global active and/or passive stretching of major upper and lower limbs and trunk muscle groups (for 15 seconds); joint mobilization of ankles, bilateral metatarsi, feet phalanges, right knee, left hip, left elbow and lumbar and cervical spine; squeeze a proprioceptive ball with feet (3x10); sitting and standing holding 2 kg anklets (3x10); mini-squats in airex, progressing to discoball (3/x010); plantiflexion with 2 kg shin guards, progressing to 3 kg (3x10); kicking a futsal ball with 2 kg shin guards, progressing to 2.5 kg (10 kicks with each leg, in three series); going up and downstairs with 3 kg shin guards (3x15 steps); ergonomic bike with load 3, progressing to load 5 (during 10 minutes). Session was closed with ankles cryotherapy for 20 minutes. The number of loads and repetitions was established according to patient's physical conditions and has maintained the same value throughout the treatment. All parameters were reevaluated after 8 physiotherapy sessions.

Table 1 shows data related to individual's QL before and after physiotherapy, according to SF-36.

There has been considerable improvement in limitation by physical aspects, followed by pain, social aspects and limitation by emotional aspects, while remaining domains have maintained the same value or have not shown satisfactory results.

Table 2 shows data regarding patient's pain, according to body map of pain and VAS.

Table 1. Quality of life before and after physiotherapeutic intervention, according to SF-36

Domains	Before intervention	After intervention
Functional capacity	100	100
Limitation by physical aspects	0	50
Pain	20	74
General health status	82	82
Vitality	50	30
Social aspects	62.5	100
Limitation by emotional aspects	66.6	100
Mental health	96	88

Table 2. Pain before and after physiotherapy, according to body map of pain and visual analog scale

	Before intervention	After intervention
Pain site	Cervical region Lumbar region Left elbow Right knee Left thigh internal region Right and left ankles	Cervical region Left ankle
General pain intensity	8	2

Pain has considerably improved after physiotherapy, according to patient's report. Tender points, which initially were six, have decreased to just two, and general pain intensity has decreased 6 points, according to VAS.

DISCUSSION

Pain contributes to incapacity of chronic disease patients¹², since in static contraction the activity of the painful muscle is decreased and attenuates synergist muscle activity, thus worsening pain¹³. Around 86% of hemophilia cases are followed by pain and from these 92% report arthralgia¹⁴. This is in line with our study because patient had joint pain complaint, especially in ankles and knees, which leads to incapacity and muscle unbalance, thus contributing to worsening pain.

In HA, recurrent hemarthroses lead to joint degeneration, joint deformities, severe functional deficiency, and consequently generating pain as described in this report¹⁵. HA patients have complications such as strength deficits and muscle atrophies, joint instability, hypomobility, proprioceptive decrease and limitation of biomechanical movements, thus making difficult pain relief¹⁶. Patient has reported using factor VIII concentrate and has maintained this therapy during physiotherapeutic treatment. This strategy associated to physiotherapy may decrease the duration of hemorrhages, generating better results and lower public expenditures¹⁷.

Some studies suggest that exercises increase the level of circulating factor VIII¹⁸ and when early performed provide positive results, such as decreased joint bleedings, pain relief, increased muscle strength and resistance and prevention of possible mioarticular deformities, assuring better QL and fitness to patients¹⁶. This is why we have chosen physical exercises as the intervention modality for this study.

Literature states that kinesiotherapy uses movement to provide mobility, flexibility, muscle coordination, to increase muscle strength and resistance to fatigue¹⁹. Due to joint instabilities it is necessary to encourage proprioceptive exercises aiming at joint balance and repositioning⁷, assuring a good development of muscles and protection of joints against new hemorrhagic events¹. This is why exercises were performed with weight bearing, aiming at preventing the recurrence of hemarthroses, which are reasons for pain and impact on QL of HA patients. Evidences recommend that physiotherapy should be applied two to three times a week with minimum duration of three months²⁰, which is in line with current study which has adopted a shorter intervention time and patient improved or maintained pain and QL.

A different study has evaluated the efficacy of two physiotherapeutic interventions in nine ankle HA patients. They were randomized in mobilization and stretching group (G1) and manual therapy group (G2).

At the end of 12 sessions, both groups have improved all ankle movements, being that G1 had better results regarding pain perception and QL²¹. In our study, patient has followed a protocol of exercises based on kinesiotherapy and has improved QL, especially limitation by physical aspects and pain. So, it is

understood that physiotherapy may be an effective alternative to maintain or rehabilitate pain and QL of hemophilic patients, in addition to decreasing the financial impact of pharmacological therapies. So, as for the general population, hemophilic patients benefit from physical activity⁵. In our study, using similar techniques, such as joint mobilization and stretching, patient has improved QV and pain.

A case study with HA patient who performed 20 physiotherapy sessions, has involved global stretching, joint mobilization, strengthening exercises with load (resisted and isometric), weight transfer exercises, posture re-education and gait training. At the end, it was observed that QL had significantly improved¹, what is in line with current study because our patient has performed a protocol of kinesiotherapy-based exercises and has improved QL, especially in limitation by physical aspects and pain.

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A study has divided 31 ankle HA individuals in groups: manual therapy consisting in joint traction, passive stretching of gastrocnemius muscles, muscle strength and proprioception exercises (G1), educational and home exercises group (G2) and control group (G3). Study has lasted 12 weeks and G1 was better than G2 and G3 because it has improved muscle trophism and has decreased ankle pain²², which confirms our study because adopted intervention was effective for pain relief, especially ankle pain, according to patient's report, and has improved QL.

A case study with a male patient with knee and ankle HA, has performed physiotherapy for 8 weeks. Resources were Neuromuscular Proprioceptive Facilitation (NPF) techniques. Results have shown improved movement amplitude and decreased involved joint pain according to VAS²³. In our study, kinesiotherapy was effective to improve pain of our patient.

CONCLUSION

A physiotherapeutic protocol based on kinesiotherapy was effective to decrease the number of tender points, to relieve pain and to improve quality of life of an individual with hemophilic arthritis.

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