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Effects of chiropractic in patients with shoulder adhesive capsulitis (frozen shoulder): review article.

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ABSTRACT

Introduction: adhesive capsulitis (frozen shoulder) is a common disease that causes significant morbidity. Chiropractic care is based on technical adjustments that restore normal micro-motion to the spine, reducing neural compression cause of painful symptoms that particular dermatome. The aim of this paper is to review the scientific literature the effects of chiropractic in patients with frozen shoulder. **Method:** This is an integrative review article, made from primary sources. As criteria for inclusion of articles, we selected only those whose methodology was Clinical Trial Controlled Randomized, published in the period 2010 to 2016, which made reference to features and methods of the relevant chiropractic treatment of frozen shoulder, which compared a group chiropractic and another that applied conventional physiotherapy or other similar technique. **Results:** The search in databases totaled 18 randomized controlled trials. According to the inclusion criteria, only three articles were selected. The three studies have shown benefits of chiropractic for improvements in mobility, pain and function. **Conclusion:** Each article has shown benefits with the application of chiropractic techniques frozen shoulder.

Keywords: Adhesive capsulitis, Frozen shoulder, Range of motion, Chiropractic, Manual therapy.

INTRODUCTION

The shoulder adhesive capsulitis (frozen shoulder) is a common illness which causes significant morbidity.[1] It usually occurs in the sixth decade of life with age peak 56 years, and the condition occurs slightly frequent in women than in men.[2]

The term frozen shoulder was first described by Duplay in 1872,[3] however only in 1934 it was first used by Codmam.[4] Such pathology was defined by Codmam as being of a slow onset, with painful symptomatology close to deltoid muscle insertion, inability to sleep on the affected side, and restriction in both active and passive elevation and external rotation, but with a normal radiological appearance, definition also attributed the consensus of orthopedic surgeons from the American Shoulder and Elbow surgeons (ASES).[5]

Patients with frozen shoulder of secondary origin, compared to the painful condition of the shoulder of primary origin, clearly identifiable, often have a worse prognosis.[6]

In the absence of other pathological processes, a frozen shoulder diagnosis occurs with an insidious onset, night pain occurs, painful restraint of passive scapulohumeral elevation causing abduction of the shoulder less than 100 degrees, and external rotation of the shoulder less than half of normal.[7]

The history of the disease occurs in 3 phases: (1) freezing phase, characterized by diffuse pain and loss of movement (2-9 months); (2) the frozen phase, where the pain diminishes and the stiffness increases (4-12 months); and (3) thawing phase, characterized by a progressive normalization of mobility and function (4-12 months).[8] The stages may last 1-3 years.[9]

The goals of treatment for patients with shoulder stiffness is to restore, maintain the range of motion (ROM) as well as the functionality, and reduce the painful symptoms [10]. Treatments for shoulder adhesive capsulitis include rehabilitation as the first conservative measure, anti-inflammatories, intra-articular corticosteroids, capsular distension injections, and surgical interventions in refractory cases. In the context of the therapy it is possible to highlight the technical mobilization and manipulation for restoring a pain-free state and normal use of the upper limb.[8]

Manual therapy consists of a series of operations, including manual techniques (muscle mobilization, specific joint mobilization, coordination or stabilization), such interventions are widely used by chiropractors, in the osteopathy or by physiotherapists.[11]

The chiropractic based on the techniques that return arthrokinematic movements, normal micromotion to the spine, reducing the nerve compression responsible for painful symptoms.[12] Some researchers have suggested manual

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therapy techniques for shoulder problems.[13] The published literature has shown that the mobilization has a positive effect in the treatment of frozen shoulder.[14,15] The aim of this study is to review the effects of chiropractic in patients with frozen shoulder.

METHOD

It is an integrative review article, made up of primary sources (original articles). For the bibliographic survey the following databases were reviewed: Medline, Scientific Electronic Library Online (SciELO), PEDro, PubMed and the Google search engine.

The descriptors used in the search of articles were: adhesive capsulitis, frozen shoulder, range of motion, Chiropractic and manual therapy. As criteria for inclusion of the articles, it was selected only those whose Randomized Controlled Trial (RCT) methodology in the period between 2010 to 2016, which referred to relevant chiropractic resources and methods in the treatment of frozen shoulder, which compared a group with Chiropractic and another which applied conventional physiotherapy or another similar technique.

Exclusion criteria were those that dealt with manipulation under anesthesia or shoulder stiffness as result of an injury or surgery to the affected shoulder. These articles involved experimental and non-experimental studies.

Subsequently, articles which fulfilled the inclusion and exclusion requirements of the research were selected. Initially, articles were excluded by title, followed by exclusion of the abstract, and finally by reading the study in full. The bibliographic references of the selected articles at the end were analyzed in order to highlight additional sources.

Table 1 - Description of found articles.

	Found Articles	Free Full Text
Available Articles	18	7
Articles which met the criteria	3	1

Source: Research data.

RESULTS

The search in the databases totaled 18 controlled and randomized clinical trials. According to the eligibility criteria, only 3 articles were selected (table 1). As result, 3 articles were analyzed, presented in chronological order in table 2 and evaluated methodologically according to table 3.

DISCUSSION

In one of the randomized controlled trials, rated 5/10 on the PEDro Scale, the authors compared the effects of Mulligan technique to relieve pain and improve functional shoulder capacity in patients with stiffness-phase adhesive capsulitis compared to patients treated with onventional passive stretching exercises. This study concluded that although both were effective for restoring range of motion, pain reduction, Mulligan's technique achieved greater benefits in terms of pain, range of motion, improvement of functional shoulder capacity, and better satisfaction index therapist and the patient.[16]

A randomized controlled clinical trial of high methodological quality, classification 8/10 on the PEDro scale, compared the efficacy of mobilization treatment at the end of scapular mobilization/amplitude, in addition to conventional physiotherapy, compared to only conventional therapy in 34 patients with frozen shoulder. The major treatment groups included patients which met the criteria of a kinematic prediction, and an additional control group included patients which did not meet the criteria. At the end of eight weeks, the results of various parameters such as range of motion and function were significantly better in the intervention group compared to the control group. However, there was no difference between the intervention group and the control group that did not meet the criteria. These results support the use of a prediction method.[17]

Table 2- Treatment characteristics, clinical trials results.

Article	Treatment	Result
Doner *et al,* 2013 [16]	Warm compress, TENS, Mulligan technique X warm compress, TENS, passive stretching exercises N: 40 patients.	Improvements in pain measures, range of motion, shoulder scores, and patient and physiotherapist satisfaction were significantly greater in subjects treated with the Mulligan technique.
Yang *et al*, 2012 [17]	Standardized physiotherapy program, Control group (N: 11) X Standardized physiotherapy program, Criteria control group (N: 12) X EMSMTA group (N: 11) N: 34 patients.	There was a significant improvement in ROM, functional capacity and shoulder kinematics at 4 and 8 weeks in the control group compared to the criteria control group.
Fink, M., J. Schiller, and H. Buhck. 2012 [18]	Based on FDM X Conventional manual procedures N: 60 patients.	FDM is an effective modality with rapid onset of action and acceptable secondary effects, superior to conventional manual therapy.

Source: Research data.

Table 3- Characterization of assessment methods, treatment time and follow-up.

Article	Evaluation Method	Treatment duration	Follow-up
Doner *et al,* 2013 [16]	Visual analog pain scale, active and passive range of motion (ROM), Constant score, Functional shoulder limitation assessment questionnaire (SDQ), and patient and therapist satisfaction.	3 weeks, 5 days per week.	3 months
Yang *et al*, 2012 [17]	Range of motion (ROM), Functional Shoulder Limb Assessment Questionnaire (FLEX-SF), and Complex Shoulder Kinematics were obtained at baseline, at 4 weeks and 8 weeks.	8 weeks, 2 times a week.	3 months
Fink, M., J. Schiller, and H. Buhck. 2012 [18]	Photos, Visual digital pain scale, Functional shoulder limitation assessment questionnaire (DASH and Murley-constant) and strength evaluation (System 3, Biodex Medical Systems, New York).	2 weeks, 2 times a week, during 20 minutes	6 weeks

Source: Research Data.

Therapy according to the fascial distortion model was compared with classical manual therapy in 60 frozen shoulder patients, in a 6/10 PEDro scale. Six weeks after the end of treatment there was improvement in function and pain in both groups, but significantly in the fascial distortion model group than in the classical manual therapy group. The patients thought the fascial distortion model treatment more uncomfortable than the classic manual therapy, however there were not serious adverse effects.[18]

Studies have shown benefits of chiropractic for improvement in pain, mobility and function. They evaluated the pain intensity with the Visual Analog Pain Scale (VAS), a scale of easy and quick application and quite understandable by the patient. In agreement with an article in which they conclude that it is the pain intensity variation which best determines the deterioration and improvement in the treatment of syndromes.[19]

Several studies have included the manipulation of chiropractic and physiotherapy manipulations, thus providing evidence that groups which received intervention obtained better results than the control group, there is also a positive correlation between baseline levels of pain and its reduction after intervention.[20]

A very detailed assessment shows the real source of the problem, and where the real reason for pain is found, the chiropractic has beneficial effects on it. This is what a research report states in a case study about the effect of chiropractic on patients with pain in the upper extremities. A change was found in the cervical spine (C6), which caused pain in the patient. Upon chiropractic manipulation for correcting radiculopathy, it was observed the improvement of the patient.[21]

Regarding mobility, changes in the kinematics of the shoulder exacerbate the condition of frozen shoulder symptoms, including pain, limitation of range of motion and muscle weakness. Abnormal kinematic may predispose patients to subacromial impingement, rotator cuff tendonitis, power imbalance and possible degenerative changes.[22,23] Thus, correcting the changes would result in improvements in mobility.

CONCLUSION

Chiropractic manipulation techniques provide significant pain relief in most patients with CAO and increased range of motion in the affected upper limb, thus improving functional appearance. Due to the great difficulty found in obtaining directly related studies, it is suggested that further research in the area in order to contribute to the treatment of this pathology.

AUTHORS' CONTRIBUTIONS

ACA and FBB: Evaluation and review article (Data collection), writing of the work; RMVS: Discussion and Guidance of work.

CONFLICTS OF INTEREST

There was no conflict of interest in the research.

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