

Short-term Efficacy of Richelli's Painreliever™ on Upper Trapezius Myofascial Trigger Point in a Patient with Neck pain- A Case Report

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INTRODUCTION

Myofascial Pain Syndrome (MPS) is considered to be one of the most frequent causes of muscular pains.^{1,2} MPS is characterized by the presence of Myofascial Trigger Points (MTrPs) on a sensitive spot in a taut band of skeletal muscle which is painful on compression, generating motion and vegetative alterations, as well as "patient recognition of pain evoked by pressure of the tender spot as being familiar, pain referred in the pattern characteristic of TrPs in that muscle, a local twitch response, painful limitation of a stretch range of motion and some weakness on that muscle".³

The etiology of the MTrPs is not currently known. The most accepted hypothesis focuses on the existence of dysfunctional endplates leading to a perpetuated shortening of the muscle.^{4,5} The hypothesis is confirmed by the investigations of J.Shah.^{6,7}

Current literature gathers together several

ABSTRACT

Introduction: Myofascial Pain Syndrome is a disease of muscular origin common today, which has different therapeutic approaches. In the present case report examines the immediate effects after application of Richelli's Painreliever™ on an active myofascial trigger point in the trapezius muscle. It is the first time that this therapeutic tool is used for the treatment of myofascial pain.

Case presentation: A 38 years old woman comes to the clinic with neck pain. Measurements before and after the intervention were: the active range of motion of the cervical spine (measured using a cervical range of motion instrument), the basal electrical activity of the trapezius muscle (measured using surface electromyography) and sensitivity to pressure on the trigger point. The immediate results obtained show an increased sensitivity of the trigger point and an active range of motion of the cervical raquis without changes. However, for the most objective variable, we obtained a decrease in basal electrical activity of the trapezius muscle.

Conclusion: This technique is uncomfortable for the patient and seems not to immediately improve the subjective variables, but may have a positive impact on an objective variable such as basal electrical activity of a muscle.

Key words: Myofascial Pain Syndrome, Myofascial Trigger Point, Musculoskeletal Manipulations.

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therapies normalize musculoskeletal areas affected by MTrPs. This techniques can be divided in non-invasive techniques e.g. massage, stretching, thermotherapy, ultrasounds, etc. and invasive techniques as injection therapy or dry needling.^{8,3}

We believe that Richelli's Painreliever is interesting for the treatment of MTrPs for their precision in tissue compression and energy efficiency for the therapist. Also, do not lose contact with the tissue because the therapist does with his hand the counter-support.

Case report

Our objective is to test the immediate effects that causes on a active MTrP located in the upper trapezius muscle the treatment with the Richelli's Painreliever. For this, we measured the changes at the level of the active range of motion (AROM) of cervical spine, pressure tolerance (PT) of MTrP and basal electrical activity (BEA) of the trapezius muscle. This latter method of measurement is in the literature.^{9,10}

MATERIALS AND METHODS

Subject:

A 38 years old woman comes to the clinic with neck pain. The patient has not been diagnosed of fibromyalgia, radiculopathy, mielopathy or cervical whiplash. She did not receive any treatment for myofascial pain in the last month. No analgesics were taken during previous 24 hours. The patient signed the informed consent.

After clinical examination, an active MTrP is found in the right trapezius muscle. In order to locate MTrPs, we followed the exploration diagnostic criteria established by Gerwin and Simons:^{11,3}

1. Presence of palpable taut band in a skeletal muscle.
2. Presence of a hypersensitive tender spot in the taut band.
3. Local twitch response provoked by the snapping palpation of the taut band.
4. Reproduction of the typical referred pain pattern of the MTrPs in response to compression.

5. Spontaneous presence of the typical referred pain pattern and/or patient recognition of the referred pain as familiar (only for active MTrPs).

Intervention.

Only one intervention is executed, consisting in the application of a friction with the Richelli's Painreliever during 90 seconds over the located MTrP. The Richelli's Painreliever is a tool made of resin with a central body and angular section extremes with different sizes, all with rounded edges (Figure 1). For the intervention the patient is in prone position, and its cervical spine lies in a neutral position. Shoulders were abducted 90°, elbows flexed 90° and forearms hang out each side of the stretcher. The clinician place itself on the opposite side to the trapezius MTrP to be treated, and holds the Richelli's Painreliever with the same side hand by its inferior extreme, where there is no hook. The handle passes through the gap between index and middle finger. The thumb reclines in the bigger inferior extreme convexity edge. Once the MTrP is located, the hook is placed forward the MTrP, on the upper side of the trapezius muscle. Then the Richelli's Painreliever is pulled down from its inferior extreme. As a wedge, the left hand of the clinician is placed, perpendicular to the handle, compressing the trapezius muscle against the hook. This hand acts as a sensitive contact. At that moment a friction movement is added to the preceding, either with the

hand itself, other moving the Richelli's Painreliever slightly coming and going regarding the hand (Figure 2).

Measurements

Three variables are measured, according to Aguilera *et al*:^{12,13}

1.- Restricted neck mobility caused by pain. Active range of motion (AROM) was measured with a cervical range of motion instrument (CROMI) distributed by Performance Attainment Associates (Lindstrom MN, USA). This apparatus combines inclinometers and magnets to provide accurate measurement of AROM of cervical rachis and it was adjusted to the occipital area using a Velcro® in order to avoid oscillations during cervical movements. The patient was instructed to sit upright, relax their shoulders and rest their hands on their thighs, with hips and knees flexed at 90°. The values obtained after and before measurement are expressed in degrees.

2.- Basal electrical activity (BEA) of the right trapezius muscle. BEA was measured using a MP 100 SEMG by BIOPAC Systems (Goleta CA, USA) and using adhesive electrodes, sized 2 cm in diameter, distributed by Lessa (Barcelona, Spain). The patient was lying in the supine decubitus position on a hydraulic therapeutic table, with its head in a neutral position and extremities relaxed. The electrodes were placed 20mm lateral to the midpoint along a straight line from the spinous process of

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FIGURE-1: Richelli's Painreliever™

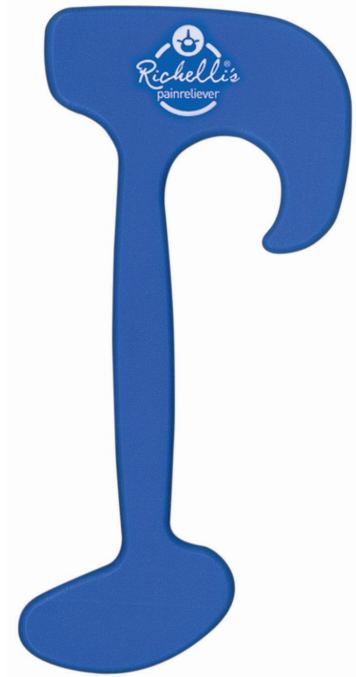


FIGURE-2: Technique of application using Richelli's Painreliever™



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the seventh cervical vertebra (C7) to the lateral edge of the acromion.¹⁴ Electrodes were left attached throughout the treatment to facilitate post-treatment data collection. The signal was recorded for 10 seconds. The values obtained after and before measurement are expressed in millivolts (mV).

3.- Pressure Tolerance (PT). PT was assessed using a pressure analog algometer (PAA) property of Wagner Instruments (Greenwich CT, USA). A pressure of 2.5 kg/cm² was applied on MTrPs of the trapezius muscle. The VAS recorded the sensation the patient perceived in that moment. The VAS consists in a 100 mm. measured line, which edges represent no pain at the beginning (0 value) and unbearable pain in the end (100 value). The values obtained after and before measurement are expressed in millimeters.

Once the clinician traces the MTrP on the right trapezius muscle, values measured of AROM, BEA and PT are recorded. Measurements are repeated after the Richelli's Painreliever application. The same examiner records the measurements results before and after the Richelli's Painreliever application. Another clinician does the intervention itself.

The results observed were a decreased of the electrical activity of the trapezius muscle and an increase in the sensitivity of the MTrP. No changes were observed in the AROM of the cervical raquis. Below results are showed in Table 1.

DISCUSSION

The subject experienced discomfort during the application of the Richelli's Painreliever. This could explain the immediate increase in PT, since it is a subjective variable. It is likely that these discomfort during the application explain why the AROM did not improve as a stretching of the upper trapezius muscle is required during the contra-lateral flexion. Would be interesting to make measurements of the PT in the medium term to see if these results hold after a time.

In our precedent papers a relationship between the variables measured was founded, due to the fact that all three improved immediately after the application of a single stimulus, the ischemic compression (IC).^{12,13} If two treatments are compared, the IC has an analgesic feature quickly appreciated, though Richelli's Painreliever seems to become irritative with tissues.

The results were satisfactory in the more objective variable measured: the BEA. Probably the friction exerted by the Richelli's Painreliever on MTrP heats the tissue and causes local hyperaemia. That could be the explanation for the muscle response because, as Simons *et al* indicated through its "integrated hypothesis", the area which is present MTrP is an area of ischemia.⁵

In conclusión, The Richelli's Painreliever seems to affect positively the muscle by decreasing their electrical activity after treatment of a MTrP. However, there not

appears to decrease the sensitivity of a MTrP in the short term. Clinically, it would be interesting to consider the pain tolerance of patients before deciding on their use, although we do not have enough data about the evolution of these patients in the medium and long term after being treated with The Richelli's Painreliever. So, Further studies must do randomized controlled trials with a significant number of subjects, as well as testing of medium and long-term results after the application of the Richelli's Painreliever.

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CONFLICTS OF INTEREST

None identified or declared.

Table- 1: Results before and after intervention

VARIABLES	Before Intervention	After Intervention
AROM(°)	38	38
BEA (mV.)	0,00437	0,00121
PT (mm.)	25	50

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