148 - EFFECT OF CAUDAL AND ANTERO-POSTERIOR GLIDE IN THE RANGE OF MOTION OF FLEXION, ABDUCTION AND INTENSITY OF PAIN IN SHOULDER

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INTRODUCTION

The shoulder is a very complex structure that performs many movements during daily activities, always depending on the stability offered by the structures around it. Thus, when it is overloaded, dysfunctions settle (SOUZA, 2001).

The dysfunction of the shoulder is one of musculoskeletal problems more commonly found in the general population. Its etiology is associated with longer life expectancy of the population and the practice of sport increasingly frequent (BADCOCK et al., 2002).

Shoulder pain is considered as the main symptom of dysfunction, supposedly occurs in approximately 7% to 34% of the general population, accompanied by limitation of range of motion (ROM) of the shoulder general (KUIJPERS et al., 2006).

For the treatment of dysfunction of the shoulder stand out medicated procedures (BERGMAN et al. 2004), as well as physiotherapy, with the aim of relieving painful symptoms (BANG & DEYLE, 2000).

Currently manual therapy that it is a form of physical therapy, has proven successful in the treatment of shoulder dysfunction, using the techniques of glide, as they restore joint movement accessory thus improving the functionality and thereby reducing the intensity of pain shoulder (JOHNSON et al., 2007).

Through the above, the objective of this study was to evaluate the effect of antero-posterior and caudal glide techniques over the limitation of flexion and abduction, and pain intensity during the same movements in subjects with shoulder dysfunction.

MATERIALS AND METHODS

The present study was to design a clinical study.

The study sample consisted of 7 subjects aged 22 ± 0.7 years, 3 males and 4 females.

Inclusion criteria for the study were: limitation of range of active movements in flexion and abduction of the glenohumeral joint and pain in performing the same movement. It should be noted that the research did not tend to evaluate and diagnose possible injuries of the shoulder complex.

All volunteers who participated in the survey duly signed a term of informed consent. The research was conducted in the physiotherapy clinic at the Center for Health Sciences (CCS) at the University of Northern Paraná State (UENP), starting in March 2010 and ending in September of that year.

The experimental procedure began with the evaluation of active movements of flexion and abduction of the shoulder pain using a goniometer, with a scale of 2 °, is also recorded by the volunteers who had pain intensity during the same movements, using a visual analogue scale pain (PINCUS et al., 2008). Thereafter, the treatment was carried out a total of five weeks, which were performed in 10 sessions each volunteer, two times per week. At the end of treatment, after 10 sessions, was again evaluated ROM and intensity of shoulder pain for later analysis of the effect of the techniques.

The active flexion of the shoulder was measured with the volunteer seated, raising his arm forward with the palm facing medially parallel to the sagittal plane. The fixed arm of the goniometer was placed in the mid axillary line of the trunk, pointing to the greater trochanter. And the movable arm was placed on the side surface of the humeral body facing the lateral epicondyle (MARQUES, 2003).

The movement of active shoulder abduction was measured with the volunteer seated raising your arm sideways against the trunk with the palm facing anteriorly, parallel to the frontal plane. The fixed arm of the goniometer was placed on the posterior axillary line of the trunk. And the movable arm was placed on the posterior surface of the patient's arm, facing the dorsal region of their hand (MARQUES, 2003).

Each treatment session consisted of two manual therapy techniques, 1 – antero-posterior glide of the humeral head and 2 - caudal glide of the humeral head, lasting 5 minutes each.

Glide antero-posterior humeral head: patient seated with arms along the body and elbow flexed at 90 degrees resting on top of his leg ipsilateral, in the position of 0 ° of shoulder abduction at rest. Therapist behind the volunteer, hand held internal stabilization of the spine of the scapula and clavicle on the same side where the technique was applied. With the external hand-shaped "U", made contact through his thumb on the posterior humeral head and middle finger and index finger with the anterior region of the same. The technique consisted of applying small and light and rhythmic oscillatory movements leading to the humeral head anterior and posterior oblique always respecting the meaning of the glenohumeral joint (EBENEGGER E TIXA, 2003).

Glide caudal humeral head: patient seated with arms along the body keeping the elbow to the ipsilateral shoulder pain, flexed at 90 °, and the shoulder internally rotated, the position of 0 ° of shoulder abduction at rest. Therapist volunteer behind with his arm outside passing under the armpit of the same, and taking his hand outside contact with the proximal forearm in order to promote the arm pull down, and with the inner hand, the therapist palpated the joint line between the acromion and the humeral head in order to realize the intensity of the technique. The technique consisted of applying small and light rhythmic oscillatory movements leading to humeral head downward traction doing this in relation to the glenoid fossa (EBENEGGER E TIXA, 2003).

It is noteworthy that during the experimental procedure, the evaluation was performed by a single trained evaluator, and treatment by a therapist specializing in manual therapy and osteopathic techniques with clinical experience of 5 years.

To test the normality of the data we used the Shapiro-Wilk, followed by the Wilcoxon test for paired data comparison and not normal. For all statistical analysis, SPSS 13.0 (Chicago, USA), considering the value of $p < 0.05$ for difference.

RESULTS

The results obtained in this study are shown in Table 1, where no significant difference was found active in flexion (p = 0.10) and active abduction (p = 0.30) of the shoulder, when comparing the time of initial and final assessment.

Table 1: Comparison of range of motion (°) shoulder at baseline and end of volunteers after treatment techniques glide. Values are expressed as mean ± standard deviation (SD).

	Initial Evaluation (mean ± SD)	**Final Evaluation** (mean ± SD)	***p* value**
Flexion	164.66 ± 8.73	174.33 ± 7.20	0.10
Abduction	176.33 ± 8.98	180 ± 0	0.31

Wilcoxon test (no significant difference)

Regarding the intensity of pain on movement, assessed by VAS, significant difference was observed (p = 0.02) in the intensity of pain on active movement of shoulder flexion, but no significant difference was found (p = 0.10) to the movement of Active shoulder abduction, according to table 2.

Table 2: Comparison of pain intensity (cm) to the movement of the shoulder at baseline and end of volunteers after treatment techniques glide. Values are expressed as mean ± standard deviation (SD).

	Initial Evaluation (mean ± SD)	**Final Evaluation** (mean ± SD)	***p* value**
PAIN in flexion	2.16 ± 1.16	0 ± 0	0.02*
PAIN in abduction	1.33 ± 1.63	0 ± 0	0.10

* Significant difference, Wilcoxon test.

DISCUSSION

The purpose of using the means of the glenohumeral joint caudal glide is to increase the intra-articular mobility, increasing range of motion in flexion and abduction, decrease joint pain and increase nutrition to the articular structures. As for the technique of antero-posterior glide, the purpose is to increase the mobility of intra-articular joint, increase range of motion in external rotation and internal, increase range of motion in flexion and extension, increase range of motion abduction and horizontal adduction, decrease pain and increase nutrition to the articular structures (EDMOND, 2003).

The glenohumeral joint to be placed in the rest position, for more conservative treatment, or approaching the amplitude limited for more aggressive treatments, the search for faster effect in the art (EDMOND, 2003).

It is a common practice among manual therapists evaluate and use the techniques of glide in the resting position of the glenohumeral joint, where the joint capsule is more looseness and allows greater excursion slips and is also considered the safest position. However, to gain effective range of motion, the ideal location for the use of the techniques should be close to the restriction of movement (HEDMAN et al., 2000a). Note that in this study we used techniques glide at rest and no significant increase was observed in ROM shoulder.

When the glide technique is applied antero-posterior position restricted, there is a stretch of both the anterior and posterior bands of the inferior glenohumeral ligament, which seems to prevent the global movement of abduction when shortened. Already the flow glide technique, holds the sliding lower humeral head that is required for movement of abduction normal. Thus, even well documented in the best position to glide techniques are applied to obtain a better ROM of shoulder abduction, flexion for the literature there is proven (HEDMAN et al., 2000b).

It is known that the accessory movements are essential, as the sum of these contribute to large movement, and overall functional articulation. The limitation of a movement fixture, ie hypomobility joint can lead to an increase in movement of another accessory chain of the same articulation joint in order to reduce the overall movement limitation (SOUZA, 2001).

Joint mobilization has become a procedure manual therapy widely used to treat patients with articular hypomobility, running movements anteroposterior glide and flow, always being applied toward the limitation of motion of the joint fitting, therefore, often used in syndrome Impact (HEDMAN et al. 2000b).

However, in this study, the techniques of glide anteroposterior and caudal used, were performed at rest at 0° of abduction and had intended to return the accessory movements of the shoulder joint and also reduce the intensity of pain through arousal of the sympathetic nervous system.

One study showed that the technique of antero-posterior glide on glenohumeral joint has the effect of increasing the action of the sympathetic nervous system in response to contact manual therapist (SIMON et al., 1997).

The use of movement techniques combined effect results in an initial hypoalgesia is associated with arousal of the sympathetic nervous system, reducing 50% of the pain checked by visual analog pain scale (WRIGHT, 2004).

In this study there was no significant increase in range of motion with the application of techniques glide, both in flexion and abduction. As for the intensity of shoulder pain during the same movements, there was a significant improvement in pain intensity to the movement of active flexion (p = 0.02), but not the movement of shoulder abduction.

Limitations of this study were: test sample, evaluation of a few movements of the shoulder and use techniques of glide in the rest position.

CONCLUSION

This study showed that after treatment of 10 sessions with techniques glide at rest the shoulder, we observed significant improvement in pain intensity only when active flexion of the shoulder.

It is recommended for future research a larger sample of volunteers, use of a control group, blinding the testing and implementation of techniques in glide position restricted range of motion.

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EFFECT OF CAUDAL AND ANTERO-POSTERIOR GLIDE IN THE RANGE OF MOTION OF FLEXION, ABDUCTION AND INTENSITY OF PAIN IN SHOULDER

ABSTRACT

The shoulder is a very complex structure that performs many movements during daily activities, so often overloaded and affected by dysfunctions. Studies have demonstrated the potential and importance of using technical manuals glide in the treatment of shoulder movement for the restoration of articular function. The aim of the study was to evaluate the effects of caudal and antero-posterior glide techniques over the range of flexion and abduction in shoulder, and pain intensity in the same movement. The survey was treated in a clinical trial with a sample of 7 volunteers (3 men and 4 women), age 22 ± 0.7 years, with limited range of motion of flexion and abduction and shoulder pain during the same movements. Treatment consisted of 10 sessions in total of 5 weeks, where all volunteers signed an informed consent form. Were used for treatment a caudal and antero-posterior glide techniques with the volunteers in the position of 0° of shoulder abduction at rest. In the evaluation was checked range of motion using a goniometer and the level of pain intensity during the same movements by visual analog scale (VAS), performed before and after treatment total. Statistical analysis was performed using the Shapiro-Wilk test for normality data, followed by the Wilcoxon test for paired data comparison and not normal, it was considered the value of $p < 0.05$ for difference. At the end of the 10 sessions we observed significant reduction of pain intensity in flexion ($p = 0.02$), and there was no significant difference in range of motion in flexion and abduction. For future work it is recommended to use a larger sample and glide techniques applied in the position of restricted range of motion.

KEYWORDS: Motion, Shoulder, Pain.

EFFET DES GLIDE TECHNIQUE ANTERO-POSTERIOR ET CAUDAL DANS LA GAMME DE MOTION DE PLIAGE ET ENLÈVEMENT ET INTENSITE DE LA DOULEUR DANS L'EPAULE

RÉSUMÉ

L'épaule est une structure complexe qui exécutent beaucoup de mouvements pendant les activités quotidiennes, si souvent surchargés et affectés par des dysfonctionnements. Des études ont démontré le l'importance d'utiliser des techniques de glide dans le traitement des mouvements de l'épaule. Le but de cette étude était d'évaluer les effets des techniques de glide et antéro-postérieur débit sur toute la plage de flexion et d'abduction et d'intensité de la douleur dans le même mouvement. L'enquête a été traité dans un essai clinique auprès d'un échantillon de 7 volontaires (3 hommes et 4 femmes), 22 ans ± 0,7 ans, avec une gamme limitée de mouvement de flexion et d'abduction et de douleur à l'épaule au cours de la même mouvements. Le traitement consistait en 10 séances pour un total de 5 semaines. Ont été utilisés pour les techniques de traitement antéropostérieur glisse et de flux avec les bénévoles de la position de 0 ° d'abduction d'épaule au repos. Lors de l'évaluation a été vérifiée amplitude de mouvement en utilisant un goniomètre et le niveau d'intensité des douleurs pendant les mêmes mouvements par échelle visuelle analogique (EVA), réalisées avant et après le traitement totale. L'analyse statistique a été réalisée en utilisant le test de Shapiro-Wilk pour la normalité données sur la douleur, suivie par le test de Wilcoxon pour la comparaison des données appariées et pas normal, il a été estimé que la valeur de $p < 0,05$ pour la différence. A la fin des 10 séances, nous avons observé une réduction significative de l'intensité la douleur en flexion ($p = 0,02$), et il n'y avait aucune différence significative dans l'amplitude des mouvements de flexion et d'abduction. Pour les travaux futurs, il est recommandé d'utiliser un échantillon plus large et glissent techniques appliquées dans la position de la gamme restreinte de mouvement.

MOTS-CLES: mouvement, l'épaule, la douleur.

EFECTO DE LA TÉCNICA DE GLIDE ANTERO-POSTERIOR E CAUDAL EN EL RANGO DE MOVIMIENTO DE LA FLEXIÓN Y ABDUCCIÓN E INTENSIDAD DEL DOLOR EN EL HOMBRO

RESUMEN

El hombro es una estructura compleja que realiza muchos movimientos durante las actividades diarias, por lo que a menudo sobrecargados y afectadas por disfunciones. Los estudios han demostrado en la importancia del uso de las técnicas de glide en el tratamiento del movimiento del hombro para la restauración de función articular. El objetivo del estudio fue evaluar los efectos de las técnicas de glide antero-posterior y caudal en el rango de movimiento de la flexión y abducción y la intensidad del dolor en el mismo movimiento. La encuesta fue tratado en un ensayo clínico con una muestra de 7 voluntarios (3 hombres y 4 mujeres), edad 22 ± 0,7 años, con un rango limitado de movimiento y el dolor durante el mismo movimientos. El tratamiento consistió en 10 sesiones para un total de 5 semanas. Se utilizaron las técnicas de glide antero-posterior y caudal con los voluntarios en la posición de 0° de abducción del hombro en reposo. En la evaluación se comprobó el rango de movimiento utilizando un goniómetro y el nivel de intensidad del dolor durante los mismos movimientos de la escala analógica visual (VAS), realizados antes y después total de tratamiento. El análisis estadístico se realizó mediante el test de Shapiro-Wilk para los datos de dolor normalidad, seguido por la prueba de Wilcoxon para la comparación de datos emparejados y no normales, se consideró el valor de p <0,05 para la diferencia. Al final de las 10 sesiones se observó reducción significativa de la intensidad del dolor en la flexión (p = 0,02), y no hubo una diferencia significativa en la amplitud de movimiento de flexión y abducción. Para el trabajo futuro, se recomienda el uso de una muestra mayor y se técnicas de glide aplicadas en la posición del margen de movimiento restringido.

PALABRAS CLAVE: Movimiento, el hombro, el dolor.

EFEITO DAS TÉCNICAS DE GLIDE ÂNTERO-POSTERIOR E CAUDAL NA AMPLITUDE DE MOVIMENTO DE FLEXÃO E ABDUÇÃO E INTENSIDADE DA DOR NO OMBRO

RESUMO

O ombro é uma estrutura complexa que realiza inúmeros movimentos durante as atividades diárias, e por isso muitas vezes sobrecarregado e acometido por disfunções. Estudos demonstram a potencialidade e importância do uso de técnicas de glide no tratamento do ombro, pela restauração do movimento fisiológico articular. O objetivo do estudo foi avaliar os efeitos de técnicas de glide ântero-posterior e caudal sobre a amplitude de movimento de flexão e abdução do ombro e intensidade da dor nos mesmos movimentos. A pesquisa tratou-se de um ensaio clínico com uma amostra de 7 voluntários (3 homens e 4 mulheres), idade de 22 ± 0,7 anos, que apresentavam limitação da amplitude de movimento de flexão e abdução e dor no ombro durante os mesmos movimentos. O tratamento consistiu de 10 sessões no total de 5 semanas. Foram utilizadas para o tratamento técnicas de glide ântero-posterior e caudal com os voluntários na posição de 0º de abdução do ombro em repouso. Na avaliação foi verificado a amplitude de movimento por meio da goniometria e o nível de intensidade da dor durante os mesmos movimentos por meio da escala visual analógica de dor (EVA), realizadas antes e após o tratamento total. Para análise estatística foi utilizado o teste de Shapiro-Wilk para testar a normalidade dor dados, seguido do teste de Wilcoxon para comparação dos dados pareados e não normais; foi considerado o valor de p < 0.05 para diferença significativa. Ao final das 10 sessões observou-se redução significativa da intensidade de dor ao movimento de flexão (p=0.02), e não foi constatada diferença significativa na amplitude de movimento de flexão e abdução do ombro. Para trabalhos futuros recomenda-se uma amostra maior e utilização de técnicas de glide aplicadas na posição de amplitude de movimento restrito.

PALAVRAS-CHAVE: Movimento; Ombro; Dor.