TRADITIONAL CHINESE MASSAGE (TUINA) FOR CHRONIC NECK PAIN

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ABSTRACT
Chronic neck pain is something common which can be hard to treat. There is limited evidence for the efficiency of different alternative therapies. This research aimed to assess the efficiency of the traditional Chinese massage on the range of motion and intensity of pain in the cervical area of the spinal column. Objects and methods: 38 patients with chronic neck pain were randomly divided into experimental and control groups. The control group performed only controlled therapeutic exercises. The patients from the experimental group were subjected to ten Chinese therapeutic massages and therapeutic exercises twice a week. The range of motion in the neck was assessed with a universal goniometer for flexion, potations, and lateral flexion. The intensity of the pain was assessed with the visual-analogical scale. At the end of the research, we found statistically significant, better results in the EG in the left rotation (58,4° ± 2°), right rotation (54,4° ± 2,1°), right lateral flexion (32,6° ± 4,7°), and left lateral flexion (37,2° ± 5,6°), with a statistical significance level ($p < .05$). Tracing the dynamics in the pain symptoms showed a reduction in the pain in both groups of patients, with a significant downward trend in the experimental group. Conclusion: Traditional Chinese massage alleviates pain symptoms and relaxes the increased muscle tone, which leads to an increase in the range of motion in the neck area. Compared to routine physiotherapy, the Chinese massage methods has a proven effect on the traced indicators.

Keywords: *traditional Chinese massage, neck pain, therapy*

INTRODUCTION

The neck pain syndrome is a multi-factor syndrome disease of a complex character. Chronic neck pain (CNP) can negatively influence patients' social, family, and professional environment and can affect the health system and aggravate its financial state (Kazeminasab et al., 2022). It has been determined that in a different period of life, 22% and 70% of the population experience pain in the cervical area (Milanov, 2009). The insufficient motor activity, the lack of psychological support, and the financial difficulties for adequate treatment are crucial (Cohenm, 2015).

A leading symptom among the patients is subjectively registered pain, defined as an unpleasant sensory and emotional experience (Quratulain et al., 2017). In most cases, besides the pain, there are a lot of other symptoms, such as restricted mobility and reduced muscle strength in the cervical area, muscle dysfunction, headaches, vestibular disturbances, and pain and functional disturbances in the upper limb (Liu et al., 2017). The clinical picture of chronic neck pain could result from many factors and nosologies which can appear simultaneously or consecutively, making the diagnostics and therapy rather challenging (Borenstein, 2007).

Alternative medicine, Chinese traditional medicine in particular, perceives the problem from a holistic point of view as a disrupted balance in the structural, biochemical, psycho-emotional, and energy aspects of the organism (Ivanova, 2018; Angelcheva, Petkova, 2019). It provides possibilities for etiopathogenetic treatment, while conventional therapeutic methods are guided by clinical diagnosis (Cheng, 1987). Chinese traditional massage (tuina) attracts the attention of specialists all over the world, which is why we can argue that it deserves its place among the modern methods for prophylactics and treatment (Goranova, 2018; Cheng, Huang, 2014). There are a lot of surveys on the benefit of this ancient therapy, but there are still no proven explanations for its effects in the context of Western medicine, and it is perceived as an alternative treatment system (Hui et al., 2017; Wei et al., 2017).

The aim of this study was to assess the therapeutic influence of traditional Chinese massage therapy on patients with chronic neck pain. On the basis of the research of the available literary sources, some critical analysis, and our own practical experience, we formulated the tasks of the research: to select suitable patients and tests for assessment of their functional condition according to the aim of the research; to apply in practice specialized traditional Chinese massage therapy and to compare its effect with that of the conventional physiotherapeutic treatment, to analyze the obtained results and to assess the effect of the specialized massage method.

MATERIALS AND METHODS

The research was conducted over two years (2020-2021) at the clinical facilities for practical training of kinesitherapy students – 8th diagnostic and consultancy center in Sofia. The research was done among 38 patients with CNP. The patients were randomly divided into an experimental group (EG) and a control group (CG). The experimental group included nineteen patients with a mean age of 46.65 (SD ± 11.23). This group was subjected to a ten-day course of Chinese massage therapy for the neck area and controlled therapeutic exercises. The control group also included nineteen patients with a mean age of 44.25 (SD ± 14.6) years, treated routinely with the usual methods and means of physiotherapy. They were not subjected to traditional Chinese massage therapy, unlike those from the experimental group. We purposefully excluded the patients with general contra-indications for total physical therapy, patients who had undergone surgeries of discal hernia in the cervical area, surgeries of the thyroid gland or the shoulder joint within a year prior to the research; neurological deficit of the upper limb, and an acute neck pain which was not influenced by analgesics. The common thing among all patients was their continuous work in a static position (at a desk, in front of a computer, etc.) and their motor activity reduced to minimum, a written informed agreement for participation in the research.

The aim of the therapy with both groups was a maximal reduction of the pain symptoms and a functional recovery of the neck area. The method of Chinese massage therapy includes ten procedures carried out twice a week over 5 weeks. The procedure lasts for 45-50 min and is applied along the energy channels, collaterals, and active points according to the patients' individual condition. The methodological requirements are observed, and patients' condition is monitored. This suggests a great variability during the procedures. The physiotherapeutic behavior is relevant to the characteristics of the pathological process, the degree of the damage, and the functional capacity of the neuro-muscular system. Different massage techniques are applied - Mo, Ca, Rou, and Gun. The procedure ends with passive and active movements in the neck area. The choice of a specific massage technique and dosage depends on the clinical condition, the functional limitation, and the patient's physiological response. Still, very often, different techniques are combined, and the dosage is individually chosen. The massage techniques used are performed with slight and medium pressure. The controlled therapeutic exercises with the patients from both groups include active exercises for the cervical area, breathing exercises, and active exercises for the upper limbs.

To fulfill the aims of the research, we assessed (at the beginning and the end of the treatment) the changes in the intensity of neck pain with a Visual Analog Scale (VAS). The range of motion in the neck was assessed with a universal goniometer for flexion, extension, and lateral flexion. We used an international SFTR method for measuring and recording joint movements.

RESULTS

The collected data were statistically processed with software SPSS, version 19.0. To compare the results between the two groups before and after the treatment, we performed the Student's t-test for a pair and unpaired samples. It is considered that a value smaller than 0.05 shows a statistically significant difference.

The results from the research on the subjective perception of pain with VAS are presented in Table 1 (for the patients from the control and experimental groups).

Table 1. *Changes in the intensity of pain in the experimental and control groups during the study*

Pain assessment	Group	Pre $X_1 \pm SD_1$	Post $X_2 \pm SD_2$
Visual Analog Scale	EG	6.79±1.41	3.52±1.66***
	CG	7.04±1.39	5.53±1.35
	p	0.718	0.001

*X_1, X_2 - mean values of the indexes for the two surveys; $SD_{1,2}$ – standard deviations of the indexes for the two surveys; EG – experimental group (n=26); CG – control group(n=26); ***p < .001 – significant differences in comparison to initial values determined with Student t-test for dependent and independent samples; P- significance of differences between the two groups*

The changes having taken place as a result of the conducted Chinese massage therapy to patients with CNP laid down in Table 2.

Table 2. *Changes in the average values and standard deviations of cervical range motion level measured at the beginning and the end of treatment with SFTR.*

Cervical range motion	Participants	Pre $X_1 \pm SD_1$	Post $X_2 \pm SD_2$
Left rotation	EG	36.4° ± 4.9°	58.4°±2.6°***
	CG	36.9°±°3.6	38.4°±°3.2
	p	.432	.003
Right rotation	EG	37.1° ± 1.6°	54.4°±°2.1***
	CG	37.5° ± 2.5°	38.9° ± 4.6
	p	.942	.001
Right lateral flexion	EG	23.6° ± 3.5°	32.6° ± 4.7°
	CG	23.9° ± 5.2°	25.3°± °2.5
	p	.824	.003
Left lateral flexion	EG	23.88° ± 3.6°	37.2 ± 5.6***
	CG	24.1 ± 3.7	25.3° ± 3.6°
	p	.707	.005
Flexion	EG	23.4°± °3.5	27.4° ± 6.9°
	CG	23.1° ± 3.3°	25.7° ± 5.2°
	p	.934	.426
Extension	EG	23.2° ± 6.4°	28.6° ± 3.4°
	CG	23.85°± °6.5	25.1°± °4.1
	p	.438	.502

*X_1, X_2 - mean values of the indexes for the two surveys; $SD_{1,2}$ – standard deviations of the indexes for the two surveys; ***p < .001 – significant differences in comparison to initial values determined with Student t-test for dependent and independent samples; P- significance of differences between the two groups*

DISCUSSION

The reduction of pain intensity is a main criterion for evaluating the effectiveness of applied massage therapy. The initial examination revealed the presence of severe pain in both groups. Tracking the dynamics of pain symptoms shows the presence of severe pain at the beginning of therapy, with a tendency to decrease after the start of treatment for EG. When comparing the results at the beginning and at the end of the study, a statistically significant difference in the average values of the results is established. Maximum pain intensity at baseline was 6.79 (±1.41), at the end of therapy it was 3.27±1.66 (p<.001) for EG. The mean value reached 3.38 (SD≤1.15). The presented results (Table 1) show that at the end of the treatment course, as a result of the therapy, a statistically significant reduction in neck pain was found in EG. As shown in Table 2, the observed improvement in functional scores for EG was associated with the application of massage techniques combined with therapeutic neck exercises.

The comparative assessment between the two groups in the course of the research showed a significantly better condition of the patients from the experimental group regarding the reduction in pain and the increase in functional mobility in the neck area in all directions. It is evident that traditional Chinese massage therapy positively influences CNP. The patients from the experimental group reported they felt livelier, had more power, and had weaker pain and stiffness in the cervical area.

In our opinion, traditional Chinese massage helps conduct nerve impulses along the central motor neuron, enhancing the proprioceptive central field. By applying specific massage techniques along the energy channels and active points, we can stimulate proprioception along the nerve endings, muscles, and ligaments (Zhang et al., 2015). We can reach the sensorimotor zone of the central nervous system and the cerebral cortex. Through the pyramid and extra-pyramid motor paths, the signals of the cerebral cortex reach each intervertebral segment (Roberts, 2011; Milanov, 2014).

Although the mechanisms for these positive results have not been studied enough in the scientific lit-

erature, there are a few theories. According to the theory of Weerapong et al., (2005), the muscle spasm can cause local ischemia and pain by activating the pain receptors in the muscles. It is clear that the application of techniques aimed at treating the active point (AP) and the rubbing technique are in the basis of muscle relaxation. The use of these techniques provokes relaxation reactions in the muscles and connective tissue, and the irritation of the receptors is overcome. As a result, circulation gets normal (Iliü, et al., 2012). Practice shows that the techniques tui and mo provide an analgetic effect by activating subcutaneous receptors. Once activated with massage therapy, these receptors block the signals of the pain receptors coming from the spinal column, which contributes to pain reduction and improves the psycho-emotional state (Meng, 2010). A lot of surveys have proven that Chinese massage methods are the most effective in treating diseases characterized with pain symptoms. The stimulation of the active points activates one or several mechanisms for pain control and some adaptation mechanisms with the participation of some hypothalamus-pituitary, core, subcortical, and limbic structures. It inhibits the post-capillary sphincters, which leads to an improvement in local circulation. This can explain the quick effect on pain symptoms and the positive influence on the muscles with an increased muscle tone. Another theory explains that the slight touch during the therapeutic massage temporarily enhances the existing discomfort and thus provokes a greater release of natural opiates, such as β-endorphins. This would add to the feeling of happiness and joy and would suppress pain, which in turn, would help the easiness of movements (Tsao, 2007).

Norrbrink and Lundeberg (2011) proved the efficiency of Chinese massage therapy as a means of reducing neuropathic pain in patients with spinal cord injury. In another survey with such patients, Roberts L. (2011) also found that acupressure improved the nervous conductivity of the limbs and significantly reduced pain. The good thing is that both surveys did not find any short-term or long-term negative effects. The authors believed that massage therapy decreases muscle hypertonia and improves trophic and circulation, contributing to the reduction in pain symptoms. These conclusions allow us to accept the thesis that Chinese therapeutic massage has its place in pain reduction in CNP. An important aspect of massage for pain relief is a reduction in muscle tension, which in turn leads to improved movement (Tao et al., 2015; Wei et al., 2017), but it should always be kept in mind that for in some patients, increased muscle tone in the neck area compensates for the muscle weakness so characteristic of a herniated disc.

Supportive to our reasoning are the conclusions made by Cook et al. (2015), who also emphasized the leading role of therapeutic massage for relaxation and decreased stress. If we look at the conclusions mentioned above in detail, we will sum up that Chinese massage therapy is a means which effectively influences functional conditions and affects neck pain.
We believe that applying traditional Chinese massage and specialized exercises will lead to significant results. Zhang et al., in a survey conducted in 2015, found an improvement in the emotional, cognitive, and executive brain dysfunction due to pain by eliminating the influence of afferent pain on the default mode networks, which proved the beneficial influence of Chinese massage. In another survey, Wei et al., (2017) came to the conclusion that massage therapy, added to manual therapy, affects the feeling of pain and stiffness in the neck area and as a result, improves the health status (Wei et al., 2017). We can sum up that in future research of a longer duration and a bigger sample, it would be desirable that other tests should be included for assessment of the pain and the volume of movement, which will further prove the influence of traditional Chinese massage therapy on physical and mental health.

CONCLUSION

Traditional Chinese massage alleviate pain symptoms and relax the increased muscle tone, which increases the range of motion in the neck area. Compared to routine therapy, Chinese massage methods have a proven effect on the researched indicators. Based on the results of the analysis, we offer the following suggestions. To make a plan to integrate traditional Chinese massage into clinical practice and conduct training courses in Tuina massage for physiotherapists.

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