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Effectiveness of acupuncture and myofascial release in analgesia of women with tensional neck pain: Systematic review

Warly Neves de Araújo*, Larissa dos Santos Nascimento Oliveira, Taiany Neves de Araujo, Jefferson Rodrigues de Souza, Ana Luzia Rodrigues de Almeida Cavalcante, Jacqueline Aparecida Philipino Takada, Adelma Martins Pereira, Florence Germaine Tible Lainscek, Amaraina Maia Armiato, Vinicius Garcia Costa, Lourrane Cristina Ferreira Lopes, Geovane Rossone Reis

Physiotherapy, Gurupi University UnirG, Rio de Janeiro Avenue, N°. 1585 - St. Central, Gurupi, 77403-090, Tocantins, Brazil
*Corresponding Author: warlyneves@outlook.com (Warly Neves de Araújo)

Abstract*—Introduction:** *Neck pain is defined as the presence of pain in the posterior or lateral postero of the neck and cervical region, which may radiate to the adjacent segments, being a bone, joint or muscle pain. It is a common painful condition that has many forms of treatment, including acupuncture and myofascial release.* ***Objective: *To review the analgesic effect of acupuncture and myofascial release in the treatment of patients with tension neck pain.* ***Material and Method:*** *This is a systematic literature review, conducted through a bibliographic survey of articles, theses, monographs, dissertations published from 2005 and books without a specific year. Exclusion attributes were: publications inferior to the year 2005 and that escape the selected theme. Searches were performed on the following databases, Medline, Bvs, Lilacs, Scielo and Google Scholar.* ***Conclusion:*** *It can be concluded that both acupuncture and myofascial release improve pain and quality of life of patients with tension neck pain.*
***Keywords*—Acupuncture, Myofascial, Neck pain, Physiotherapy, Manual therapy.**

I. INTRODUCTION

Pain in the neck region and cervical vertebrates affect 30% to 50% of the general population, with a predominance in women, leading to occupational clearance according to data from the International Association for the Study of Pain (IASP), updated in 2011 [1, 2].

The cervical spine consists of two segments, upper and lower. The segment consists of the first vertebra, the atlas, and the second vertebra, the axis. These parts are units and together with the occipital, they are part of a joint chain with three axes and three degrees of freedom. The lower segment is formed from the third to the seventh cervical vertebra. The upper and lower segments complement each other for flexion, extension, rotations, and inclinations [3] [4] [5] [6].

The presence of pain in the posterior or posterolateral (PL) region of the neck and cervical region, which may radiate to the head, trunk, upper limbs when it comes to pain of bone, joint or muscular origin. Neck pain is considered a health problem of high prevalence, being even more prevalent than low back pain, but less disabling. It is a common complaint in the general population, making it more frequent with advancing age. It occurs due to the extreme mobility of the cervical spine and the importance of the structures that make up the neck [7].

Risk factors for pathology are age over 40 years, long history of cervical pain, sports such as cycling, low quality of life, emotions such as worry and low vitality [8].

The postural changes found in patients with neck pain are entirely associated with the fact that, from the biomechanical point of view, the cervical region is strongly inserted in the context of the scapular waist through the set of muscles and beams Nervous. Due to the close relationship of origin versus insertion of the muscles of this region, muscle stresses and in particular, the shortening of the high fibers of the trapezoid muscle, will produce traction in the cervical vertebrae and scapula, creating a vicious cycle of muscle shortening, postural change, tension, and pain. Neck pain known as tensions, not a pathology itself, but a symptom or form of manifestation of the type painful muscle syndromes [1].

The painful points of myofascial pain known as

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"trigger points" are more frequent in cervical pain, especially in trapezoid and sternocleidomastoid muscles and little present in this region in an individual without this type of complaint [9].

Tension in the cervical region, currently found itself as one of the musculoskeletal dysfunctions that most affect the population, causing discomfort and pain. Emotional and psychological factors have a great influence on muscle contracture, and stress is the main factor, which may unintentionally lead to muscle contracture of the face, head, and neck. When muscle contraction is intense and frequent, a biochemical reaction begins that releases toxins promotes the reduction of local blood irrigation and muscle pain [10].

In the search for treatments of tension dysfunction, it was possible to observe several types of techniques reported in the literature, including pharmacological and non-pharmacological dysfunction. Among non-pharmacological ones is myofascial release and acupuncture, which currently has efficacy.

Acupuncture has been exercised for about 5.000 years in China and Asian countries. Throughout these millennia, many elaborate concepts and systems have developed that reflected the religious beliefs and medical and socio-cultural traditions of their times. The technique seeks to harmonize the energies of meridians by inserting needles into specific points [11]. Through its technique and methodology, the reflex points that have the property of restoring balance are stimulated, thus achieving the therapeutic benefits [12].

Recently, studies prove the existence of energy channels in acupuncture, which have been identified only by practice and thorough observation of the functioning of the body with its responses and manifestations in line with the nature surrounding it [13].

Myofascial release is one of the techniques widely used in manual therapy, and consists in the release of tension from muscles and fascias, increasing local circulation, reducing pain and spasms [14]. Its main objective is to mobilize tissues facilitating changes in histological length and relieving some of the symptoms of fascial restriction [15].

The fascia is an immense sensitive receiver that reacts to the slightest voltage [16]. Myofascial release is considered a differentiated technique of conventional stretching, depending on the level of muscle stretching being performed passively [17].

This study aims to conduct a systematic review on the effectiveness of acupuncture and myofascial release in the treatment of tension pain in women's necks.

II. MATERIALS AND METHODS

This is a systematic bibliographic review, carried out through a bibliographic survey related to the theme effectiveness of acupuncture and myofascial release in analgesia in women with tensional neck pain. The inclusion criteria were: articles published from the period of 2005, theses, monographs, dissertations and books without specific year, in Portuguese and foreign. On the other hand, the exclusion criteria adopted: publications without qualis, which do not address the subject treated by the study and of paid character. The research was carried out in the following online databases, Medline (Online System of Searches and Analysis of Medical Literature), Vhls (Virtual Health Library) Lilacs (Latin American and Caribbean Literature in Health Sciences), Scielo (Scientific Electronic Library Online) and Google Scholar. The search strategy consisted of the research of descriptors "Acupuncture"; "Neck pain"; "Physiotherapy"; "Trigger points".

The data collection period was from September to October 2019. After the selection of the material and reading the data, they were analyzed and discussed in order to offer a greater notion about the effectiveness of the therapeutic modalities acupuncture and myofascial release as a treatment for tension pain in the cervical region in Women.

Because it is not a study with humans or animals, the present study did not need to be submitted to the ethics and research committee, according to resolution 466/12.

III. RESULTS

Based on the searches carried out in the online databases (Medline, Bvs Lilacs, Scielo, and Google Scholar), no articles were found to compare acupuncture and myofascial release techniques in the same study, thus the research was conducted directing the application of each technique.

The crossing of the descriptors and the use of the filters made it possible to obtain a total of 128 references of which 98 were discarded because they did not fit the inclusion criteria. Thus, the sample of this study had 30 references, according to the inclusion criteria and keywords. The tables below show an overview of the reading of the articles chosen for discussion.

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Table 1 – Studies on acupuncture in the treatment of tension necks pain, according to author, year, type of study, study proposal, methodology, outcome, and outcome.

AUTHOR / YEAR	TYPE OF STUDY	METHODOLOGY	OUTCOME
Kim et al, 2013	Field Study	Retrospective review of electronic medical records of patients receiving acupuncture care between 2010-2012 at the Korean medical hospital of Pusan National University.	The total of 2167 with a mean attendance in acupuncture of 08 sessions was identified. The most treated clinical conditions were back pain (30.5%), necks pain (23.9%) and elbow pain (17.5%).
Nakajima et al, 2013	Field Study	They selected 15 individuals diagnosed with tension at the neck and pain in the upper limbs and/or paresthesias for 13,1 ± 18,0 months. The 15 patients had 16 affected limbs and scored a total of 17 scores of pain and/or paresthesia symptoms. All patients were treated with acupuncture once a week for 4 weeks, at up to 10 sites in the cervical paraspinal region, centered in the affected area. Symptom severity was recorded using an analog visual scale and functional evaluation was performed using a Neck Disability Index	Favorable results were seen in almost 90% of cases. These results show that acupuncture treatment in the cervical region can be effective as conservative therapy in the treatment of tension pain in the neck.
Wan, et al, 2014	Comparative Study	A comparative study Were selected 160 patients with cervical spongy radiculopathy were randomized into three groups: a peer-to-peer group (n = 60) treated with electroacupuncture by the peer-to-peer method; a Jiaji group (n = 60) treated (EX-B 2); a group of medicines (n = 40) treated with oral administration of Jing Fu Kang alone. Clinical efficacies were subsequently compared.	Peer-to-peer electroacupuncture can quickly improve the symptoms and function of patients with cervical spongy radiculopathy and is superior to Jiaji (EX-B 2) and oral administration of Jing Fu Kang in the comparison of clinical efficacy.
Figueroa et al, 2015	Comparative Study	A comparative, open and randomized study in 100 patients of both sexes over 18 years of age, randomly selected. Two groups of 50 patients each were formed; group A acupuncture and treatment of group B with steroidless analgesic and anti-inflammatory therapy the comparative evaluation of the results was performed by the modified Mc Gill Test, on the fifth day and at the end of treatment. For analysis and the chi-square test was used for data processing.	Both treatments are equally effective for relieving neck pain, but acupuncture becomes an elective therapy to be considered as it provides rapid pain relief.
Ceccherelli et al, 2010.	Clinical Study	Comparison of the number of needles used to treat neck pain of myofascial origin by checking in patients divided into 02 groups being stimulated om 05 and 11 needles respectively for 100 seconds with pain assessed before, immediately after treatment and with 01 and 03 months of treatment by the MacGill and AVE questionnaire.	In both groups, regardless of the number of needles used, there was a good therapeutic result without relevant clinical differences.

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Table 2 – Studies on myofascial release in the treatment of tension pain in the neck, according to author, year, type of study, study proposal, methodology, result, and outcome.

AUTHOR / YEAR	TYPE OF STUDY	METHODOLOGY	OUTCOME
Goetten, 2018	Literature Review	This is a literature review on the theme "effects of myofascial release", carried out through a bibliographic survey, using electronic databases: Scientific Electronic Library Online (SCIELO), Literature Latin American and the Caribbean in Health Sciences (LILACS), National Library of Medicine (MEDLINE), (PubMed), CAPES Portal, Database and Evidence in Physiotherapy.	Myofascial release has shown to have a range of potentially valuable effects for athletes and the general population, such as increased flexibility, increased range of motion, improves joint mobility, decreased pain and improved function.
Lambert, et al, 2017	Systematic Review	Several databases were searched using the terms Mole Tissue Assisted by Instrument, Pain, Function, Graston and Soft Tissue Mobilization (STM). Inclusion criteria included: randomized clinical trials in patients with musculoskeletal impairment, TMS had to be a therapeutic intervention, performed in humans and had to capture a measure of pain or function. The articles were excluded if they were not published in English or whether the subjects were from the pediatric or geriatric population. The included articles were evaluated using the Physiotherapy Evidence Database scale.	These results support the idea that IASTM can have an impact on physiological changes, providing an increase in blood flow, reduced tissue viscosity, myofascial release, interruption of pain receptors and improving flexibility of the underlying tissue. IASTM is suggested to be an effective intervention in the treatment to reduce pain and improve function in less than a period of three months.
Rodriguez et al, 2018	Comparative Study	Forty-one participants with neck pain were randomly allocated to a group of MRT (five sessions) or in a physiotherapy group (TP) (ten sessions) for two weeks. The multimodal TP program included ultrasound therapy (US), transcutaneous electrical nerve stimulation and massage. Visual analog scale (VAS) and PPTs in the suboccipital muscles and upper trapezoid were measured at the beginning, at the end of treatment and in the 1-month follow-up.	This study provides evidence that MRT could be better than a multimodal TP program for short-term pain improvement and PPTs in patients with neck pain.
Santos e Joia, 2018	Literature Review	The present study was conducted through bibliographic research with searches on sites such as Google scholar, Scielo, Lilacs and Bireme on the topic in question. Papers published as articles, theses and monographs were analyzed in order to analyze the efficiency of myofascial release in treatments of neck pain. Publications from 2009 to 2018 were analyzed.	It is concluded that myofascial release is efficient in the treatments of neck pain, but its effectiveness is in fact proof when associated with other types of treatments, whether drug or not.
Borges et al, 2013	Field Study	The study included 15 patients (10 women and 5 men). The significance level adopted was $p < 0.05$.	The present study concludes that physiotherapeutic intervention composed of stretching exercises, relaxation techniques, massages, and electrotherapy were beneficial to improve quality of life and flexibility in patients with chronic neck pain.

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IV. DISCUSSIONS

Pain in the neck region is a complaint that removes a large number of workers from their professional activities. Its origin comes from several factors, such as mechanical traumas (whip effect), postural changes that consolidate and compensate in rectifications of normal curvature of the spine. Degenerative processes of arthrosis and osteophytosis that can generate compressions and loss of joint mobility, more common in elderly individuals, since it is a process of degeneration that worsens with age [1].

Physiotherapy is important in the treatment of patients with chronic cervical pain, especially those of tensional origin. Therapy seeks to reduce pain, recover mobility and strengthen muscles, thus providing improvement in quality of life. Acupuncture and myofascial release are practiced worldwide for the treatment of various health conditions, including acute, acute and acute chronic pain [18].

4.1 Acupuncture

In the last decade, acupuncture has become a therapeutic option widely used in the treatment of pain. Despite progress in the development of drugs that help in the management of pain conditions, there is growing concern about side effects, especially analgesics and non-steroidal anti-inflammatory drugs [19].

Systemic acupuncture and electroacupuncture, auriculotherapy, craniopuncture, and wind therapy techniques have been shown to be effective means for the treatment of tension pain in the neck [20].

The treatment of tension pain in the neck with the different methods used in acupuncture proved to be quite effective and reached a high rate of improvement in recovery patients undergoing this therapy [21].

Kin [22] states in his study with a sample of 2.167 patients that acupuncture is recommended for the management of persistent chronic pain conditions. In addition, it demonstrates that most of the symptoms treated by acupuncture are low back pain (30.5%) and cervical pain (29.4%) and needle stimulation techniques are manual in 52% of cases or via electroacupuncture in 47.4% of the 16,965 acupuncture sessions performed in their studies.

The use of acupuncture in chronic tension pain in the neck was beneficial in 90% of the cases followed by [23]. When associated with electroacupuncture in treatment with needles symptoms reduce rapidly, thus improving the functions of patients with cervical tension and or radiculopathy [24].

In Perez study [25], acupuncture has been more effective than drug treatment for the relief of nontraumatic cervical tension pain, due to rapid response in pain reduction, thus becoming an elective therapy to consider, especially when the patient may not receive drug treatment due to medical indications or other conditions. The following table shows the results found by Perez.

Table 3 - Comparison of painful condition in the treatment of cervical pain with acupuncture and drug technique conducted in Perez study.

Relief of Pain	**Group A Acupuncture**		**Group B Medicines**	
	Number of cases	%	Number of cases	%
Immediate	24	48	0	0
Mediated: 2 – 5 sessions	14	28	6	2
Late: 6 – 10 sessions	9	18	21	2
No relief	3	6	23	6
Total	50	100	50	00

In relation to the number of needles used in the treatment of tension cervical, Ceccherelli [26]compared the use of 5 and 11 needles and after their analysis found that the number of needles is not an important variable in the therapeutic effect when the stimulation time is the same in both groups, because regardless of the number of needles used the two groups obtained good therapeutic effect without clinically relevant differences.

4.2 Myofascial release

According to Goetten [2], myofascial release aims at muscle relaxation and pain reduction through the application of low load pressure and long duration, as well as acting efficiently in reducing neck pain. There is literary evidence that myofascial release associated or not with other therapy, relieves pain and improves skeletal muscle function as much as other conventional techniques and therapies.

Rodriguez [27] investigated the efficacy of myofascial release in mechanical cervical pain in relation to the pressure pain threshold, and 41 adult subjects were evaluated. The interventions that the authors used were myofascial release with progressive deep pressure and multimodal physiotherapy intervention with ultrasound application, Transcutaneous Nerve Electrical Stimulation (TENS) and classical massage. They concluded that at the end of treatment, patients submitted to myofascial release obtained a significant improvement in pain when compared to the subjects of the multimodal program. This result remained after one month, thus, the authors concluded that manual myofascial release proved to be effective and

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superior to multimodal intervention with electrotherapy and classical massage in pain relief in patients with tension pain in the neck of the nonspecific mechanical type.

Santos and Joia [28] affirm that myofascial release is efficient in treatments of neck pain, but its effectiveness is higher when associated with other types of treatments, whether drug or not.

Therefore, myofascial release has efficiency in improving symptoms of tension pain in the neck, being applied exclusively or added to other therapies. It is important to note that this efficiency depends on the degree, type and origin of dysfunction, since each patient may present more or less pain, as well as limitations [2].

Regarding instrumental myofascial release, Lambert et al [29], pointed out that this technique has effects on the inactivation of painful receptors and increased tissue flexibility, indicating the effectiveness of the technique, but emphasizes the need for greater understanding of manual therapeutic methods.

Physiotherapeutic treatment in patients with tension pain in the neck especially the chronic provides significant improvement in the quality of life and range of motion of the region in adults, and the improvement in related aspects is also proven physical, psychological, level of independence and social relations [30].

V. CONCLUSION

It is concluded that both acupuncture and myofascial release promote improvement in pain and quality of life of patients affected with tension pain in the neck.

Acupuncture promotes significant improvement because its effect on pain is rapidly acting, making it more efficient in relation to drug treatment in non-traumatic lesions. The technique is also efficient in the management of chronic and persistent pain conditions, and its efficiency is potentiated when associated with electroacupuncture.

Myofascial release promotes significant improvement of symptoms to give tension pain in the neck region, and when associated with other techniques has its efficiency potentiated.

Since the way, both techniques promote significant improvement in the quality of life and range of motion of the spine, but still much to be studied about both techniques and together, later comparing which technique is most effective in this algetic picture.

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