Preliminary Report

Effectiveness Comparison between Thai Traditional Massage and Chinese Acupuncture for Myofascial Back Pain in Thai Military Personnel: A Preliminary Report

Wipoo Kumnerddee MD*

** Department of Physical Medicine and Rehabilitation, Phramongkutklao College of Medicine, Bangkok, Thailand*

The objective of this randomized comparative study was to provide preliminary data of comparative effectiveness of Thai traditional massage (TTM) and Chinese acupuncture for the treatment of myofascial back pain in young military personnel. Eighteen Thai military personnel, aged ranging from 20-40 years were randomly divided into TTM and acupuncture groups. Each group received 5 sessions of massage or acupuncture during a 10-day period. The Thai version McGill pain Questionnaire, 100-mm, visual analog scale (VAS) and summation of pain threshold in each trigger point measured by pressure algometer were assessed at day 0, 3, 8 and 10. At the end of treatment protocols, McGill scores decreased significantly in TTM and acupuncture groups (p = 0.024 and 0.002, respectively). VAS also decreased significantly (p = 0.029 and 0.003, respectively). However, the pain pressure threshold increased significantly in the acupuncture group but not in the TTM group (p = 0.006 and 0.08, respectively). When outcomes were compared between the two groups, no significant difference was found in the VAS (p = 0.115) and pain pressure threshold (p = 0.116), whereas the acupuncture group showed significantly lower McGill scores than the TTM group (p = 0.039).
In conclusion, five sessions of Thai traditional massage and Chinese acupuncture were effective for the treatment of myofascial back pain in young Thai military personnel. Significant effects in both groups begin after the first session. Acupuncture is more effective than Thai traditional massage when affective aspect is also evaluated.

Keywords: *Thai massage, Acupuncture, Myofascial pain, Back pain*

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Myofascial pain syndrome is one of the most common causes of back pain in both Caucasians and the Thai population[1,2]. Although its pathophysiology is still unclear, the association with wrong or prolonged posture is widely accepted[2]. In addition, it can be the secondary effect of either musculoskeletal or internal organ disorders such as spondylosis, muscle strain or kidney diseases etc[2]. The characteristics of myofacial pain syndrome consist of different types of referred pain, ranging from dull aching or sharp pain to numbness-like sensation, which is always triggered by stimulation of the painful intramuscular nodule "the trigger point".

Correspondence to: Kumnerddee W, Department of Physical Medicine and Rehabilitation, Phramongkutklao College of Medicine, 315 Ratchawithi Rd, Ratchathewi, Bangok 10400, Thailand. Phone: 0-2354-7660 ext. 93643

Regarding treatment, massage and acupuncture seem to be two of the most popular alternative choices in the management of musculosketetal pain[3,4]. Previous studies have reported the pain alleviating effect of massage and acupuncture in musculoskeletal problems[3,5-10]. Thai traditional massage (TTM) is considered a form of deep massage, which manipulates not only the local tissue involved, but also distant points producing reflexogenic effects, resulting in muscle relaxation, trigger point disruption and endorphin release[11,12]. TTM can be divided into the "Chaleoysak" and the "Rachasamnak" style. While The Chaleoysak style allowed utilization of hands, elbows, knees and feet, the more gentle Rachasamnak style allows only hands and fingers[13,14]. Although TTM is widely practiced in Thailand and in many countries worldwide, there are very limited studies supporting

its efficacy[15]. There are only two published clinical comparative studies of TTM[16,17]. Neither of them compared efficacy of TTM and acupuncture.

Acupuncture is one of the most widely practiced alternative medicines. There is a great amount of scientific evidence supporting its efficacy in different conditions, especially in various kinds of pain syndrome including low back pain. The principle of acupuncture is to rebalance the body's vital energy, which is called "qi", but in terms of modern medicine, there are studies demonstrating acupuncture - induced physiologic effects such as changes of neuronal activity, neurotransmitters, especially endorphins and serotonin, as well as changes in blood circulation in skin and muscles[18-20]. Although acupuncture is undoubtedly effective in the treatment of musculoskeletal pain syndrome, its superiority over other alternative interventions is still doubtful[9].The aim of the present study was to provide a preliminary report comparing the pain alleviating effects of TTM and Chinese acupuncture in the treatment of myofascial back pain in young military personnel.

Material and Method

The present study was approved by the Institutional Review Board, The Royal Thai Army Medical Department. The on-service male military personnel from the 4th Battalion, 1st Regiment, King-own Bodyguard were enrolled in the present study. The aim, including procedures of the massage and acupuncture was explained and also demonstrated to all volunteers.

Thai male military personnel, aged 20-40 years old, with the history of posture-induced low back pain, plus the tender spot producing the referred pain down to the hip or leg, were recruited into the present study. Individuals with the history of acute back injury within 3 months, previous history of back surgery, disc herniation, spine fracture, spine infection, spondy loarthropathy, presence of coagulation disorder, skin infection over the area of the selected acupoints, neurodeficit or spinal deformity were excluded from the present study. There were 7 days of wash-out period for subjects who had taken analgesics or anti-inflammatory drugs. Informed consent was obtained from each subject before they were randomly divided into two groups (simple randomization). Subjects in group 1 received Thai massage while group 2 received acupuncture. The characteristics of subjects in both groups are demonstrated in Table 1. Volunteers excluded from the present study were treated with standard treatment and/or acupuncture.

Study interventions

Five sessions of massage and five of acupuncture were undertaken every two to three days over a ten-day period.

Thai massage

The therapists used "Rachasamnak" style massage. One hour of treatment consisted of legs and back massage starting from the feet to the level of the 7th vertebra, including 40 seconds of femoral artery compression maneuver, so-called "open the wind gate". Four certified experienced TTM therapists from the Institute of Thai Traditional Medicine performed Thai massage. All therapists had already passed 800 hours of a massage training program conducted by the Ministry of Public Health.

Acupuncture

Seven standard acupoints were chosen, according to the agreement of the Chinese National Committee of Traditional Chinese Medicine[21] , plus myofascial trigger points, which is according to Chinese medicine, called the "a shi" points. All these points are located in the back, hips, calves and soft tissue posterior to the lateral maleolus. The acupuncturist was a physiatrist who passed a two-year training program from Beijing University of Traditional Chinese Medicine.

Outcome measurement

Blind measurements were collected at baseline, before day 3, day 8 and at the end of the treatment by a family medicine physician. Back pain symptom was measured by Thai version short-form McGill pain questionnaire[22,23], which were divided into three parts. The first part was pain descriptors, consisting of 15 items of sensory and affective symptoms, each on a scale of 0-3. The second part was the scale 0-5 of Present Pain Intensity (PPI), and the third part was 100 mm visual analog scale (VAS). The pain threshold in each trigger point was measured by a pressure algometer. The minimal pressure required to produce pain at each point was summarized and recorded in kilogram (kg).

Statistical analysis

Descriptive statistics for each relevant variable at baseline were determined to justify parametric methods and presented as the mean and standard deviation. Paired *t-test* was used to examine the change in scores from baseline to follow-up evaluations.

Table 1. Demographic and baseline characteristics

Parameters	Thai massage (n = 8) (mean ± SD)	Acupuncture (n = 9) (Mean ± SD)	p-value	95% CI
Age (year)	26.25 ± 6.84	29.00 ± 6.84	0.42	-0.43, 9.83
Onset (week)	12.78 ± 22.71	14.81 ± 22.73	0.86	-21.49, 25.55
McGill scores	6.13 ± 8.94	15.78 ± 8.41	0.93	-9.314, 8.620
VAS (mm)	4.56 ± 1.37	4.19 ± 2.70	0.73	-2.63, 1.88
Pain threshold (kg)	9.08 ± 5.83	9.69 ± 5.16	0.82	-5.06, 6.23

VAS = visual analog scale

Table 2. Pain scores and pain threshold changes at the end of treatment in each groups

Measurement	Outcome data (mean ± SD)		p-value	95% CI
	At baseline	At day 10		
Acupuncture				
McGill score	15.78 ± 8.41	2.11 ± 2.21	0.002	6.91, 20.42
VAS	4.19 ± 2.70	0.45 ± 0.71	0.003	1.73, 5.74
Pain threshold	9.69 ± 5.16	19.74 ± 12.46	0.006	-16.21, -3.90
Massage				
McGill score	16.13 ± 8.94	10.25 ± 11.02	0.02	1.01, 10.74
VAS	4.56 ± 1.37	2.15 ± 2.61	0.03	0.32, 4.50
Pain threshold	9.08 ± 5.83	12.46 ± 7.04	0.08	-7.33, 0.53

VAS = visual analog scale

Unpaired t-test was used to compare all parametric scores between the massage and acupuncture groups at each evaluation time point. The data were analyzed using SPSS software (version 13.0; SPSS Inc, Chicago, USA).

Results

Twenty-six volunteers who had pain syndrome were examined. Eight were excluded. Among these, two had myofascial pain of the upper back and shoulder, the others suffered from acute injury or other causes of musculoskeletal pain. Eighteen subjects who were enrolled in the present study were randomly divided between the massage and acupuncture groups. One subject in the massage group dropped out because of post-massage soreness. There was no significant difference in age, onset and all parametric scores between the two groups at the beginning of the treatment.

At day 10, subjects in the acupuncture group showed significant improvement in all parameters compared to the baseline. A significant reduction in McGill scores and VAS started at day 3 assessment ($p < 0.001$ and $p = 0.034$, respectively) the pain threshold increased significantly at day 8 assessment ($p = 0.01$). In the massage group, a significant improvement was found only in the McGill score and VAS, whereas the pressure pain threshold did not show a significant increase. A significant reduction in McGill scores and VAS began at day 3 assessment ($p = 0.005$ and 0.033, respectively), as shown in Table 2.

Each parameter between the two groups was compared at each time point. There was a trend towards increased pain reduction in the acupuncture group throughout the trial, however, only pain reduction measured by McGill pain questionnaire at day 10 showed significant difference (95% confidence interval -17.39 to1.11, $p < 0.05$), as shown in Table 3, Fig. 1-3.

Discussion

Normal distribution of the statistical data at the baseline in the present study, despite a small sample size, may be due to highly selective inclusion and exclusion criteria. In addition, all of them were in the same environment and having the same daily physical

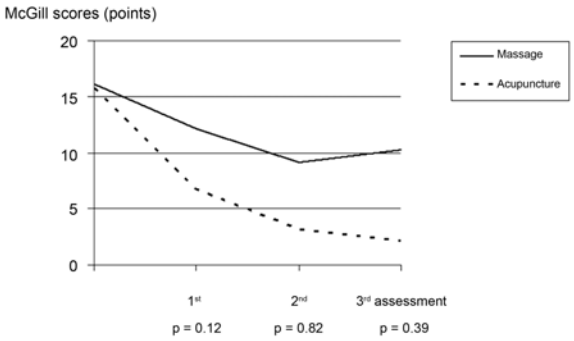

Fig. 1 Compare McGill pain scores reduction between two groups

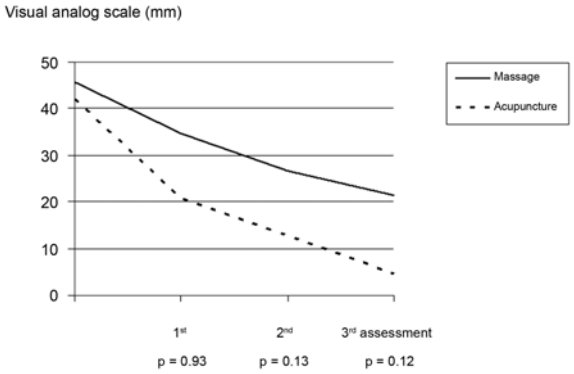

Fig. 2 Compare visual analog scale reduction between two groups

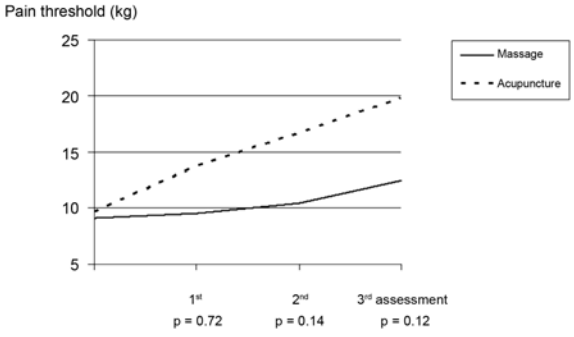

Fig. 3 Compare pain threshold increase between two groups

activities. Therefore, variables among young military personnel were probably less than other populations.

The results of the present study suggested that a short course of Thai massage and acupuncture could be used as the effective interventions for myofascial back pain without additional medication. All parameters, except pain pressure threshold in the massage group, showed significant improvement compared to those from the baseline evaluation. Significant reduction of McGill scores and VAS was found within three days after the first session in both groups. Mean McGill pain scores decreased 87% and 36% in the acupuncture and massage groups, respectively. The mean visual analog scale decreased 36.6 and 24.1 mm as well, in the acupuncture and massage groups, respectively. Pressure pain threshold in the massage group also improved but was not significantly different compared to that of the baseline.

In previous controlled studies, the superiority of acupuncture over no treatment, sham treatment and physiotherapy for treatment of musculoskeletal pain was reported[9,24-29]. Similarly, the same results, except for a comparison with sham treatment, were also demonstrated in massage therapy[7,30-33]. Different styles of massage were previously compared and the higher efficacy of Chinese acupressure over general massage was reported[32]. However, Thai and Swedish massage gave similar results in one randomized clinical trial[16].

In a well-designed clinical trial, the effectiveness of acupuncture was compared with Western style massage in the treatment of chronic back pain, and the outcome in the massage group was more preferable[30]. Different outcomes were found in this present study, which may be due to a younger population. In addition, only myofascial back pain patients were selected. Needle puncture was widely accepted as a very effective intervention in this circumstance. Therefore, the results of the present study in the acupuncture group were not so surprising. On the other hand, TTM, which has been less investigated previously, also showed a significant benefit in this short-period treatment. The present study also provided a guideline for prescription of TTM in the treatment of myofascial back pain in young patients. The pain threshold, measured by a pressure algometer, is considered an objective evaluation of myofascial trigger points. The results of the present study did not show a significant difference in the pain threshold between both groups at day 10, while pain scores measured by McGill pain questionnaire, which is accepted as a valid multi-dimensional subjective pain evaluation[22,23], showed significantly better scores in the acupuncture group. These incongruent results may be due to the interference of post-treatment soreness, which can be considered as a side effect of TTM. In the present study, it was so unbearable for one patient that he asked to be withdrawn

Table 3. Outcome comparison between groups at each time point assessment

Measurements	Day of assessment	Massage (mean ± SD)	Acupuncture (mean ± SD)	p-value	95% CI
McGill scores	3	12.13 ± 7.72	6.67 ± 5.79	0.12	-12.46, 1.54
	8	9.13 ± 7.45	3.11 ± 2.71	0.82	-11.67, -0.36
	10	10.25 ± 11.02	10.25 ± 11.02	0.039	-17.39, 1.11
Visual analog scale (mm)	3	3.46 ± 1.98	2.08 ± 1.65	0.94	-3.26, 0.49
	8	2.66 ± 1.71	1.28 ± 1.69	0.13	-3.15, 0.38
	10	2.15 ± 2.61	0.46 ± 0.71	0.12	-3.90, 0.51
Pain threshold (Kg)	3	9.54 ± 5.05	13.71 ± 10.28	0.72	-4.38, 12.73
	8	10.41 ± 5.75	16.61 ± 9.41	0.14	-1.99, 14.39
	10	12.48 ± 7.04	9.74 ± 12.46	0.12	-3.39, 7.93

from the trial. This should be listed as a precaution when prescribing the Thai massage. The application of superficial heat and/or topical analgesics should be considered after Thai massage to avoid this adverse effect.

Conclusion

Five sessions of Thai traditional massage and acupuncture were effective in the treatment of myofascial back pain in young Thai military personnel. Significant effects in both groups began after the first session. Acupuncture was more effective than Thai traditional massage when affective aspects were also evaluated.

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การศึกษานำร่องเพื่อเปรียบเทียบประสิทธิภาพในการรักษาโรคปวดหลังเนื่องจากพังผืดกล้ามเนื้อในทหารไทยด้วยวิธีฝังเข็มแบบจีน และนวดแผนไทย

วิภู กำเหนิดดี

การศึกษานี้มีวัตถุประสงค์เพื่อหาข้อมูลนำร่องในการเปรียบเทียบประสิทธิภาพในการรักษาโรคปวดหลังเนื่องจากพังผืดกล้ามเนื้อในทหารไทยอายุต่ำกว่า 40 ปี โดยให้การรักษาในระยะสั้นด้วยวิธีฝังเข็มและนวดแผนไทย กลุ่มตัวอย่าง ทหารไทยเพศชายอายุ 20-40 ปี จำนวน 18 คน ได้รับการสุ่มตัวอย่างเพื่อแยกเป็นกลุ่มที่รับการรักษาด้วยการนวดแผนไทย และด้วยการฝังเข็ม กลุ่มละ 9 คน ทำการฝังเข็มหรือนวดแผนไทยทั้งหมด 5 ครั้ง ภายในระยะเวลา10วัน ผู้ป่วยทุกคนได้รับการประเมินทั้งหมด 4 ครั้ง ได้แก่ก่อนเริ่มรักษา และในวันที่ 3, 8 และ 10 ด้วยแบบประเมินความเจ็บปวด McGill ฉบับภาษาไทย, มาตรวัดความเจ็บปวด100มิลลิเมตร และเครื่องมือวัดความไวต่อแรงกดชนิดสปริง ผลการศึกษาพบว่าเมื่อสิ้นสุดการรักษา คะแนน McGillลดลงอย่างมีนัยสำคัญทางสถิติ ทั้งในกลุ่มฝังเข็มและนวดแผนไทย (p = 0.002 และ 0.024 ตามลำดับ) คะแนนมาตรวัดความเจ็บปวดลดลงอย่างมีนัยสำคัญทางสถิติ (p = 0.003 และ 0.029 ตามลำดับ) แต่ความไวต่อแรงกดเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติเฉพาะในกลุ่มฝังเข็ม (p = 0.006 และ 0.08 ตามลำดับ) เมื่อทำการเปรียบเทียบระหว่างสองกลุ่มพบว่า คะแนนมาตรวัดความปวด และความไวต่อแรงกด ไม่มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ (p = 0.115 และ 0.116 ตามลำดับ) ขณะที่คะแนน McGill ในกลุ่มฝังเข็มต่ำกว่ากลุ่มนวดแผนไทยอย่างมีนัยสำคัญทางสถิติ (p = 0.039) มีผู้ป่วยในกลุ่มนวดแผนไทยหนึ่งรายขอถอนตัวจากการศึกษาเนื่องจากระบมหลังการนวด

***สรุป**: การนวดแผนไทยและการฝังเข็ม 5 ครั้งต่างก็มีประสิทธิภาพในการลดอาการปวดหลังเนื่องจากพังผืดกล้ามเนื้อในทหารไทยอายุต่ำกว่า 40 ปี, ทั้งสองวิธีให้ผลลดอาการปวดเห็นชัดเจนตั้งแต่หลังการรักษาครั้งแรก, การฝังเข็มลดอาการปวดได้มากกว่าการนวดแผนไทยในวันที่ 10 เมื่อประเมินมิติด้านอารมณ์ร่วมด้วย*