

Effects of complex manual therapy on PTSD, pain, function, and balance of male torture survivors with chronic low back pain

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Abstract. [Purpose] This study aimed to identify the impact of physiotherapy using complex manual therapy as a part of an integrated treatment for sequelae in the musculoskeletal system of torture survivors. [Subjects] This study reviewed 30 male torture survivors presenting with chronic low back pain. They were randomly selected and divided into two groups: an experimental group and a control group. [Methods] For the experimental group, complex manual therapy was performed twice a week for 8 weeks to improve the physical sequelae of patients. Improvement was measured using the PDS-K for Post-traumatic Stress Disorder (PTSD), the Visual Analog Scale (VAS) for pain examination, the Korean Oswestry Disability Index (KODI) for back function assessment, and the Balance System SD as a dynamic balance test. The total period of the intervention for both groups was 8 weeks. [Results] For the experimental group, PDS-K, VAS, KODI, and the dynamic balance test all showed significant improvements after the intervention, which they did not for the control group. In the comparison of the groups, PDS-K, VAS, KODI, and the dynamic balance test all showed significant differences. [Conclusion] Complex manual therapy for torture survivors with chronic low back pain contributes to functional recovery by reducing back pain. The treatment can be considered to have positive effects on sequelae in the musculoskeletal system of torture survivors as they age.

Key words: Chronic low back pain, Complex manual therapy, Torture survivor

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INTRODUCTION

Examinations of torture victims, even years after torture, have found a high incidence of mental and physical symptoms. The physical symptoms are mainly associated with the musculoskeletal system, but symptoms in vital organs are also common^{1, 2)}. However, the occurrence of positive physical findings suggesting an organic cause for these symptoms are reported to be low, and therefore torture victims' symptoms are often classified as psychosomatic^{3, 4)}. Throughout the years, several chronic muscular pain syndromes have been described. Regional or diffuse pain in the musculoskeletal system is often associated with poor sleep, tiredness, paraesthesiae, headache, and irritable symptoms of the gut and bladder⁵⁻⁷⁾. The etiology and pathogenesis of the chronic muscular pain syndromes are not fully known, but today there is general agreement that changes in spinal and supra-spinal pain modulating mechanisms are of central importance^{8, 9)}. Musculoskeletal sequelae of torture

often show the same clinical picture as that seen in chronic muscular pain syndromes. Several studies of torture victims agree that physical complaints are common even many years after torture. Complaints of pain with relation to the musculoskeletal system dominate, but neurological symptoms and complaints from various organ systems are also common.

In 1993, the Rehabilitation and Research Centre for Torture Victims (RCT) in Copenhagen, Denmark, reviewed 51 torture victims who were examined on average 8.5 years after being tortured. The results were as follows: 92% complained of pain related to the musculo-skeletal system (65% in the head and neck, 30% in the back, 8% in the upper extremities, 41% in the lower extremities, 12% in more than one region), 37% had neurological complaints, 18% complaints of the heart and lung, 30% complaints of the stomach and intestines, and 18% complaints of the urinary tract and genitals (unpublished data). These findings are in agreement with a Swedish study of 200 torture victims, of whom 62% had muscle pain, 28% joint pain, 19% neurological complaints (disturbances of sensation, radiating pain), 32% complaints of the stomach and gut, 27% symptoms of the urinary tract and genitals, and 30% vegetative symptoms (shortness of breath, palpitations, profuse sweating)²⁾.

Thus, the clinical picture is one of localized or diffuse pain in the muscles, joint pain, and neurological complaints, mainly in the form of disturbances of sensation and radiating pain, as well as irritable symptoms of the organs, the same

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picture seen in chronic muscle pain syndromes. In the literature, the commonest objective findings are also related to the musculoskeletal system, typically as muscular tenderness as well as tenderness and restricted movements of the joints and spine. Under neurological examination disturbances of sensation dominate, whereas motor impairment such as decreased power and lack of reflexes is rarer^{1,3}). Apart from these findings, physical examination supplemented by other examinations, such as X-ray, ultrasound scanning, endoscopy, ECG, or EEG, rarely reveal abnormalities (unpublished data, RCT). This discrepancy between the many physical complaints and the few objective findings has led to classification of torture victims' symptoms as psychosomatic.

One group of torture survivors in Korea, injured during the May 18 democratic movement, reportedly showed 42% to have physical diseases, 30% physical and mental diseases, 18% mental diseases and 10% unknown diseases¹⁰. Given that most May 18 participants suffer from PTSD even 25 years after the incident, their sequelae have developed along with PTSD¹¹). Many studies of such survivors suggest that physical symptoms are predominantly pain occurring in the musculoskeletal system, which appears several years after torture¹²). Various studies have been carried out of physiotherapy for torture survivors by rehabilitation centers all over the world; however, little has been done in Korea. Thus the purpose of this study was examine the effect on PTSD, pain and lumbar function when manual therapy is performed for torture survivors with chronic lower back pain.

SUBJECTS AND METHODS

The study was performed using a pre/post-test control group design. At the T center located in G city, 30 subjects who met the selection criteria and exclusion criteria for low back pain among male torture survivor subjects (n=30) were selected. By means of a coin toss, they were divided randomly into a complex manual therapy group (experimental group=15) and a self-exercise group (control group=15). This study was approved by the psychological T center, and all the participants provided their written informed consent.

In the experimental group, the average age was 59.2±6.6 years, the average height was 169.6±6.5 cm, and the average weight was 64.8±8.8 kg. In the control group, the average age was 62.6±6.6 years, the average height was 167.7±5.8 cm, and the average weight was 67.3±8.9 kg.

For the experimental group, complex manual therapy was performed twice a week for 8 weeks to improve sequelae in the musculoskeletal system caused by torture. In one session, Myo-Facial Release (MFR) was carried out for half an hour, to release muscle tension by gently pulling up and down on the erector spinae muscles with the hands, with the client in a prone position. For another half an hour the Muscle Energy Technique (MET) was performed, to release tension in the hamstring and gluteus maximus with the client's feet on the therapist's shoulders, and the subjects exercised by pushing down on the shoulders with the feet. Subsequently, the following exercises were carried out for an hour to mitigate hypertension and pain in the digitorum longus of the lower back: pelvic posterior tilt exercise; upper abdominal exercises; lumbar stabilization exercise extension

exercise for muscle strength by bridge exercise with sling, and self-exercise¹³).

The control group was educated in self-exercise for the back using manual therapy. During the education, verbal explanations, demonstrations by the therapist, and handouts were provided. Both groups were checked for their adherence to the exercise schedule every week. Both groups carried out their exercises for 90 minutes a session 3 times per week. The total period of the intervention was 8 weeks.

In this study, subjects' lower back pain was evaluated using the scales used were PDS-K, Visual Analog Scale (VAS), Korean Oswestry Disability Index (KODI), and dynamic balance test. PDS-K is a brief but reliable self-report measure of PTSD which assesses PTSD and symptom severity in accordance with Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV). Since it contains six diagnostic criteria, it can be used as a diagnosis method and applied to those who experience various traumatic events^{14, 15}).

To identify the extent of pain over the body, VAS was used. The client marked their pain score directly on a scale ranging from 0 to 10. Score 0 implies 'no pain' and score 10 implies 'unbearable pain'¹⁶). KODI was used to assess functional disability caused by lower back pain. The index has nine items which are scored from 0 to 5 (pain level, personal hygiene, lifting objects, gait, sitting, standing, sleeping, social activity, and traveling and moving). A higher score indicates higher functional disability¹⁷). Dynamic balance was measured using a Balance System SD (Biodex Inc, USA). The measurement device is composed of a round mat with a motion-detecting sensor, a monitor on which targets are displayed, and a computer and printer.

For Window™ SPSS 18.0 was used for the statistical analysis. The paired t-test was used for before and after comparison, and independent t-test was used for between group comparison with a significance level of $\alpha=0.05$.

RESULTS

Changes were compared over time in back pain, function and balance between the two groups. In the PDS-K examination, the control group did not show difference between before and after the intervention, while the experimental group showed a significant reduction in score compared to the control group ($p<0.001$) (Table 1).

In the pain examination, the control group did not show difference between before and after the intervention, whereas the experimental group showed a significant reduction in pain compared to the control group ($p<0.001$) (Table 1). For the KODI, the control group did not show difference before and after, whereas the experimental group showed significant differences in pain and disabilities in routine life such as sitting, standing, and sleeping ($p<0.001$) (Table 1). In the balance test, the control group did not show difference between before and after the intervention, whereas the experimental group showed significant improvement in balance ($p<0.001$) (Table 1). In the comparison of the groups, a significant differences were found for PDS-K, pain score, KODI, and balance test ($p<0.001$) (Table 1).

Table 1. Intergroup comparisons of PDS-K, VAS, KODI, and the dynamic balance test

	Period	Experimental group (n=15) ^a	Control group (n=15) ^b
		M±SD	M±SD
PDS-K (score)	Pre	36.1±6.9	33.3±5.8
	Post	22.4±6.9	31.5±7.1
VAS (score)	Pre	61.45±5.5	57.6±6.6
	Post	52.8±7.1**††	57.6±7.3
KODI (score)	Pre	76.5±13.8	69.0±14.1
	Post	59.5±5.5**††	69.5±11.2
Dynamic balance test (sec)	Pre	4.2±0.7	6.8±0.5
	Post	4.2±0.7*†	4.2±0.7

^a: complex manual therapy group, ^b: self-back exercise group

: paired t-test, †: independent sample t-test, †: p<0.01, ††: **, p<0.001

DISCUSSION

Examinations of torture victims, even years after torture, have revealed a high incidences of mental and physical symptoms. Physical symptoms are mainly associated with the musculoskeletal system, but symptoms of the vital organs are also common¹⁸).

The sequelae in the musculoskeletal system caused by torture depend on the torture method, and some torture survivors have shown peripheral polyneuropathy and neuropathic pain symptoms¹⁰). Although these symptoms are not necessarily considered a mental problem, they are sometimes not pain signals from peripheral tissues and organs, but rather nerve system pain. Except for nociceptive pain, neuropathic pain elements which are related to acute or chronic inflammation caused by musculoskeletal lesions are taken into account when examining torture survivors¹²).

Physiotherapists have carried out continuous dialogue about torture experiences and pain with clients who have experienced torture. The information that clients share is of use to observe their pain patterns, and can be utilized in the treatment process¹⁹).

Among the sequelae after torture, pain extending to the musculoskeletal system is related to lack of sleep, fatigue, paresthesia, headache, and sensitive responses in the internal organs and the urinary bladder. Chronic muscle pain can also be seen. The sequelae in the musculoskeletal system caused by torture show similar clinical patterns to the symptoms of common chronic muscle pain syndrome²).

In this study, complex manual therapy carried out for torture survivors, decreased PTSD symptoms after the intervention according to the PDS-K score, and the KODI score for disabilities also decreased. This indicates there was mitigation of lower back pain, leading to complementary and positive effects on both constructive and functional elements of the lower back. In the present study, complex manual therapy led to significantly lower PDS-K scores in the experimental group than in the control group. This indicates that a variety of manual therapies are effective, even in cases of post-traumatic stress disorder and psychological factors.

Although these results are those of a single case study, they suggest areas for future study²⁰).

VAS results after complex manual therapy were significantly lower in the experimental group than in the control group. This indicates that complex manual therapy is effective at reducing the low back pain of survivors of torture and is consistent with the previously cited study²⁰). Torture survivors believe that manual therapy is more effective, together with physical therapy, to manage their back pain. The KODI scores after complex manual therapy were significantly lower in the experimental group than in the control group. The stabilization exercise for the body, using a sling, after the MFR and MET techniques in complex manual therapy, improved the function of the right lumbar region, and was found useful by participants. Finally, dynamic balance ability improved after the intervention, indicating that the performance of complex manual therapy for torture survivors as they age is an effective approach for preventing falls by senior survivors of torture.

Traditional physical therapy performed in hospitals to treat the lower back pain of torture survivors has spatial limitations. The complex schedule of back pain treatment performed for torture survivors in this study appears to be useful for reducing chronic lower back pain and improving function in long-term sequelae of torture. Currently, the average age of torture survivors in Korea is gradually increasing. A fall prevention program administering complex manual therapy offers a new physical therapy intervention for torture survivors.

This study was limited in that it is difficult to generalize partial research findings. Therefore, it will be necessary to conduct research with greater numbers of participants with various symptoms. This study did not distinguish between the individual effects of the treatment techniques involved in the complex manual therapy. Also, the pain assessment had limitations, because it which did not vary according to the characteristics of the sequelae of torture survivors. The concept that torture survivors are chronic pain patients, combined with existing knowledge of the treatment of chronic pain patients in general, further underlines the need for the availability of such treatment. In the light of the global extent of such problems there is also a need for the development of differentiated forms of treatment, adaptable to differences in treatment traditions and the capacity of resources in different countries.

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