

THE EFFECTIVENESS OF MANUAL THERAPY IN INDIVIDUALS WITH HEADACHES, WITH AND WITHOUT CERVICAL DEGENERATION: ANALYSIS OF SIX CASES

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ABSTRACT

Background: Tension-type headaches (TTH) are generally treated with prophylactic medication. With regard to Physical Therapy treatment, many types of procedures have been reported, ranging from electrotherapy and acupuncture to techniques such as cervical traction, vertebral mobilization, stretching and relaxation. **Objective:** To examine the evolution of six patients diagnosed with TTH who underwent a Physical Therapy treatment protocol consisting of manual therapy. **Method:** Six individuals were followed up (three with associated vertebral abnormalities and three with no abnormalities). Five participants were women and one was a man. They underwent treatment consisting of ten sessions of manual cervical traction, stretching, vertebral mobilization and massage. Pain intensity was assessed using a visual analog scale (VAS) and the pain threshold for pressure on the upper trapezius muscle was measured using an analog pressure algometer (PDT; pain detection threshold). The data were graphically displayed in a multiple baseline system and during a follow-up period. **Results:** Even though this treatment showed positive results in all cases, in relation to pain intensity, greater difficulty in completely relieving the symptoms was found among the individuals who did not have vertebral abnormalities. With regard to PDT, it was found that individuals with cervical degeneration presented greater improvement.

Key words: manual therapy; headache; physiotherapeutic treatment.

INTRODUCTION

In the context of pain suffered by human beings, the Tension-type Headache (TTH) is one of the most common, occurring in 90% of the general population and, according to Rabello, Forte and Galvão¹, is characterized as “any kind of pain related to the brain area”. Many authors^{2,3,4} indicate that headaches are the most common source of pain in young workers and it is also been characterized as an important public health problem, with a strong socioeconomic impact. The need to deal with TTH, associated or not with pain related to the cervical spinal column is very common. Hammill et al.⁵ verified that, in the case of an association between both symptoms, after the Cervicogenic Headache treatment, the patients stated that their headaches had diminished or even had disappeared. Regarding the various kinds of procedures, it is possible to observe different types of techniques in specific literature, such as electrotherapy^{6,7}, cervical traction and cinesiotherapy⁹ and other treatments involving stretching,

muscle relaxation and vertebral mobilizations⁵. In this context, the objective was to examine the evolution of six patients diagnosed with TTH, submitted to a protocol of physiotherapeutic treatment and manual therapy.

MATERIAL AND METHODS

Patients

Six patients were assessed (five women and one man), aged between 18 and 55, medically diagnosed with TTH, three of them suffered at least one of the following vertebral abnormalities: presence of osteophytes, diminution of intervertebral space, subchondral bone sclerosis and wedged vertebra (hemi-vertebrae).

Individuals who suffered those problems were considered carriers (IP) and the ones who didn't suffer any of them were considered non-carriers (INP). The IPs showed the following characteristics: IP1: 55 years old, cervical hyperlordosis, intense pain, more than 23 years in the same

profession, presence of osteophytes, diminution of intervertebral space, subchondral bone sclerosis; IP2: 18 years old, diminution of the lordotic cervical profile, intense pain, discal space calcification of C5-C6, student; IP3: 22 years old, diminution of the lordotic cervical profile, intense pain, upper osteophyte in C5, student. The INPs demonstrated the following characteristics: each individual showed normal curvature of the spine, no points of articular degeneration, extreme intensity of pain (INP1), strong (INP2), moderate (INP3) and their ages were as follows: INP1 was 22, INP2, 20 and INP3, 35 years old.

The indicated abnormalities, as well as the lordotic profiles, were identified by a doctor of radiology and a physiotherapist through conventional radiography. In the same way, the TTH was diagnosed by a doctor of neurology according to the TTH International Committee. All participants signed the Term of free and elucidated agreement and the study was developed and approved in accordance with the Ethics in Research Committee of the Federal University of São Carlos registered as number 033/2002.

Treatment

The protocol treatment was applied by the same therapist over a period of 10 sessions, undertaken three times a week and consisted of: manual cervical traction; bilateral stretch of the upper trapezius muscle, the levator scapulae scalene muscle and the sternocleidomastoid muscle; vertebral mobilization and conventional massage in the scalene cervical, frontal, temporal and sub-occipital regions. The cervical traction was carried out with the patient positioned in dorsal decubitus and the therapist positioned behind his/her head. The therapist used traction pressure in the cranial direction for 20 seconds, repeating the movement five times. The stretches lasted for 20 seconds, five times each, as follows: a) the upper trapezius muscle was stretched with one hand developing cervical traction pressure and the other lowering the ipsilateral shoulder; b) to stretch the scalene muscle, the first head of the first rib was touched, immobilizing it using one of the hands while the other added cervical traction pressure; c) the levator scapulae was stretched, using one hand to fix the insertion and the other to add cervical traction pressure and d) the sternocleidomastoid was stretched through the combined movements of extension, inclination and rotation of the neck, of the opposite side to which the therapist would attempt to stretch, whilst, with the other hand, he fixated the sternum. The cervical vertebrae mobilization was conducted as follows: the transverse apophysis of the cervical vertebrae were localized; the therapist positioned his thumbs over the C2 apophysis; with the fingers positioned, the therapist achieved the displacement of this vertebra in the

anteroposterior direction and, afterwards, the same movement was executed with the other vertebra.

Measurements

Pain intensity was assessed using a visual analog scale (VAS), and pain threshold for pressure on the upper trapezius muscle was measured using an analog pressure algometer (PDT; pain detection threshold). While the patient was seated, the left and right upper trapezius muscles were bilaterally evaluated at a point nine centimeters to the side of the spinose apophysis C7. The pressure was applied at a speed of 1 Kg/cm²/seg¹⁰. The measurements were taken before the beginning of the treatment for the construction of a Multiple Base Line, this phase was named Phase A. Afterwards, the measurements were taken on the days in which the patient was treated (Phase B), just after the treatment session. After the treatment had finished, the variables continued being measured for 10 days, for the effects of continuity.

RESULTS

The patients showed similar variations and with the curves indicating the reduction of pain intensity throughout the treatment (Figure 1). In Phase A, pain intensity in IPs and INPs indicated accentuated oscillations. In Phase B, in all cases, reduction of this symptom in values close to zero (no pain) occurred. In relation to the measurements taken after the treatment was terminated, except for IP1, all patients continued without pain. In relation to the LDP (Figure 2) it was possible to observe, in all patients, a gradual increase of the threshold from Phase A until the last follow up session. In Phase B, an increment of LDP for IPs as well as INPs patients was noted.

DISCUSSION

There was a certain level of difficulty to completely overcome the painful sensations of the INPs, when compared with the IPs. The former, mainly INP1 and INP2, needed 10 sessions to achieve complete relief of the painful sensations, and, in INP3, the relief was only achieved in the fifth session of the treatment. The IPs achieved complete relief of pain in the third session, except for IP1. One aspect which could be associated with this occurrence was that INP1 and INP2, in the anamnesis, described their pain as being "violent" and "strong", respectively, whilst INP3 classified his pain as "moderate". Therefore, the initial pain intensity may have influenced the results of the treatment. In relation to the treatment of IP1's pain, it could be suggested that, due to the fact that this individual was older than the others

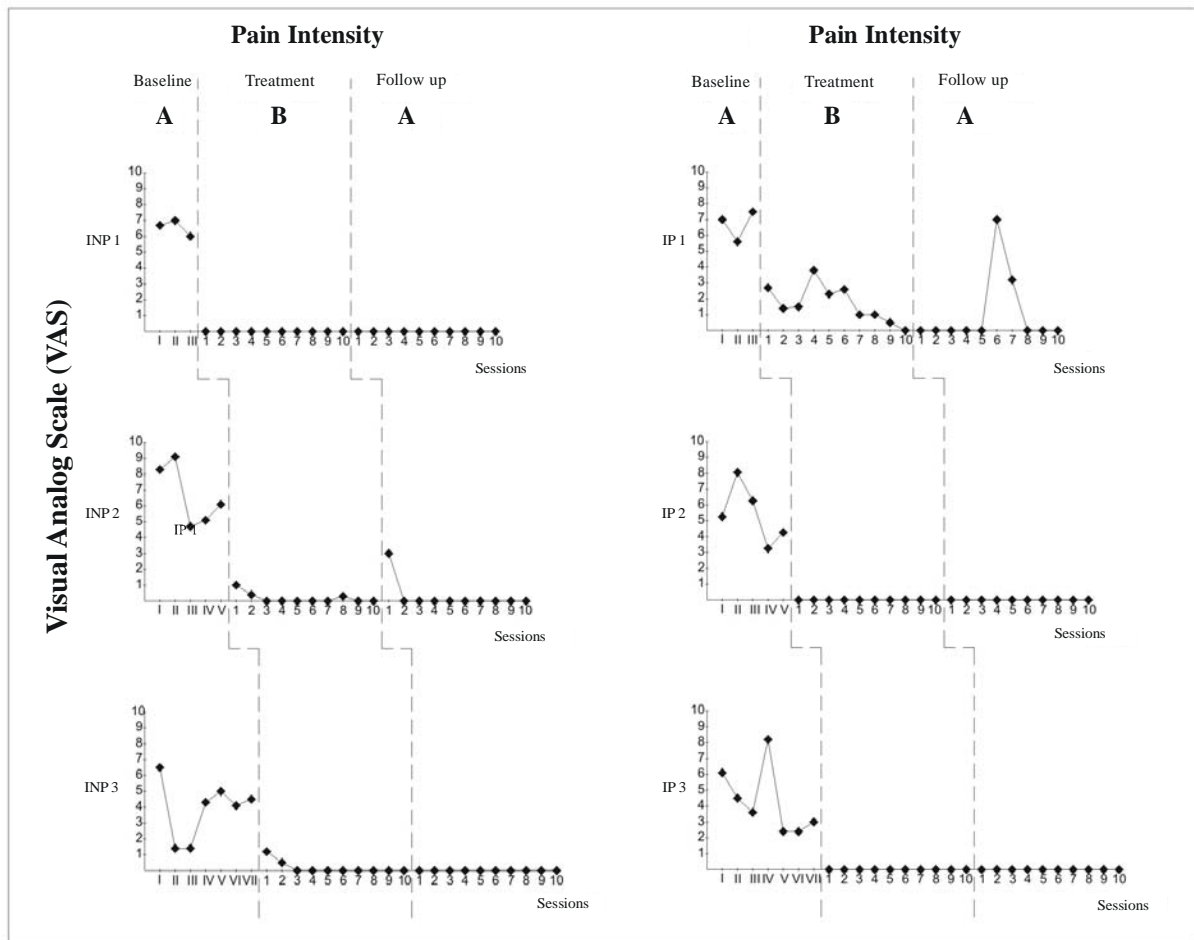


Figure 1. Evolutionary pain intensity graphs of carriers (IP) and non-carriers (INP) of cervical abnormalities.

(55 years old) and the fact that he had said that he maintained inadequate posture at work for 23 years, and he could have built a higher level of resistance to pain relief. As it was verified, the treatment was efficient in overcoming the TTH of IPs and INPs. This fact reinforces what has been said by Olson⁹ who demonstrated that the use of cervical traction, as a therapeutic resource, is efficient for TTH relief.

Hammill et al.⁵ also demonstrated the efficiency of the headache relief when they utilized a treatment protocol based on the massage of the cervical spinal muscles and the shoulders, along with stretching of the scalene and major pectoral muscles. This stretching can induce relaxation through the stimulation of the Golgi tendons organs. Complementarily, massage has the capacity to generate significant afferent information through direct stimulation of the mechanoreceptors, promoting the liberation of endogenous opioids in the region which has been massaged, and besides this, it increases the local blood circulation and removes the pain metabolites^{11,12}. The values related to the LDP of the left and right upper trapezius muscles were superior at the end of the treatment when compared to the final values at follow-up, probably because of the treatment's interruption.

According to Ashina et al.¹³, muscular stiffness and, consequently, the sensitivity of the upper trapezius muscle are significantly increased on the days the patients suffer TTH as well as the days they don't feel any pain. According to the results, the treatment through manual therapy was efficient for the TTH's relief as well as for the muscular tension relief in the cases which were observed, as also has been verified in other studies.

Carlsson et al.⁸ demonstrated that, in patients with TTH, the physiotherapeutic treatment, or kinesiotherapy associated with electrotherapy, was more efficient than acupuncture. Torelli et al.¹⁴ also significantly reduced the number of days of symptomatology with patients who followed the physiotherapeutic treatments based on stretching and muscular relaxation. In the same way, Ettekoven and Lucas¹⁵ related that physical therapy is effective, in the long-term, for the control of chronic TTH. On the other hand, according to Lenssinck et al.¹⁶, experiments with well conducted procedures, during a long period of treatment, are necessary to give evidence that physical therapy can be effective in the treatment of individuals suffering TTH.

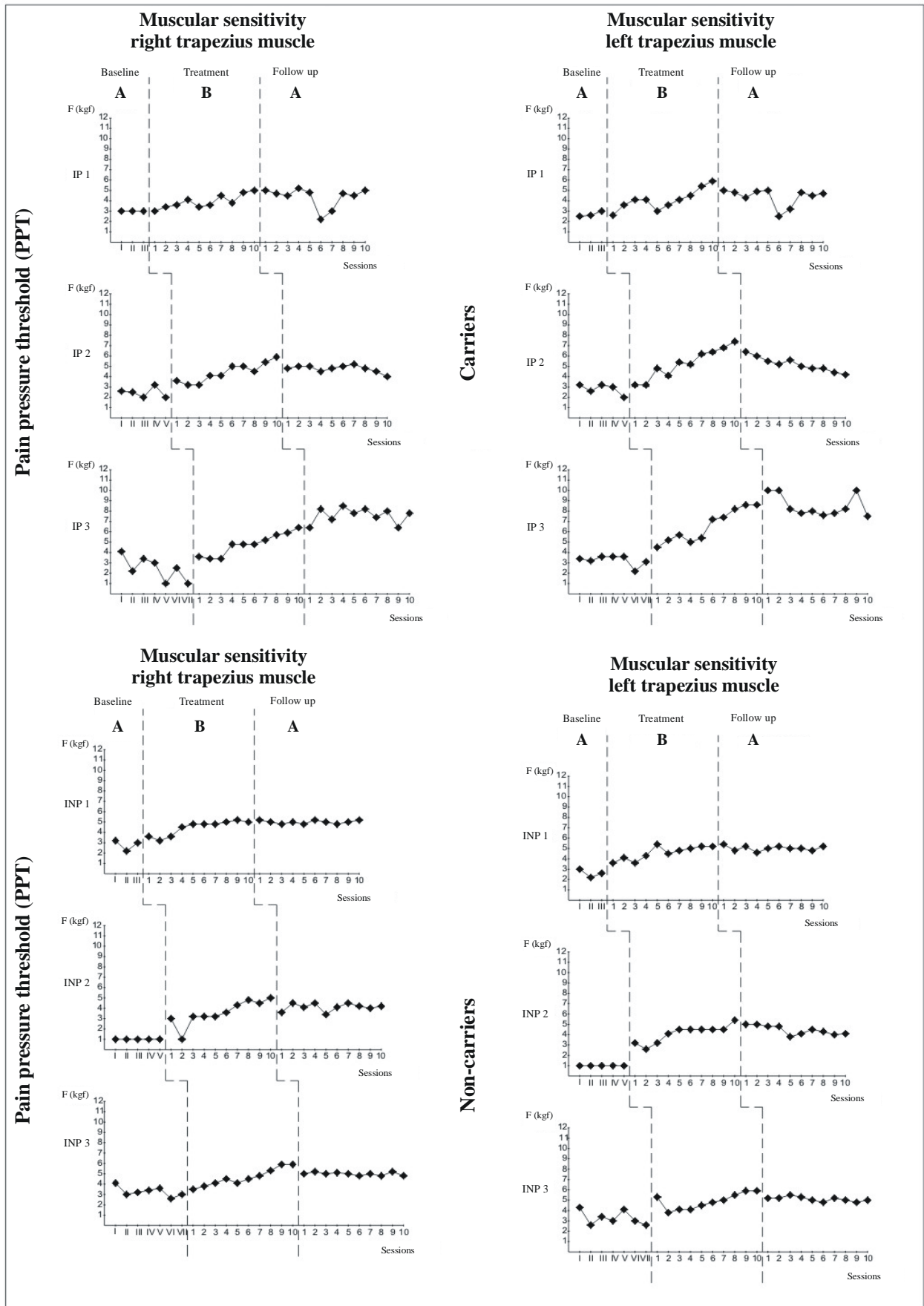


Figure 2. Evolution of the pain pressure threshold (PPT) of the right and left trapezius of the carriers (IP) and non-carriers (INP) of cervical abnormalities patients.

In summary, it could be demonstrated that the protocol treatment through manual therapy was effective for the TTH relief as well as the pain pressure threshold increments of individuals who were observed. Considering the limitations of the utilized procedures regarding the generalization possibilities, the next step could be the application of the protocol in a representative and random sample of TTH individuals, preferably with a controlled and well designed clinical audit.

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