The Effects of Integrated Manual Therapies on a Patient with Polymyalgia

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By Carrie L Rusaw SPT

Abstract:

Introduction: Integrated Manual Therapies are new and upcoming forms of treatment in the Physical Therapy profession. There are many forms out there, and very little research proving whether any of these forms help heal patients with certain conditions, or if they have no effect on a patient's status at all. **Case Description:** This case study looks at the use of multiple forms of manual therapy, such as myofascial release, strain/counterstrain, acupressure, and cranial sacral therapy, on a patient with a diagnosis of Polymyalgia Rheumatica (PMR). The patient was seen in an outpatient physical therapy setting, and treated by a therapist specializing in alternative therapy techniques. Different therapies were used in different combinations throughout the course of treatment, and the patient was discharged after three months of therapy. **Discussion:** The patient in this study ultimately improved from the combination of multiple alternative therapies. At this time it is unclear as to which form of therapy helped relieve the patient's PMR. Based on the number of times each form of alternative therapy was used conclusions can be made, but further research is needed to prove which form is more beneficial or if they should be used in combination.

Key words: *Polymyalgia Rheumatica, myofascial release, strain/counterstrain, acupressure, cranial sacral therapy, alternative therapies.*

Introduction:

Polymyalgia Rheumatica, or PMR, is an arthritic disease that causes inflammation in one or more large joints of the body. It presents with symptoms of severe pain and stiffness in the muscles of the neck, shoulders, torso, upper arms, hips, buttocks and thighs. The forearms, hands, calves and feet normally go unaffected. Other symptoms may include signs of depression, anorexia, fever, malaise, weight loss and night sweats. The symptoms of PMR often appear over night with no warning and can last for a month to two years if left untreated. In this time frame the symptoms will often leave as quickly as they appeared, but the severe pain and stiffness can be so debilitating that a patient diagnosed with PMR may prefer to seek help rather than wait it out.[1]

How the disease develops and what causes it is still questioned by many researchers in the medical field. It is hypothesized that PMR is associated with an immune system defect and holds both a hereditary and age component. Many believe that the symptoms arise due to the body's white blood cells attacking the synovium of its own larger, more proximal joints. There are many other physical factors that also occur in the body with this disease that allow practitioners to diagnose this disease. A blood test is done to look for an erythrocyte sedimentation rate of greater than 50 mm per hour. A red blood cell and platelet count is also preformed due to the fact that patients with PMR will have an increased number platelets and a decreased number of red blood cells. These tests will often be sufficient enough to confirm a diagnosis, but practitioners may also test for the presence of the Rh Factor to rule out rheumatoid arthritis, or perform muscle biopsies and EMGs to make sure there are no problems with muscle or nerve function. Patients that are diagnosed with PMR are generally women over the age of 50 that are of northern latitude decent.[1]

At this time there appears to only be one form of treatment for those diagnosed with PMR, a prescription for an oral steroid. Generally once a patient is diagnosed with PMR they are automatically put on an oral corticosteroid treatment, most often Prednisone. Although Prednisone is affective in relieving the symptoms of PMR it also has side effects associated with its use. Some of the side effects found with the use of this drug include fluid retention and weight gain, rounding of the face, delayed wound healing, bruising easily, diabetes, myopathy, glaucoma, hypertension, stomach irritation and osteoporosis. Practitioners often will go through a period of time with the patient where they continue to adjust the medication dose to try to find a balance between controlling the PMR symptoms and avoiding the many side effects noted. A fair amount of studies have been done on the use of corticosteroids for the treatment of PMR, but no specific guidelines as to what dose to start a patient at has been determined. Most patients are started anywhere between 10 and 20 mg. Once on the drug a patient must go through a series of four stages. These stages include initiation, initial reduction, maintenance and final reduction. Research shows that 50 percent of patients with PMR are able to progress through these four stages within two years or less, but some patients may need treatment for four years or even a low dose of Prednisone for a long term basis.[2]

Although patients with PMR do eventually benefit from the Prednisone treatment, the fact that 50 percent of these patients may experience the side effects from the drug leads us to look for alternative forms of treatment.[2] The alternative therapies used in this study include strain/counterstrain techniques, myofascial release, acupressure, and cranial sacral therapy.

Strain/counterstrain is a modality designed and researched by Dr Lawrence Jones. This technique was found by accident by Dr Jones when he struggled to provide relief for a

patient with chronic low back pain. The patient was not responding to any form of treatment and got to the point where all he wished for was a chance to get a sound night's sleep. Dr. Jones decided to attempt to find a position of comfort for the patient and allow him to spend his entire session in that position. Upon ending this session, the patient reported feeling better than he had since initiating treatment. During the next visit of this patient, the relief was found to have continued to carry over. Dr. Jones was intrigued by this finding and began to test this technique out on many of his patients. Dr Jones found that placing any patient into a position of comfort for a minimum of 90 seconds would provide pain relief that carried over after the session had ended. The position of comfort is determined based on the patient's response and a set of tender points, which should not be confused with trigger points that are found in traumatized muscles, along the anterior trunk and spine. Through his research, Jones identified 160 points that have been shown to refer pain to other areas of the body. When these points are set in a certain position they in turn reset the response of the central nervous system as well as increase a vascular and lymphatic healing response. Once the patient has held this set position for the 90 seconds it is important to move the patient out of the position slowly and carefully.[3]

Another treatment used in this case was myofascial release. Myofascial release is a technique that has been used since the early 1800s. This modality has been shown to provide relief of pain and headaches, restore motion and increase overall potential health. Practitioners that use this technique focus on the fact that the fascia has an effect on almost all parts of the body and has multiple functions. Fascia is an embryonic tissue that functions to support, protect and separate organs, vasculature, bones and muscles. It plays a role in cellular respiration, as well as metabolism and elimination. Lastly it has been seen to have an

effect on the body's lymphatic flow and play an important role in the body's immune system. It has been found that fascia recognizes any tension imparted on the body and contracts to support the individual from further trauma, both real and imagined, and then in turn alters organ and tissue function.[4] This is the aspect that plays into our patient's diagnosis. When the fascia is constricted it causes the body to lose flexibility and decreases the amount of available spontaneous motions. It decreases the patient's range of motion and increases pain, which in turn programs the central nervous system to this new highly sensitive proprioception. Once the central nervous system is programmed the pain can often last past the healing of the damaged tissues. This fact increases the reasoning that supports releasing the barriers placed in the fascia and treating not only the painful area, but the body as a whole.[4] In order to release the fascia a practitioner must elicit a gentle pressure to the fascia and allow their hands to follow the fascia to its restricted barrier. This process follows the Arndt-Schultz Law that states that a weak stimulus elicits physiological activity where as a strong stimulus inhibits or abolishes activity.[4] This facilitation of a physiological activity is exactly what we want to provide relief to the patient. Once the fascia is released it has been found to increase a vasomotor response in the restricted area that increases blood flow and lymphatic drainage of toxins.[4] It also resets the soft tissue proprioceptive sensory mechanism which in turn reprograms the central nervous system's response to painful stimuli.[5]

A third aspect of the patient's treatment includes acupressure. Acupressure is one of the world's oldest forms of alternative therapies and is often more recognized than other forms. This form is also one of the more researched modalities compared to the rest. It was developed in traditional Chinese medicine and is similar to acupuncture in that it uses set points mapped out on the body, called acupoints, to provide therapy. When these points are

manipulated they are said to provide pain relief while preventing illness and injury. This therapy is becoming more and more recognized today due to the fact that it is able to be performed on a patient with the use of practitioner's fingers rather than needles like in acupuncture.[6] A study on its effectiveness in treating low back pain was done by Hsieh in 2004. The study showed that acupressure was useful in providing pain relief for patients with low back pain, but the study failed to take into account the patient's functional status and disability like most other low back pain studies do, therefore decreasing its reliability in acupressure's effectiveness.[6] In 2006, Hsieh formed a more detailed randomized controlled study comparing the treatment of low back pain with acupressure versus using traditional physical therapy treatment. The study found that six months after treatment ended pain, days off from work or school, and satisfaction was significantly higher in those who received acupressure over those receiving traditional physical therapy.[6]

One last modality that was added to the therapy treatment was cranial sacral therapy. Cranial sacral therapy was developed by John Upledger DO, OMM. Upledger found that disruption of the normal ebb flow of cerebral spinal fluid is responsible for chronic pain and illnesses attributed to trauma and stress. Through research, he found that using light touch to the cranial bones in the skull helped to facilitate the restoration of the body's normal cerebral fluid flow. Upledger stated that this form of therapy is not taught as a method to heal or cure a disease, but is promoted as a therapy that restores flow in the body which will in turn help the body heal itself.[7] The research behind cranial sacral therapy has shown that movement restrictions in the cranial structures of the skull interrupt the rhythmical impulses conveyed through the cerebral spinal fluid such as Upledger had described.

The purpose of this study is to determine if the use of alternative therapies reduces the symptoms of PMR faster than the traditional therapy used for treatment. This study was approved by the Institutional Review Board at The Sage Colleges in Troy, NY.

Case Description:

AC is a patient who was referred to the clinic by her physician, as well as a former client of the facility. Upon the patient entering the clinic I, as a student physical therapist under observation from my clinical instructor, conducted an evaluation as indicated below.

History:

AC is a 65 year old woman who is a retired mental health counselor. She now spends time being a mother and grandmother. She lives at home with her husband and spends a lot of time with her daughter and grandchildren. She stays very active by gardening and kayaking among many other outdoor activities. AC is around 5'4" and is slightly overweight. She was diagnosed with fibromyalgia in 1986 and then with PMR in 1996. She has experienced an exacerbation of the PMR in July of 2006 and now has been sent to the Physical Therapy clinic for another flare up that has been progressing since January 2008. She has been taking Prednisone for her PMR but reports wanting to find an alternative treatment option due to not feeling herself while on the medication.

Examination:

Upon examination of this patient, AC presented with a normal and functional gait pattern but complained of pain. Using the Visual Analog Scale[8], the patient reported an 8/10 pain in the lower back and bilateral lower extremities. She described this pain as getting worse at night, and often interrupting her sleep. The pain also was found to cross multiple

dermatomes and form a glove like pattern up her legs and back, limiting many of her normal activities. The CI and I assessed her muscle strength grossly to cover all areas. Strength in the cervical region, upper extremities, trunk and lower extremities were all assessed at a 4/5 through manual muscle testing.[9] A brief neural assessment showed that sensation was intact in all major dermatomes and reflexes of both upper and lower extremities were normal.[10] When assessing the patient's range of motion, again both the upper and lower extremities were found to be within normal and functional limits.[11] The patient however was limited in forward trunk flexion secondary to the possibility of increasing her symptoms of pain. This factor was also limiting her daily activity, since she would do anything to avoid this motion. AC's balance and gait were not formally assessed but observed upon walking into the clinic. AC appeared to have normal balance when initially assessed. Her gait and transfers appeared stiff and labored as to avoid any motion that was limited or painful. She presented with decreased trunk rotation and arm swing during gait.

Evaluation:

Based on the evidence found in the examination, the patient's primary impairment was pain that is distributed through multiple areas. This pain limited the patient's function as well as some areas of range of motion.

Diagnosis:

From the examination we found that the patient needs to participate in therapy that will increase her range of motion, decrease her pain and improve her activities of daily living. This patient can be diagnosed with the Guide to Physical Therapist Practice[12]

preferred practice pattern 4D, which covers patients with impaired muscle performance and range of motion associated with connective tissue dysfunction.

Prognosis:

The patient is experiencing a flare up of her PMR which can last up to two years without treatment. With treatment the patient should be able to shorten her flare up and learn ways to have control over her disease.

Plan of Care:

Goals for therapy were set up for this patient's treatment and include the following:

Short Term Goals:

~ In two weeks the patient will be able to be independent with a home exercise program that will provide pain relief, maintain overall current body strength, and allow her to regain motions that will assist her in returning to gardening, kayaking as well as house chores.

~ In two weeks the patient will decrease maximal pain in her lower back and lower extremities to a 5/10 on the Visual Analog Scale.

Long Term Goals:

~ The patient will decrease pain in her low back and lower extremities to a maximal level of 1-2/10 on the Visual Analog Scale in order to return to all activities of daily living with optimal endurance and without limitation by discharge.

We discussed the patient's evaluation findings with her and it was decided that the patient will be seen 2-3 times a week for 4 weeks in hourly sessions to receive modalities as needed, integrated manual therapies, and a home exercise program.

Interventions:

The Table outlines interventions provided over the initial 10 visit period. Once AC's treatment sessions started she began to receive integrated manual therapies which included: acupressure, strain/counter strain therapy, cranial sacral therapy, and myofascial release. The therapist, who was educated by the Upledger Institute which is a leading institute worldwide for continuing education in alternative therapies[13], used these multiple therapies in combination with each other to provide the patient with the most relief of symptoms as possible. During the session the patient was positioned supine on a plinth with pillow supports at the head, hips and under the knees. The lighting of the room was dimmed and a fan was turned on to create a peaceful background noise. Heat, via a hot pack, was added at the patient's lumbar or cervical regions upon the patient's request. All measures were taken to promote maximal relaxation of the patient during the treatments. When deciding what treatment to do that session, the therapist listened to how the patient described her feelings that day, and what was felt since the previous session. The therapist also considered what she felt going on in the patient's body once the treatment began. Like all therapists treating any patient, one would assess the patient's feelings as well as their clinical presentation to determine the most beneficial course of action. Although these therapies are far different from the ones used in general orthopedics, the practice of patient care remains the same. For example, if the patient comes in reporting of an increased reoccurrence of headaches the therapist might being with cranial sacral techniques, but in turn while doing that technique pick up on another factor that may have been causing the problem. This observation would then lead the therapist to move to another form of therapy to address the real culprit. Most often in cases where these techniques are used the complaints of the patient, although most

often are real and legitimate complaints, are not the true key to the situation that must be fixed. The therapist will generally be able to pick up on any problem and attempt to relieve it in order to clear up the patient's symptoms. This process is one that is done throughout every treatment depending on the changes occurring in the patient's body between sessions.

In conjunction with this patient's physical therapy sessions she also received aquatic therapy to work on strength and range of motion with a lower force impact on the body. In the water she performed exercises for lower extremity stretching as well as trunk and lower extremity strengthening and core stabilization.

Myofascial release was done on many areas of AC's trunk. During each session the barriers found throughout the fascia determined what areas the therapist would concentrate on. All areas were assessed at the initiation of treatment allowing the therapist to determine the course of that particular treatment. Most often AC's barriers were located in the liver and respiratory regions, but they were also sometimes found near the shoulder girdle. By releasing these areas of constriction, we were looking for a decrease in her over all pain symptoms, and trying to increase her available motion so she could return to her ADLs.

When working with AC, the therapist performed acupressure at the initiation of nearly all sessions. Due to low back pain being one of AC's biggest complaints, this modality was one of the most important components of her therapy. The therapist would begin the acupressure treatment near the patient's cervical region and progressively move point to point down the body. Based on the therapist's knowledge and patient's reports, the therapist spent more time at more important points on the body, to get the most beneficial effects from the treatment.

After one month of therapy AC was also prescribed aquatic therapy once a week to maintain strength and range of motion at a decreased resistance while she continued to receive the alternative therapies to decrease her pain and physical dysfunction.

Outcomes:

The patient was discharged from therapy after 11 weeks of treatment. Upon discharge the patient's pain level had decreased to 0/10 with an occasional flare up to a 5/10. The patient was able to return to her gardening activities and housekeeping without taking breaks or being limited by pain. All of her motion was within normal limits and free of apprehension. The patient was now able to sleep through the night and had stopped taking her prescribed pain medication completely. Lastly, the patient was able to perform a home exercise program geared towards maintaining all of the gains she had currently made through therapy. The home exercise program consisted of general non-resistive exercises and range of motion activities that could be performed on land or in the patient's home pool. The exercises prescribed covered all major muscle groups in order to maintain overall strengthening and well being, as well as hopefully minimizing potential flare ups of PMR and fibromyalgia.

Discussion:

When compiling research to support the use of these treatments, search engines such as Pubmed, Proquest and Cinahl were used. At this time there is no research out there that supports the use of any of these alternative therapies in the treatment of PMR. Most of the research that is available on the treatment of PMR concentrates on the use of the oral corticosteroid, Prednisone. This treatment can often have the patient on a corticosteroid for

up to two to three years.[1] AC was initially prescribed Prednisone for treatment, but could not tolerate the side effects associated with the use of this drug. Many patients on a corticosteroid regimen often experience an increased risk of osteoporosis, myopathy, bruising, insomnia, restlessness, hypomania and depression.[1] Since AC didn't feel she could tolerate these effects for the possible two years required for treatment, her physician decided to refer her to physical therapy to look for an alternate way to treat her disease. One problem faced in treating AC was that she was already doing an active exercise program at home, as described in the case description, to help with her diagnosis of fibromyalgia. This treatment wasn't able to work for her polymyalgia due to the increased pain limiting her function. The therapist and I began to search for an alternate form of treatment. This is when we turned to a variety of alternative therapies including strain/counterstrain, myofascial release, acupressure and cranial sacral therapy. Limited research is out there on the use of these modalities, but what evidence is out there shows that they appear to provide relief for multiple diseases with one key symptom; pain that limits function.[14]

In AC's case, strain/counterstrain was used on the upper trunk and shoulder girdle as only one part of her treatment prescription. It was used to help relieve tension in those areas as well as headaches associated with the polymyalgia diagnosis.

Unfortunately much of the evidence out there on cranial sacral therapy does not provide enough support to recommend its use, but it also doesn't study the effects cranial sacral therapy has on relieving pain.[15] One study that did look into its effect on pain found it to be beneficial. Patients who received cranial sacral therapy for the treatment of chronic tension headaches found that they experienced less pain than those who received control treatment. This support provides key evidence to the use of this technique in AC's case. As

her disease progressed through treatment, AC began to report in increased occurrence of headaches so cranial sacral therapy was added to the combination of her other modalities.

AC progressed through three months of therapy before being discharged on successfully meeting her goals of returning to her normal daily activities and decreasing her level of pain. The multiple therapies combined in AC's treatment were shown to provide relief and cause her polymyalgia to subside, but they also make it hard to distinguish which treatment was truly helpful in AC reaching her end goals. There were many factors involved as well as the fact that PMR can subside on its own within two years of the disease onset.[2] This, among other factors such as only being a case study based on one patient's symptoms, provides a limitation to the use of these modalities in the treatment of other patients with polymyalgia. These modalities also lack much valid research on their effectiveness of providing the outcomes they have been designed to.[14] I believe that further research is needed in this area, which appears to show great potential in assisting patients who are limited to pain. Studies that look at a variety of patients with similar diagnoses should be used with sample sizes large enough to increase their reliability. It may also be more beneficial to look at these modalities separately or within different combinations to begin to rule out which provide more beneficial effects than others in this area. I believe that with this further research, this area may provide another form of relief to patients with polymyalgia outside of the corticosteroid option.

AC's case has provided a solid base for the search to find alternate forms of treatment for patients with PMR. PMR is a very debilitating disease that many researchers are still puzzled about. They have begun to find ways of treating it that may not always be the best for the patient but do work. With the emergence of alternative therapies into the mainstream

of Western Medicine, this may be the time to look deeper into which of these therapies are the best options and how truly beneficial are they.

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Table. Use of Manual Therapy over a 10 Visit Period

Interventions	1	2	3	4	5	6	7	8	9	10
Acupressure	X			X	X	X	X	X	X	X
Strain/Counterstrain	X				X					
Cranial Sacral Therapy	X	X								
Myofascial Release				X	X	X	X	X	X	X
Aquatic Therapy			X							
Hot Pack		X			X			X	X	