

BRIEF REPORT

Use of a Mechanical Massage Technique in the Treatment of Fibromyalgia: A Preliminary Study

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ABSTRACT. Gordon C, Emiliozzi C, Zartarian M. Use of a mechanical massage technique in the treatment of fibromyalgia: a preliminary study. *Arch Phys Med Rehabil* 2006;87:145-7.

Objective: To investigate how a mechanical massage technique (LPG technique) could contribute to the treatment of fibromyalgia.

Design: Feasibility study.

Setting: A single center.

Participants: Ten women having a preexisting diagnosis of fibromyalgia based on American College of Rheumatology criteria were enrolled.

Intervention: Subjects received a total of 15 sessions of mechanical massage administered by a physical therapist once a week.

Main Outcome Measures: The Fibromyalgia Impact Questionnaire and a physical examination scoring tender points (number, pain intensity). Evaluations were conducted at the screening visit, after 7 sessions (V7), and after completion of 15 sessions (V15).

Results: Most of the parameters (pain intensity, physical function, number of tender points) showed a significant improvement at V15 compared with screening.

Conclusions: The findings suggest the possibility that the studied intervention might be associated with positive outcomes in women with fibromyalgia, and support the need for a controlled clinical trial to determine its efficacy.

Key Words: Connective tissue; Fibromyalgia; Physiotherapy; Questionnaires; Rehabilitation.

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FIBROMYALGIA IS AN ENIGMATIC syndrome characterized by chronic, widespread pain along with tender points, fatigue, sleep disturbances, abnormal stress response, and tension headaches. One of the most difficult aspects of fibromyalgia is the lack of radiologic, biologic, or genetic signs. Clinical criteria for diagnosis of fibromyalgia have been

developed by the American College of Rheumatology (ACR).¹ Although the pathophysiologic mechanisms of fibromyalgia are not clear, treatments of fibromyalgia must target disease consequences and also break the vicious circle of pain, anxiety, sleep disturbances, and muscular exhaustion. Multidisciplinary treatments combining different approaches, including drug therapy, acupuncture, and connective tissue massage,²⁻⁵ may have the best overall effectiveness.

The LPG technique is an original noninvasive technique, consisting of a delicate and reproducible mechanical massage³ with claims such as relief of minor muscle aches and pains, relaxation of muscle spasms, relief of delayed-onset muscle soreness, and increase in blood flow.⁶ A single-center feasibility study was carried out to investigate whether this mechanical massage technique could be helpful in treating fibromyalgia.

METHODS

Population and Treatment

At inclusion, eligibility criteria required, according to ACR, a minimum of 11 positive trigger points out of 18 areas and a normal thyroid-stimulating hormone level (bloodwork, <12mo). Ten female patients were enrolled, with an average age of 46.8±9.5 years (range, 28–62y) and a mean weight of 69.1±15.6kg (range, 49.9–104.3kg). The mean duration of fibromyalgia from the time of initial diagnosis was 8.11±3.2 years (range, 3–13y). Patients taking medication were not excluded from the study, and participants recorded their use of medication over the course of treatment.

Each patient signed an informed consent form and received a total of 15 sessions of mechanical massage once a week (35min/session). The mechanical massage technique consisted of a deep tissue mobilization provided by a medical device (Cellu M6).³ This device is composed of a treatment chamber in which an aspiration system draws a skinfold between 2 motorized rollers that roll and unroll this fold.⁶ The treatment was administered on the full body with particular focus on the tender point areas.

Evaluations

The principal outcome measure was the Fibromyalgia Impact Questionnaire (FIQ), a validated disease-specific instrument.⁷ The first 10 FIQ items are scored to create the physical functioning score (PFS) and focus primarily on the patient's ability to perform activities of daily living, such as walking and driving, and are scored from 0 (always able) to 3 (never able to do). The next 2 FIQ items ask the patient to circle the number of days in the past week when they felt good and the number of days where they missed work. The last 7 items—ability to do job (work difficulty), pain, fatigue, morning tiredness, stiffness, anxiety, and depression—are measured by 100-mm, anchored horizontal visual analog scales (VASs).

The second outcome was a physical examination performed by the investigator trained to evaluate fibromyalgia tender points. Each point was scored 0 to 4 (0, no pain; 1, mild; 2, moderate; 3, severe; 4, unbearable) and then summed to give a

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Table 1: Mean FIQ VAS Scores (0–10) From Screening to V7 and V15

Items (13–19)	Screening (N=10)	V7 (n=9)	P	V15 (n=9)	P
Pain	6.1±2.7	3.8±2.5	.036	3.1±1.8	.007
Work difficulty	5.2±2.8	3.8±2.6	.089	2.8±1.8	.013
Fatigue	7.5±2.3	5.4±2.4	.014	3.9±2.1	<.001
Morning tiredness	7.8±2.2	5.4±2.9	.029	4.2±2.1	.008
Stiffness	6.9±2.5	5.4±2.0	.057	3.7±2.1	.004
Anxiety	5.9±2.9	4.1±2.1	.144	2.7±1.7	.01
Depression	4.3±3.0	3.0±1.7	<.003	1.9±0.9	<.034

total tender pain score, which ranged from 0 to 72. The number of painful tender points was defined as the number of points with pain intensity greater than 0.

Both evaluations were performed at screening, midpoint of treatment (V7), and after completion of treatment (V15). At V15, patients were asked if the mechanical massage technique was helpful (no, not much, yes enough, a lot) and if they wanted to continue (evaluation of satisfaction).

Data Analysis

The statistical significance of the change in each parametric measure from baseline to 7 weeks and baseline to 15 weeks was examined using matched-pairs *t* tests. Change in medication use and satisfaction with treatment are described qualitatively.

RESULTS

Nine patients completed the 15 sessions; 1 patient dropped out after the fourth session due to poor compliance. The sample size for analyses was 10 at screening, 9 at V7, and 9 at V15.

Fibromyalgia Impact Questionnaire

The mean PFS was 1.0 ± 0.7 at screening, 0.7 ± 0.5 at V7, and improved significantly ($P < .009$) to 0.4 ± 0.4 at V15 (improvement from screening, 60%). The mean number of days when patients felt good during the past week (0–7) was 3.1 ± 2.3 at screening and increased significantly to 5.9 ± 0.9 at V15 ($P = .003$). The mean number of days patients missed work (0–7) was 0.9 ± 1.2 at screening, 0.2 ± 0.4 at V7 ($P = .089$), and 0.1 ± 0.3 at V15 ($P = .169$). The FIQ VAS showed significant improvement after 15 sessions of mechanical massage, by 50% for all items (table 1).

Physical Examination

The mean pain score was 26.7 ± 9.1 at screening; it reduced significantly to 14.8 ± 10.4 at V7 ($P < .001$) and reduced again significantly to 10.22 ± 8.6 at V15 ($P < .001$) (improvement from screening, 50% and 60%, respectively). The mean number of painful tender points was 15.5 ± 2.1 at screening, decreased significantly to 10.0 ± 5.0 at V7 ($P = .002$), and to 7.6 ± 6.3 at V15 ($P = .005$) (improvement from screening, 36% and 50%, respectively).

Acceptability

Exactly 88.9% of the patients considered the treatment as “very” or “enough” helpful and wanted to continue.

Medications

Recorded medications were only nonsteroidal anti-inflammatory drugs (NSAIDs) and amitriptyline. At V15, 2 of the 6 patients using NSAIDs daily had reduced to sporadic evening usage; no change was observed in the use of amitriptyline.

DISCUSSION

The primary outcome measure of this study was the FIQ, which is the only disability instrument designed and extensively validated for persons with fibromyalgia.⁸ All the parameters of FIQ, except for the number of days when patients missed work, significantly improved after 15 sessions of mechanical massage compared with screening; both the PFS and VAS changed in the range of 50%. In addition, the pain score and number of painful tender points decreased significantly from screening to V15 by 60% and 50%, respectively.

The literature on the effect of massage or behavioral-based therapy on fibromyalgia reports different fragmentary improvements with a lower magnitude.^{3,9,10} Massage is thought to affect outcome by both physiologic and psychologic mechanisms. Physiologic effects can be either mechanical or reflexive in nature.⁸

This pilot study had a number of significant methodologic weaknesses that should be kept in mind when interpreting the results. They include a small sample size (which can reduce the reliability of the findings), a lack of control for therapist attention, expectancy, and time effects (which can work to reduce pain report on their own), and a lack of control for the specific effects for the mechanical massage system used versus other massage strategies.

CONCLUSIONS

In this study, after 15 sessions of mechanical massage, we found a 50% improvement in the FIQ PFS, FIQ VAS, and pain scores. The findings suggest the possibility that the studied intervention might be associated with positive outcomes in women with fibromyalgia, and support the need for a controlled clinical trial on a larger population to determine its efficacy.

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Supplier

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