

Influence of Tuina Therapy on Pain as Regards Quality of Life Among Patients Suffering from Multiple Sclerosis

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Abstract

Multiple sclerosis (MS) has a harmful influence on the quality of life (QoL) and a patient's efficiency, including physical, emotional and social aspects of the everyday life. The subjective nature of pain prevents therapeutants from having an objective standard which can estimate the intensity of pain and its influence on the QoL. The aim of the research is to determine the positive effect from the Chinese tuina massage on the degree of pain among patients suffering from multiple sclerosis. The research was conducted over a period of 3 years (2014-2017) at the Physiotherapy and Rehabilitation Ward of 8th Diagnostic-consultative center in Sofia, and also as home rehabilitation. For the purposes of the research we formed an experimental group (EG) and a control group (CG) consisting of 25 patients in a remission phase. The patients from the EG undertook 10 procedures with tuina therapy, while those from the CG were given only SF-36-scale about QoL. The results from the statistical processing of the two questions regarding the quality evaluation of the intensity of pain in the patients' normal working environment and in their daily routine over a 4-week period show a significant improvement among the EG compared to the CG at the end of the research. The results from this study show that tuina therapy can be very beneficial for reducing the intensity of pain, improving the functional possibilities and quality of life among patients with MS. The significantly better results among the EG compared to the CG prove tuina therapy is an effective method for successful handling of pain symptoms.

Keywords: multiple sclerosis, pain, tuina, quality of life, chinese massage

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1. Introduction

Multiple sclerosis (MS) has a harmful influence on the quality of life (QoL) and a patient's efficiency, including physical, emotional and social aspects of the everyday life. Recently, in order to make a complex evaluation of the success of certain therapeutic influence, some data about the effect on the health status and QoL has been required. The subjective nature of pain and lack of physical expression prevent the therapeutant from having an objective standard which can estimate the intensity of pain and its influence on the patient. There are general and specific questionnaires for evaluation of the influence of pain on the QoL. The questionnaires about the quality of life which the patients filled out enabled us to trace the effects from their treatment, their functional condition and wellbeing. Multiple sclerosis is a disease where the tolerance to one's own tissues was disrupted, and it was followed by pathological immune attack against them (Fleming, 2002). Consequently, multiple sclerosis is an auto-immune, chronic inflammatory demyelinating disease of the immune system which affects the central nervous system and leads to all kinds of combinations of symptoms which can appear due to impairment of optic nerves, the cerebrum brain and the spinal cord (Sadiq, 2005). In the last years there have been considerable data proving that multiple sclerosis is a neuro-degenerative disease where the processes of neuro-degeneration develop from the very beginning and are not related to the inflammatory processes (Pascual, 2007). The disease has uneven geographical distribution (Martin, 2003). It increases with the increase of the latitude both in northern and southern hemispheres (Fleming, 2002). The farther from the equator, the bigger number of population it affects, and it reaches 0.1% in the farthest regions (Pugliatti, 2008). In the past years there has been an increase in the manifestation of this disease in almost all countries. The period for determining the diagnosis has been shortened and the life span has been extended due to the improved possibilities for symptomatic treatment which modifies the course of the development of the disease (Nicoletti, 2005). In Bulgaria 44.5 in 100 000 people suffer from this disease and the country comes under the category of the zone with high manifestation of the disease together with the adjacent countries (Milanov, 1997). In the recent past the diagnosis multiple sclerosis was associated with quick reaching disability state and a forthcoming lethal outcome, but with the modern diagnostics and treatment the course of the disease has changed together with patients' quality of life (Chang, C.H., 2002, Freeman, J.A., 2001). The patients' lifespan after the beginning of the disease is 28 years for men and 33 years for women but the

quality of life and its physical and psychic aspects have seriously deteriorated among patients with this kind of disease (Pugliatti, 2008). The results from several population surveys in USA and Europe show unanimously that the quality of life of patients suffering from MS is lower than of those not having such symptoms. People with MS are considerably drowsier, less vigorous and dynamic. Thus, many patients feel constitutionally inadequate, moody, with low energy and impaired family and social interactions, worse sexual functioning and work abilities, and difficulties in performing the everyday activities.

In the last years the neurological community has left the era of therapeutic nihilism regarding this disease (Milanov, 2010). This has provided possibilities for applying different alternative methods for treatment – Chinese traditional medicine (CTM), yoga, apitherapy, hypotherapy (Gencheva, 2015) and so on. Chinese traditional medicine is based on the idea that health is maintained by the normal flow of the fluid substance Qi and the liquid substance Sue of the Qi Energy. The disrupted flow of these two substances might lead to illnesses. In CTM illnesses are viewed as a disturbance in the harmony of the whole organism not in its separate organs and systems. This assumption is based on the idea of wholeness, unity and harmony in Chinese philosophy (Cheng, 1987). The scientific research in the field of CTM is caused by its wide popularity all over the world, especially as regards acupuncture, Chinese massage and the specialized gymnastics Qi Gong. Harmony between one's physics and psyche is achieved through them with the purpose of bodily and spiritual perfection, health prevention, and in case of a disease – recreation (Marinova, 2015). There are records about the benefits of this ancient therapy but no justified explanations about its effects in the context of Western medicine have been provided. That is why CTM is perceived as an alternative system of treatment. Nowadays the methods of CTM are widely used for the treatment of different illnesses, including MS. There are important surveys which prove that acupuncture can be effective against spastic symptoms, anxiety, depression, vertigo and difficulties in sleeping. Rocky Mountain MS Center conducted an on-line research about application of acupuncture among patients suffering from MS. About 1,200 people were interviewed. They found out that 277 people had used this way of treatment. Two thirds of them reported that their pain and anxiety had been reduced. Among 50-60% of the patients there was a decrease in depression, fatigue, muscle stiffness, paresthesia and insomnia (Bowling, 2003). CTM has proven to be efficient when treating pain symptoms and is an alternative to pain management in a long term among patients suffering from MS (Bowling, 2003). Chinese Tuina was called massage or Mosuo in ancient times. The term Tuina was first seen in the Ming Dynasty. Chinese Tuina is a therapeutic guided by the theory of the TCM and to treat diseases through massage manipulations or by means of some massage tools applied to certain part or points on the human body surface (Hongzhu, 2003). Tuina has the ability to: promote and invigorate the flow of Qi and blood, expel, clear, dissipate and dredge pathogenic factors, regulate Qi and blood, harmonize Yin and Yang, release and relax the channel sinews, lubricate and facilitate the movement of joints (Pritchard, 2010). Tuina achieves the above by stimulating the points appropriate to the presenting disharmony with manual massage techniques, passive movements, directed Qi and intention.

Complete systems for pain treatment depending on pathogenesis, nature and clinics of the disease aimed at patients with MS have not been developed yet. The systematic analysis of the scientific publications about people suffering from MS shows that the influence of CTM and tuina massage in particular on the intensity of pain and the particular indexes of the individual quality of life has not been investigated exhaustively enough. This directed out attention to the present study among patients with MS and made us try to answer some issues about this socially significant problem.

2. Materials and Methods

2.1 Aim of the research

On the base of the idea of improving the general health status and quality of life of the patients suffering from MS, as well as the whole philosophy of CTM for unity and harmony, we defined the following hypothesis: We presume that tuina therapy would benefit the process of reducing the intensity of pain and would improve the overall condition of the patients, which in turn, would affect their quality of life. The aim of the research is to examine the influence of Chinese massage on pain being part of the parameters of the quality of life among patients suffering from MS. In order to achieve this goal and to confirm the work hypothesis we had to fulfil the following main tasks: 1. Examination of the influence of tuina massage on the intensity of pain in the aspect quality of life, 2. Revealing the mechanism of influence of tuina massage which leads to a change in the researched parameters, 3. Analysis of the obtained results and confirmation or rejection of the work hypothesis.

2.2. Participants

The research was conducted over a period of 3 years (2014-2017) among patients suffering from MS. Subjects of the research were 50 patients with clinically proven diagnosis of MS in a remission phase. Their age ranges from 21 to 57 years. They had had the disease for 2 to 26 years. The patients were rehabilitated in the Physiotherapy and Rehabilitation Ward of 8th Diagnostic-consultative centre in Sofia, and also in-home environment. We purposefully excluded from the research patients with contra-indications for general physical therapy, with

concomitant heart diseases, impaired general condition or far gone in MS. The patients were under neurologist's medical observation and continued taking medicines. For the purpose of the study we formed an experimental group (EG) and a control group (CG). The experimental group consisted of 25 patients (16 women and 9 men; average age 45.76 years). The patients from the EG underwent tuina therapy. The control group, which consisted of 25 patients (15 women and 10 men, average age 47.87 years) was given only SF-36-scale about QoL. The patients from the two groups did not differ significantly as regards their gender, average age, duration and extent of the disease.

2.3. Instruments

For the purposes of the research the patients were evaluated at the beginning and at the end of the survey. For examination of pain we used the generic questionnaire - Medical Outcomes Study Short Form 36 Health Survey (SF-36) (Ware, 1993) for evaluation of quality of life. The quality of life is determined by physical, psychic and social areas of health condition or it is rather the self-evaluation of each patient, refracted through the personal experiences, beliefs, expectations and perceptions (or most generally "self-perception of one's health status"). More precisely, we traced and analyzed the changes in pain with the help of two main questions related to it in the SF-36 scale. The quality evaluation of pain is estimated depending on its intensity and the degree of its reduction during the 4-week period. The patients mark the degree of pain they feel at the moment of evaluation every time they fill out the questionnaire. Pain is accounted for according to the degree of its intensity through six main degrees, and its reduction is evaluated along five degrees.

The statistical processing of the data was done with the help of IBM SPSS 21, by applying analysis of frequencies for one-dimensional and two-dimensional distribution of the frequencies. In order to check statistically the hypotheses, we used χ^2 – Pearson's criterion for comparison of independent samples.

2.4. Methods of tuina therapy

The patients from the EG underwent 10 procedures with tuina, twice a week over a period of 6 weeks. The patients who did not attend one or two sessions were subjected to procedures over the following weeks so that they could finish the program with the total of ten procedures. Each procedure lasts 45-50 min. It is applied along the path of the energy channels, collaterals and active points according to the individual condition of the patient. Different techniques of Chinese massage are used - Tui, Na, An, Mo, Ca, Rou and Gun (Meng, 2014). The procedure finishes with passive motions along the joints – Yao. The massage is completed with a general relaxation. The methodological requirements are fulfilled, the condition of the patients is monitored which supposes great variability during the procedures. The used massage techniques were dosed with light and medium pressure. The physiotherapeutic behavior is according to the characteristics of the pathological process, the degree of physical impairment and functional capacity of neuro-muscular system. The choice of a certain manual technique and dosage depends on the clinical condition of the patient, the functional restrictions and the physiological response but in most cases, they are combined with different techniques and the dosage is individual. The setting was preliminarily prepared for each procedure – dim light and relaxing background music.

The tasks of tuina therapy are the following:

- Activation of the mechanisms of influence on the function of the impaired nervous structures. In this relation the energy channels and active points are treated;
- Influence on the general pain symptoms;
- Harmonization of Qi energy and balance of Yin and Yang;
- Recovery of the passability of the channels and collaterals;
- Increase of the vital energy and tone.

The methodology of the massage lies into the theoretical base of CTM. According to it the diseases of the central nervous system with secondary neurological symptoms are united in a syndrome called Uei. The pathogenesis of Uei-syndrom is located in the system Yang Ming – stomach and colon. When the system Yang Ming is in deficit of energy Qi, the adjacent tissues slack. Consequently, the limbs become weak and sluggish and this leads to the development of pareses and paralyzes (Marinova, 2013), which determined the main directions of our therapy.

3. Results and Discussion

After the math-statistical processing of the information gathered during the research, we found the following regularities, related to the changes in patients' pain. We found out there was significant improvement as regards pain among the patients from the EG. There were no significant changes in the researched parameters among the patients from the CG. We believe that these results are related to the use of tuina massage with the EG. The obtained better results are based on the pato-physiological mechanism of influence of the massage and objectively stem from its proper and systematic application among the patients from the EG. It has been proven that massage stimulates the regenerative processes, reduces muscle tone, regulates biochemical processes and affects

psychosomatic tone.

At the beginning of the research almost all of the patients experienced an intensive pain. Its average value for the CG was 20.94 (52.35%) and 20.24 (50.6%) for the EG. The differences between the two groups are statistically unreliable and therefore the groups are comparable. More than 50% of the patients from both groups reported average to strong pain. Pain restricted and impaired their working abilities. In the beginning, the answers varied from "Pain has not been reduced" and "It has been relatively reduced over the past 4 weeks". After the completion of the Chinese massage course of treatment the statistical processing of the results about the question connected to pain reduction shows significant improvement among the patients from the EG compared to those in the CG (table 1). Therefore, the applied therapy led to significant improvement in the EG. There were no changes in the intensity of pain among the patients from the CG at the end of the research.

Table 1. Comparison of the results at the end of the research between the CG and EG for evaluation of the influence of tuina therapy with the question - How much bodily pain have you had during the past 4 weeks?

How much bodily pain have you had during the past 4 weeks?	Group		Total
	Control Group	Experimental Group	
None	2	15	17
Very mild	7	6	13
Mild	7	3	10
Moderately	5	1	6
Severe	3	0	3
Very severe	1	0	1
Total	25	25	50

The comparative analysis of the final results between the two groups shows statistically better results of the EG in comparison with the patients from the CG. The index χ^2_{emp} is 18,285, and $\alpha = 0,003$, which means that the CG and the EG have a statistical significant difference as regards the main objective – the intensity of pain over a 4-week period (table 2).

Table 2. Use of the Chi-Square Tests^a of independence for comparison of the quality results of the question about the intensity of pain between the CG and the EG at the end of the research.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18,285 ^b	5	,003
Likelihood Ratio	21,431	5	,001
Linear-by-Linear Association	16,169	1	,000
N of Valid Cases	50		

The determined trend in the reduction of the intensity of pain confirms the efficiency of tuina therapy with the EG compared to the CG. The analysis of variances of the data obtained from the pain tests related to a more defined positive change among the patients from the EG after the application of the therapeutic Chinese massage, as well as the techniques for passive mobilization of the muscular-skeletal system. The results show that the pain of the patients from the EG while working normally was reduced over the 4-week period, which can be related to the improvement of their functional abilities as a result of the reduction of pain symptoms, as well as the decrease in fatigue and spasticity (table 3).

Table 3. Comparison of the results at the end of the research between the CG and the EG from the evaluation of the influence of tuina therapy with the question - During the past 4 weeks how much did pain interfere with your normal work (including both work outside the home and housework)?

During the past 4 weeks how much did pain interfere with your normal work?	Group		Total
	Control Group	Experimental Group	
Not at all	4	3	7
A little bit	7	4	11
Moderately	9	6	15
Quite a bit	3	8	11
Extremely	2	4	6
Total	25	25	50

There are two ways of alleviating pain: when acupuncture (AP) stimulates the release of endorphins and when the transmission of pain signals to the brain is blocked. Needles cause the impulses to be sent to the central nerve fibers from the spine and to block the transmission of other fibers. AP helps the recovery process. It stimulates blood circulation and the healing energy in the diseased area. The notion of Qi energy is accepted with difficulty in Western medicine but the biochemical relation between the body and mind is a popular part of the ancient philosophy of the CTM.

The comparative analysis of the final results between the two groups as regards the reduction of pain during normal work over a 4-week period shows statistically significant better results of the EG in comparison with the CG. The index χ^2_{emp} is 11, 500, and $\alpha = 0,042$, which indicates a statistically significant difference between the CG and the EG (table 4). We believe that the applied therapy has a truly beneficial effect on reducing the pain syndrome.

Table 4. Use of the Chi-Square Tests^a of independence for comparison of the quality results from the test about pain reduction between the CG and the EG at the end of the research.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,500 ^b	5	,042
Likelihood Ratio	12,433	5	,029
Linear-by-Linear Association	7,854	1	,005
N of Valid Cases	47		

The reduction of the intensity of pain is directly related to the improvement of the quality of life, which was the objective of our research. At the end of the treatment the patients' ability to perform their everyday tasks by themselves had improved. The number of patients who reported slight to moderate pain had been reduced. Obviously, directing the EG patients' attention to their own health through massage has a positive influence on the quality of life. There is also a favorable effect in psychological, social and physical direction. The patients report they feel much better, the pain has been reduced, they have energy and strength, better self-confidence and self-esteem. These results show that tuina therapy modifies the disease by reducing the subjective experience of pain and affects the way of life through compensatory behavior reactions in the conditions of chronic neurological deficit.

The final results we obtained from our work with the patients from the EG confirm the results from the surveys done by other authors. They claim that the application of alternative treatment methods affects pain symptoms (Taave et al, 2011). Multiple sclerosis causes lower quality of life (Douglas et al, 2009; Jongen, 2017), low results from health questionnaire SF-36 (Pittok, et al., 2004) and development of chronic pain (Schroeder, et al., 2014). That is why, every method of treatment, which improves the quality of life, extends and enriches the effects from physiotherapeutic practices.

Conclusion

The results from this research show that tuina therapy can be very beneficial for reducing the intensity of pain, improving the functional abilities of the patients and their quality of life. The significantly better results of the EG in comparison with the CG prove that tuina therapy is an efficient method which is successfully applied for managing pain symptoms. The lack of consensus for efficient alternative maintenance and treatment of the patients suffering from MS imposes the necessity of continuation and broadening the scientific research in this field as well as creating physiotherapeutic methods based on clinical proof, which effectively affect pain and quality of life. The results obtained from our research allow us to recommend the inclusion of tuina therapy as part of the complex rehabilitation program of the people suffering from multiple sclerosis.

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