Clinical Case Report Competition

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Third Place Winner

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The effects of combined manual lymph drainage therapy and myofascial release therapy on the quality of life of a fibromyalgia sufferer

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ABSTRACT

Objective: To determine if a 10 treatment protocol of combined manual lymph drainage therapy (MLDT) and myofascial release therapy (MFR) can aid in improving the quality of life (QOL) of a patient with fibromyalgia (FM).

Methods: A 10 treatment protocol with the combination of MLDT and MFR was administered over the course of a month to the subject, a 54 year old female diagnosed with FM. Treatments were conducted on average every 3-4 days. The McGill Pain Questionnaire, the Revised Fibromyalgia Impact Questionnaire (FIQR), and 3 different Visual Analog Scales (VAS) were used to represent QOL. The VASs were used for intensity of pain, fatigue, and quality of sleep. Range of motion of the cervical spine, glenohumeral joints, and acetabulofemoral joints were taken with a goniometer.

Results: The McGill Pain Questionnaire, FIQR, and VASs for pain and fatigue all showed decreases in scores and intensities, respectively, while the VAS for sleep quality showed an increase in quality over the course of the study.

Conclusion: For this subject, the data shows that an increase was gained in the QOL with the 10 treatment combined therapy protocol.

Key Words: fibromyalgia, myofascial, manual lymph drainage, quality of life

INTRODUCTION

Fibromyalgia (FM) is a systemic condition characterized by generalized musculoskeletal pain, stiffness, fatigue, and tenderness at specific points with no obvious origin of the pain.[1, 2,3] Rattray defines it as, "… a painful non-articular rheumatic condition of a least three months' duration, characterized by widespread muscular achiness and specifically the palpation of tender points at 11 of 18 prescribed locations on the body."[1] There are different theories as to what causes the symptoms of FM. Abnormalities to the autonomic nervous system may explain some of the symptoms of FM.[2] Another possible etiological factor causing the FM symptoms is a threefold model, where biochemical, biomechanical, and psychosocial factors interact making an individual more prone to certain symptoms.[3] Castro-Sa´nchez states that "Central sensitization is well documented in fibromyalgia but its cause remains unclear. It occurs when persistent nociceptive input leads to increased excitability in the dorsal horn neurons of the spinal cord."[3] This central sensitization may be explained by the nociceptive input being caused by inflammation of the connective tissue of the body, fascia.[3] As it is not yet know what the actual cause of FM is, treatments are based around treating the symptoms, the most general being the associated pains of FM.[2]

Manual lymph drainage therapy (MLDT) is a specific, gentle, manual technique that encourages proper flow of the lymphatic system of the body.[2,4] MLDT has been proven effective in mobilising the extracellular fluid of the body and in helping decrease lymphedema.[4] MLDT has also shown to decrease pain in patient with fibromyalgia.[2,4] The reasoning for why MLDT is an effective treatment for FM cannot be fully explained as the causation of FM is not truly understood. Theories for why MLDT is effective in treatment of FM is by the decreasing of the

sympathetic nervous system firing, if central sensitization is the cause of FM, or by the clearing of inflammatory factors with the movement of extracellular fluid, if the inflammation of the fascia of the body is the cause of the FM pains.[3,4]

Myofascial release therapy (MRF) is the manual manipulation of the connective tissue of the body, fascia, with the goal being to alleviate the tension held within the fascia.[2,3] With the decrease of tension in the fascia, other systems, including the nervous system, may be affected in a positive manner.[2,3] Ekici states that "[MFR] leads to reduced tension in the autonomic nervous system with secondary increased circulation, giving a sense of warmth, muscle relaxation, pain relief, and increased mobility by inducing segmental and suprasegmental reflex."[2] MFR has shown to aid in the decrease of symptoms, including pain and fatigue, related with FM.[2,3] As with MLDT, the reasoning for MFR being an effective treatment cannot be explained due to the lack of knowledge about the true causation of FM. If the theories made previously hold true, the reasoning for MRF being an effective treatment of FM symptoms would be similar to that of MLDT.

Previous studies conducted have looked at the use of either MLDT or MFR, and comparing the two different therapies.[2,3,4] In this case study, MLDT and MFR have been combined in a 10 treatment protocol administered over the period of a month. The objective of this study is to show that the combination of manual lymph drainage therapy and myofascial release therapy will result in an increase in the quality of life in a patient diagnosed with fibromyalgia. For this study quality of life (QOL) is associated with pain, fatigue, restful sleep, and the ability to perform normal daily tasks without limitations.

CASE SUBJECT

The subject for this study was a 54 year old female homemaker, and retired chiropractor. Her normal daily activities include gardening, cooking, cleaning, and other typical household chores. Recreational activities of the subject include weightlifting twice per week, hiking, biking, and sailing. The health history of the subject is complex. Currently the subject's primary complaint, and what was focused on in this study, is fibromyalgia. The subject also has a lower than normal blood pressure, adrenal fatigue, as diagnosed by another health professional unrelated to this study, pain of the right acetabulofemoral joint, and chronic reoccurring temporomandibular joint issues. Surgically in chronological order from most recent the subject has had: Lumpectomy April 2009 from the right breast, followed by approximately 4-6 weeks of radiation therapy, Orbital Haemangioma removal in 2008, reconstruction of the middle ear in 1994, Cholesteatoma removal in 1978, and Tonsillectomy in 1966 (age 8). Current medications include Effexor (antidepressant)[5], Wellbutrin (antidepressant)[6], Lyrica (FM pain)[7], and Domperidone (aides in swallowing)[8]. On top of the medications, the subject also takes B12, Folic Acid, a multivitamin, and an adrenal supplement.

The subject stated that she first noticed the onset of the fibromyalgia symptoms 20 years ago, with them getting progressively worse over the years. The subject has been diagnosed with FM for a past 9 years. The subject stated that factors such as poor sleep, overwork, over exercising, stress, and rainy days worsen the symptoms of her FM. Currently she manages the symptoms with the use of the previously mentioned medications, and the use of alternative therapies such as chiropractic, massage therapy, naturopathy, and physiotherapy.

A chiropractor, a physiotherapist, and another massage therapist were seen prior to the start of the study, but were not seen during the course of the study. The use of the physiotherapist and massage therapist was for the acetabulofemoral issue on the right side that was causing pain. It was diagnosed as a possible labrum injury and is currently awaiting an MRI.

METHODS

The study was conducted over the course of a month, with treatments averaging every 3-4 days, with the last three treatments having a 5 and 2 day gap in-between respectively. Treatments were completed in the evenings, beginning between 1900-1930 hours, and lasted for 90 minutes. The treatments followed a set 10 day protocol, in which the body was divided into 10 areas and focus was given to the area of interest for that day.

Assessment methods chosen to be used for this study were done so in the hopes of producing the most objective data possible from subjective sources. The McGill Pain Questionnaire[9,10,11,12,13], the Revised Fibromyalgia Impact Questionnaire(FIQR)[14], and 3 Visual Analogue Scales(VAS)[15,16,17,18], which measured pain, fatigue, and sleep quality, were used to make subjective data points as objective as possible. The active range of motion (AROM) of the cervical spine (C-spine), glenohumeral (GH) joints, and acetabulofemoral (AF) joints were measured with the use of a goniometer[19,20].

The McGill pain questionnaire contains 20 questions that focus on the current presenting pain.[9] Each question has descriptive terms, with each term having a point association that is used for

grading its severity.[9] The maximum score that can be given is 78, which indicates the highest pain possible.[9]

The FIQR is broken into three subsections, with 21 questions total.[14] All questions are to be answered based over the past 7 days experiences with the effects of the FM symptoms, with each question being graded from 0 to 10.[14] The first subsection contains 9 questions which relate to difficulty of daily tasks preformed.[14] The second subsection is 2 questions based on the impact of the FM over the last 7 days.[14] The third subsection contains 10 questions which are based on the intensity of typical FM symptoms.[14] The scoring for the FIQR is tabulated by dividing the sum of subsection 1 by 3, taking the sum of subsection 2 as is, and dividing the sum of subsection 3 by 2.[14] The final FIQR value is the summation of the three adjusted subsections.[14]

The VAS is a basic scale, with a set length of 100mm.[16,18] The subject would mark off on the scale where she believed was the best representation of her current symptoms (whether pain, fatigue, of sleep quality).[16,18]

The AROM of the C-spine, GH joints, and AF joints was measured before the 1st treatment, and again after the 3rd, 6th, and 10th. The McGill Pain questionnaire and the FIQR were administered on the same treatment dates as the AROMs were measured. The VASs were daily and bi-daily measurements that the subject would record. The VAS measured the intensity of pain felt by the subject, the intensity of the feeling of fatigue, and the quality of the sleep from the night previous. The VAS for pain and fatigue were recorded bi-daily, once in the morning (AM) and once in the evening (PM). The VAS for sleep quality was recorded once daily, every morning

upon waking. The subject would write down the number of hours slept and mark down on the VAS on how rested they felt from the previous night's rest.

TREATMENT PROTOCOL

The treatments for this case study consisted of 10 treatments, each one with a combination of MFR and MLDT. Each treatment began with the MFR portion, and ended with the appropriate MLDT for the areas that were released previously with the MFR. The 10 treatment protocol was set up in a way that any therapist with basic levels of MFR and MLDT training could follow and complete the treatments in full. The MLDT was specifically that of the Dr. Vodder School International[21]. The MFR of muscles, bones and fascia in the protocol were released as listed, and was followed by the MLDT.

- Treatment 1: (treatment in supine position)
    - MFR: Platysma, skin rolling over masseter and platysma, sternocleidomastoid, scalenes, lateral tractions of trachea and esophagus
    - MLDT: Treatment of the neck, treatment of the face
- Treatment 2: (treatment in supine position)
    - MFR: Clavicle (superior, inferior, and lateral releases), sternum (including skin rolling), pectoralis major, pectoralis minor, mediastinum release
    - MLDT: Treatment of the neck, treatment of the chest
- Treatment 3: (treatment in supine position)
    - MFR: Arm pull, deltoids, biceps brachii, triceps brachii, common forearm flexor tendon, common forearm extensor tendon, traction of fingers and wrist
    - MLDT: Treatment of the neck, Treatment of the arms

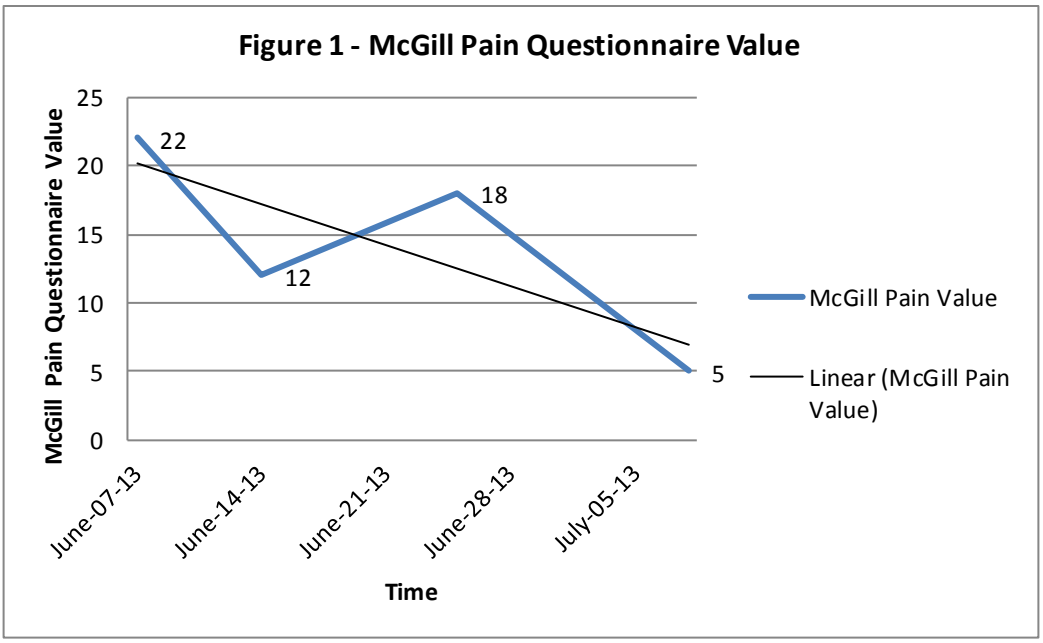
- Treatment 4: (treatment in supine position)
    - MFR: Rectus abdominus, external and internal abdominal obliques, iliopsoas
    - MLDT: Treatment of the neck, treatment of the abdomen
- Treatment 5: (treatment in supine position)
    - MFR: Tensor fasciae latae, iliotibial band, quadriceps groups, adductor magnus, tibialis anterior, traction of ankle
    - MLDT: Treatment of the neck, treatment of the legs
- Treatment 6: (treatment in prone position with exception of leg traction and MLD treatments which are supine in positioning)
    - MFR: Hamstrings, gastrocnemius and soleus, Achilles tendon, plantar fascia, leg traction
    - MLDT: Treatment of the neck, treatment of the legs
- Treatment 7: (treatment in prone position)
    - MFR: Gluteus maximus, Iliotibial band, gluteus medius and minimus, piriformis
    - MLDT: Treatment to the nape of the neck, treatment to the buttocks
- Treatment 8: (treatment in prone position)
    - MFR: Thoracolumbar fascia, lumbar portion of the erecter spinae muscles, quadratus lumborum, sacral decompression, lumbar spine decompression
    - MLDT: Treatment of the nape of the neck, treatment to the buttocks
- Treatment 9: (treatment in prone position)
    - MFR: Latissimus dorsi, scapular lifting, Infraspinatus, Subscapularis, thoracic portion of the erector spinae muscles, thoracic spine decompression

    - MLDT: Treatment of the nape of the nape of the neck, treatment of the back
- Treatment 10: (treatment in supine position)
    - MFR: Upper trapezius, cervical paraspinal muscles, cervical spine decompression, fascial hair pulling to release fascia of scalp
    - MLDT: Treatment of the neck, treatment of the face

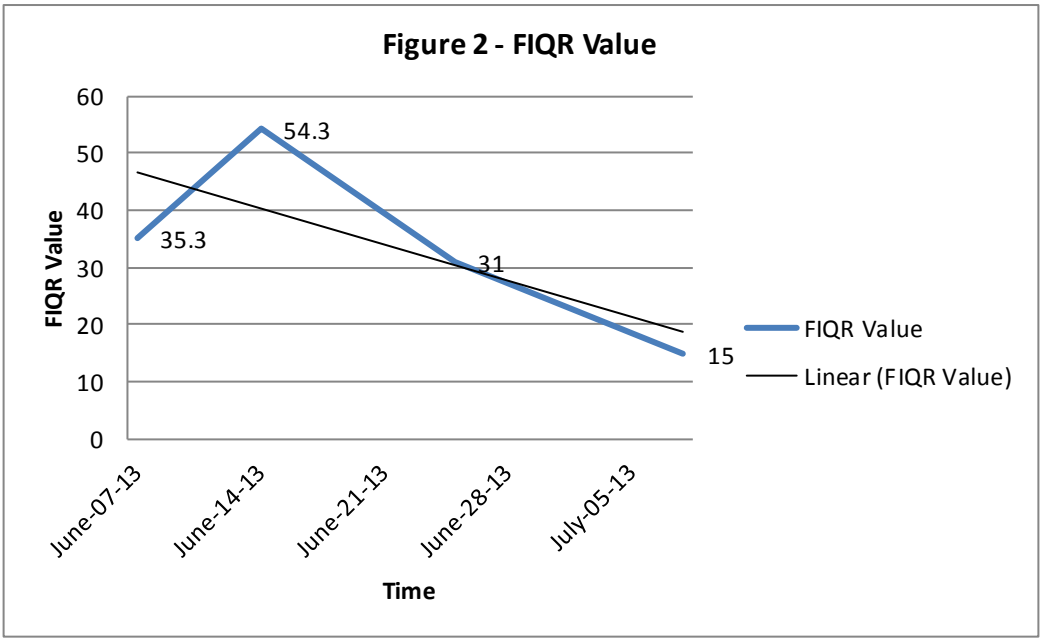
Adjustments for this subject had to be made. As mentioned in the case subject's health history, a lumpectomy and radiation therapy we completed in 2009. Both of these may have affected the lymphatic watershed lines and their drainage, and as such anything draining into those lines had to be adjusted for, so that basic therapists could still complete the protocol.[21] The specific adjustments made to the MLDT portion were treatments 2, 3, and 9 had to be adjusted to eliminate the treatment of the chest, arms, and back respectively and replaced by the face. No adjustments were made to home life, with the exception of increasing water consumption.

RESULTS

The McGill Pain Questionnaire was administered 4 times during the course of the study. The maximum pain score possible to achieve is 78. The subject's scores in chronological order (pre-treatment 1, and then again post-treatments 3, 6, and 10) were 22, 12, 18, and 5. Figure 1 is a graphical representation of the data, with a linear trend line applied.

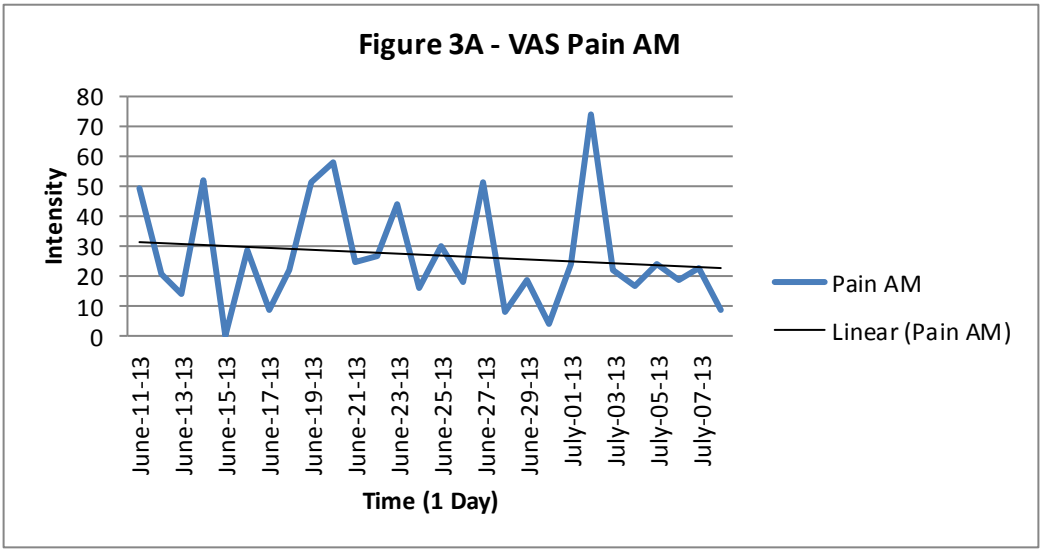


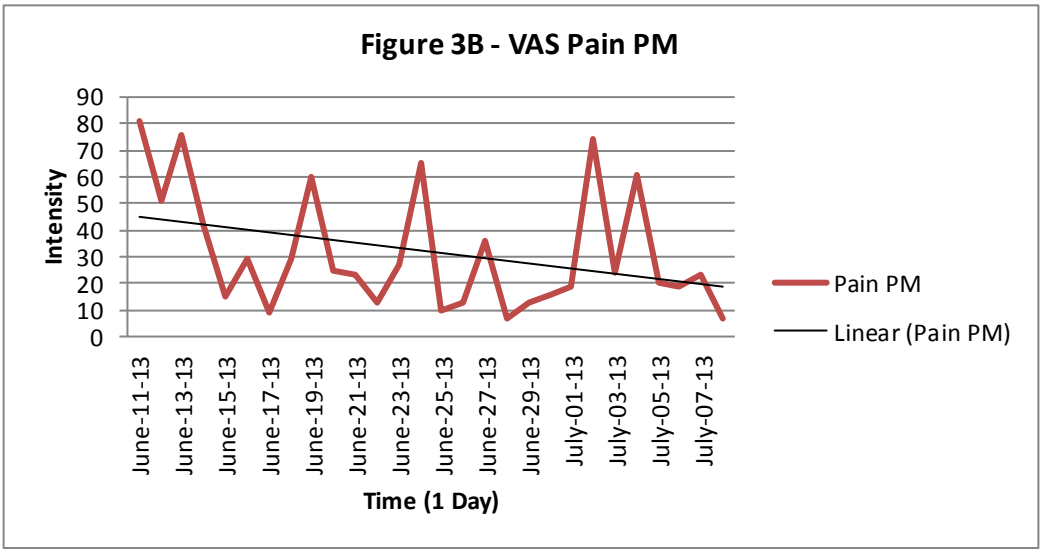
The Revised Fibromyalgia Impact Questionnaire was administered at the same time that the McGill Pain Questionnaire was given. The FIQR values were, 35.3, 54.3, 31, and 15, with a maximum value possible of 100. Figure 2 shows the data of the FIQR, along with a linear trend line.

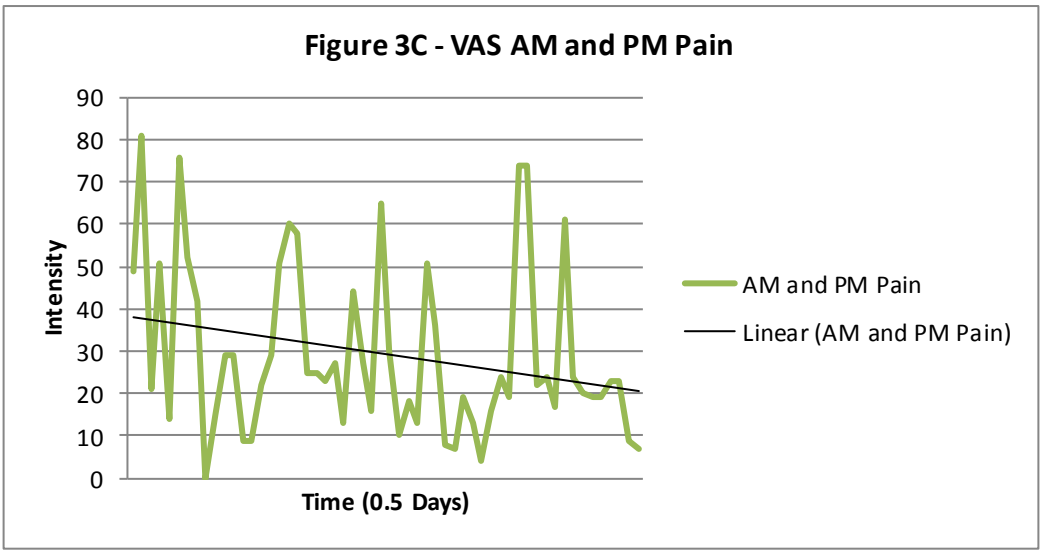


The Visual Analog Scales for Pain, Fatigue, and Sleep quality were started on the day of treatment 2, as the subject had forgotten to begin them earlier. The VASs were recorded bi-daily, for pain and fatigue, and daily, for sleep quality. The data was tabulated into the graphical representations which follow for ease of assessment.

Figure 3A shows the VAS for pain felt in the AM, while Figure 3B shows the VAS for PM pains. Figures 3A and 3B and plotted against day intervals. Figure 3C shows the combined data of AM and PM pain, plotted against half day intervals.







Figures 4A, 4B, and 4C are similar to those of the VAS for pain, but are the representations of the data collected for the VAS of fatigue.

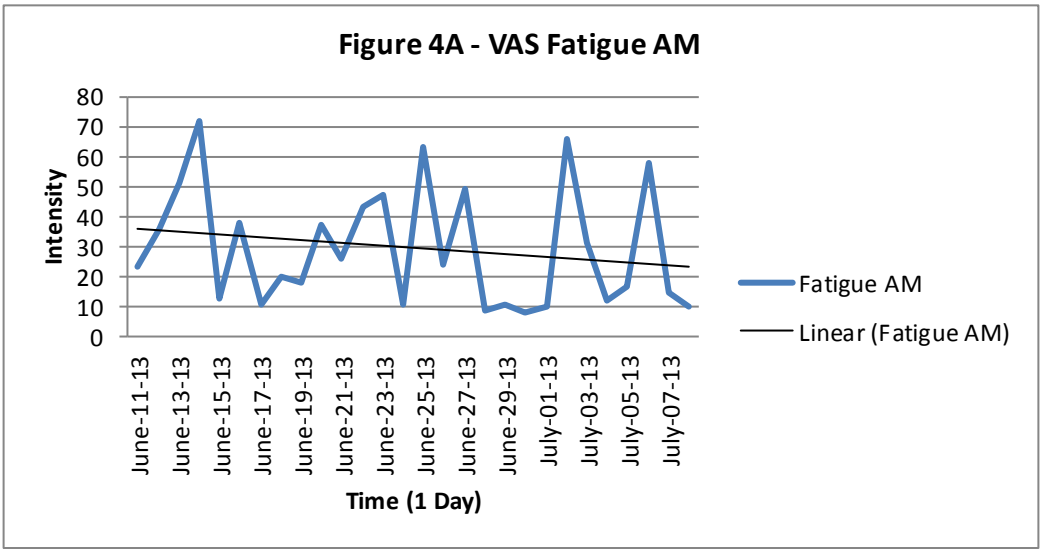


Figure 4A - VAS Fatigue AM
Intensity
80
70
60
50
40
30
20
10
0
June-11-13
June-13-13
June-15-13
June-17-13
June-19-13
June-21-13
June-23-13
June-25-13
June-27-13
June-29-13
July-01-13
July-03-13
July-05-13
July-07-13
Time (1 Day)
Fatigue AM
Linear (Fatigue AM)

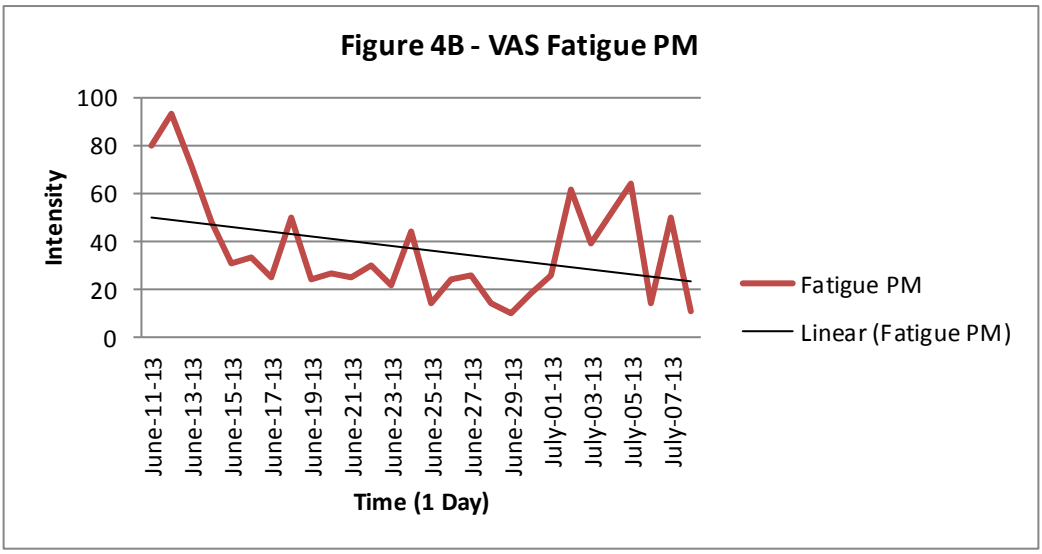


Figure 4B - VAS Fatigue PM
Intensity
100
80
60
40
20
0
June-11-13
June-13-13
June-15-13
June-17-13
June-19-13
June-21-13
June-23-13
June-25-13
June-27-13
June-29-13
July-01-13
July-03-13
July-05-13
July-07-13
Time (1 Day)
Fatigue PM
Linear (Fatigue PM)

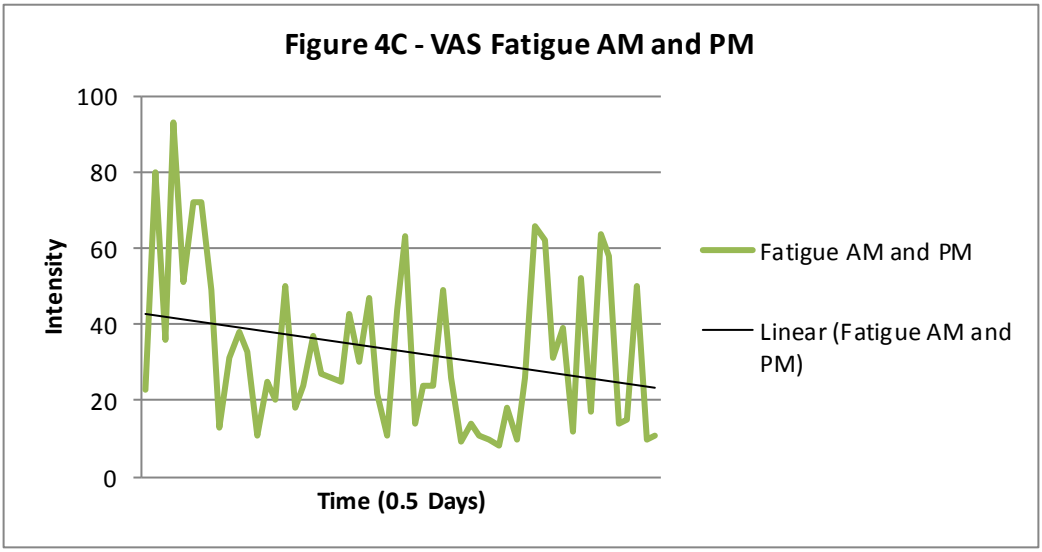
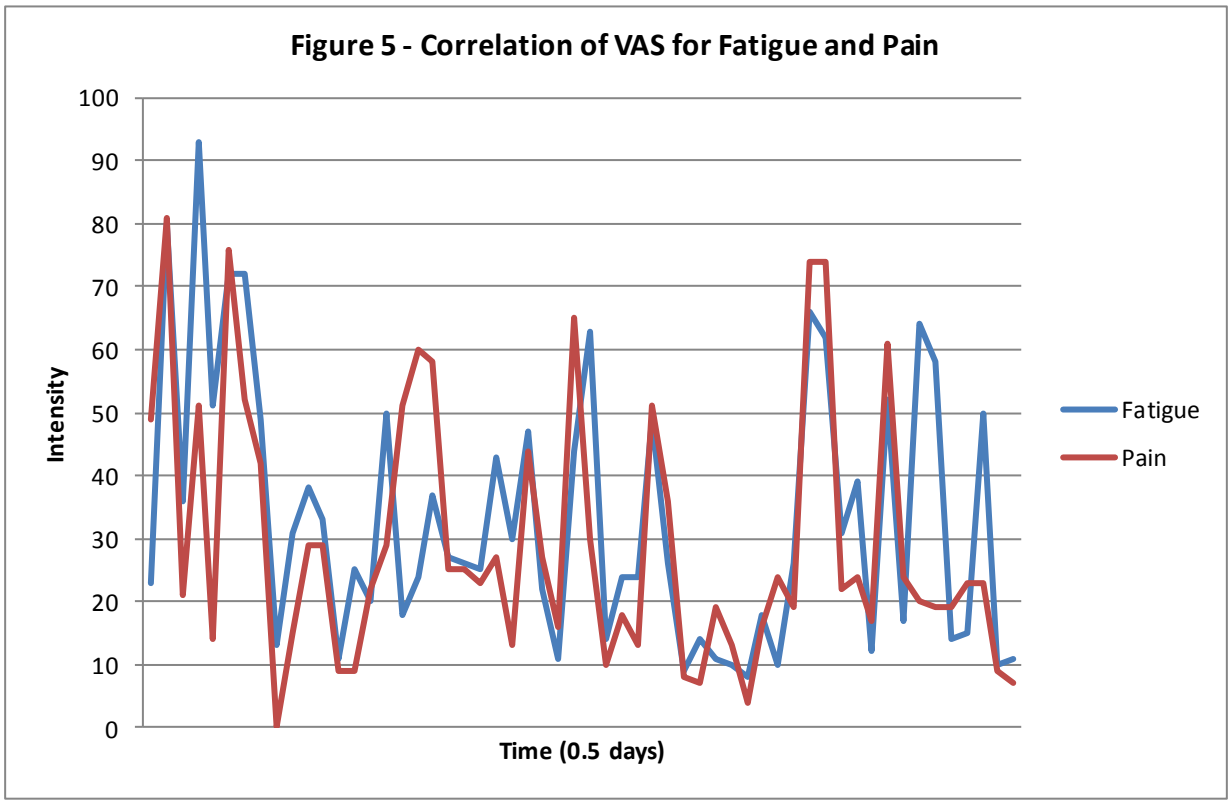
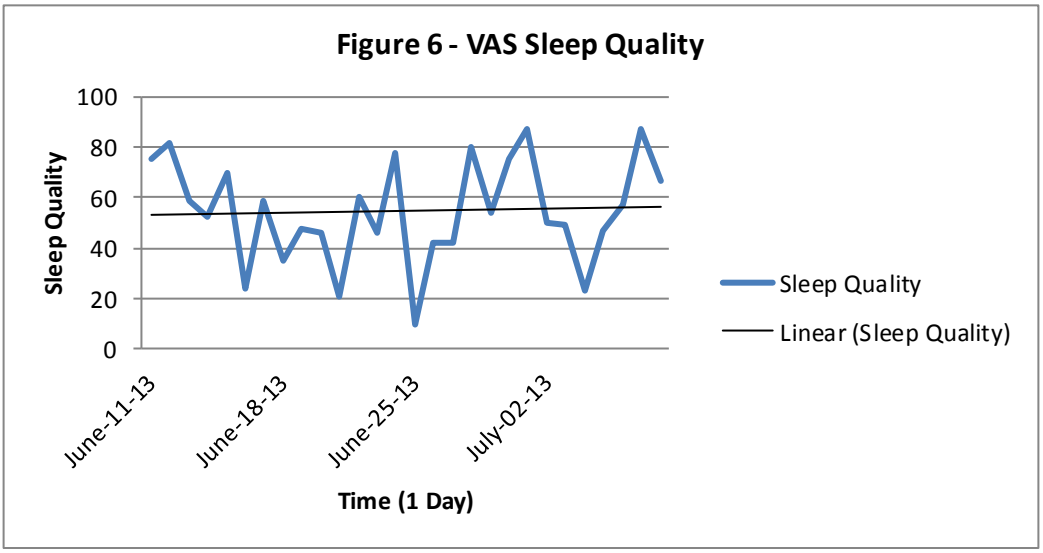


Figure 4C - VAS Fatigue AM and PM
Intensity
100
80
60
40
20
0
Time (0.5 Days)
Fatigue AM and PM
Linear (Fatigue AM and PM)

The following graph, Figure 5, correlates the data from the VASs for pain and fatigue.



Along with the VAS for sleep quality, the subject recorded the number of hours slept that previous night. The range for this data was 7-8.5 hours of sleep with a mean of 7.86 hours, and a median and mode of 8 hours. Figure 6 shows the graphical representation of the VAS for quality of sleep with a linear trend line.



The active range of motion (AROM) for the subject remained unaffected during the course of the study.

DISCUSSION

Regarding the McGill Pain Questionnaire and Figure 1, there is a 65.5% decrease in score, this value being calculated with the linear trend of the graph, and not the specific points, from the beginning to the end of the study. If one was to take the highs and lowers of the McGill pain questionnaire, which are the first and last questionnaires, there was a 77.3% decrease in score. Looking at the score of the third questionnaire administered, there was an increase in score compared to the second questionnaire. This increase may have been due to the subject's right hip joint being painful and having a headache for the weekend previous to the treatment.

The FIQR's linear trend supplied a decrease in value by 59.9%. The second administration of the FIQR had a value scoring 19 points higher than during the first FIQR. The questionnaire

showed that increase in value came from subsections 2 and 3, which indicates that the FM had a larger impact on the subject and the common symptoms of FM were more severe than previous.

The linear trend interpretations of the VASs for pain and fatigue both show decreases in their respected fields, while the VAS for the quality of sleep showed an increase during the course of the study. Both the morning (Figures 3A and 4A) and evening (Figures 3B and 4B) data showed linear trend decreases of pain and fatigue intensity. Statistically, the VAS for pain (AM and PM combined, Figure 3C) had a decrease in intensity by 45.8%. Intensity of fatigue with the same parameters (Figure 4C) had a decrease of 45.6%. The quality of sleep (Figure 6) had an increase of 5.7%.

When looking at the VAS data (and graphical representations, Figures 3 and 4) there are many clear spikes of pain and fatigue that happened throughout the course of the study. Looking at Figure 5, which correlated the VAS data of pain and fatigue, it can be seen that the rise and fall of pain and fatigue are interrelated. As pain or fatigue intensity rise, the other will likely increase as well. Many of the spikes of pain or fatigue intensity can be related to situations that were affecting the subject, such as headaches, flare up of right hip joint pains, TMJ pains, or over exertion the previous day, such hosting dinner parties.

A note must be made on the range of motion data. The subject presented with normal AROM, within those of an average healthy individual, before the start of treatment for the joints that were recorded. The one exception was the internal rotation of the right acetabulofemoral joint, which showed a marked decrease with only 9^{o}, presenting with pain at end range. This

was the joint that was flaring up during the course of study, and is the same joint that was diagnosed with a possible labrum injury. This joint showed no improvement of AROM during the study, however, there was a general decrease of joint pain intensity and frequency.

Looking at the results as a whole, they show decreases in pain and fatigue intensities, a decrease in the impact that FM has on the subject, and a slight increase in the quality of sleep. These results are in line with other studies that have been conducted on the use of either MLDT or MFR.[2,3,4] Basing the quality of life on these factors, it can be stated that the 10 treatment protocol of combined MLDT and MFR had the intended effect of increasing the subject's QOL.

Although the subject of this study was taking medications for the symptoms of FM, and thus had them somewhat under control, it is my belief that if the 10 treatment protocol was applied to an individual who was not medicated similar results would be found.

The results of this study, if reproducible on other subjects with fibromyalgia, could results in a simple step by step plan that future therapists may be able to use to aid those suffering with FM. If shown beneficial to those not on medications, it may also be possible for those with FM to become less dependent on the medications and decrease the possibilities of side effects.

Future research would need to be conducted with a larger sample size to see if combined MLDT and MRF set to a 10 treatment protocol can give reproducible data. In addition to the current assessment methods, a questionnaire or VAS could be used to observe how the subject's view of their own stress is altered with the course of treatments, which could then also be plotted with the VASs of pain and fatigue to get a larger correlation. The 10 treatment protocol could also be tested in future studies by conducting the course of the treatments over a different

period of time, such at 10 treatments over 2 weeks, or 10 treatments all back to back, instead of the course of a month. This change in the spacing of the treatments could show the relevance of treatment frequency. If similar data, or data showing an increase or decrease compared to this study, were achieved with the adjustment of treatment frequency, future use of the protocol could be adjusted to the ideal frequency to benefit those with FM.

A larger study that compares the use of the combined MFR and MLDT to the use of singular therapies, MFR and MLDT, should be conducted in the future. This could present with useful information which may indicate which therapy, or combination, is most indicated for those suffering from FM.

CONCLUSION

The results of this study shows that the 10 treatment protocol of combined MLDT and MFR is a good starting point for any therapist with basic Dr. Vodder lymph drainage and myofascial release training. The data supports the claim that the combination of the two therapies will result in a higher QOL. The increase of QOL is indicated with the decrease of pain and fatigue intensity, an increase in the quality of sleep, and a decrease in the impact that the FM have on the patient.

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