Osteopathic Manipulative Medicine and Acupuncture Combined:

A Retrospective case study to determine if order of treatment makes a difference in outcome for acute mechanical low back pain

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Abstract

Background: Osteopathic Manipulative Treatment (OMT) and acupuncture can be used as treatment modalities for acute low back pain. They may be used alone or in combination. There have not been any studies to determine if, during the same treatment session, using one before the other is more effective.

Objective: To determine if there is any difference in relief of acute, mechanical low back pain if OMT is followed by acupuncture or if acupuncture is followed by OMT during the same treatment session.

Design, Setting, and Patients: A retrospective two-year case study of 30 patients seen in the author's private practice for acute, mechanical low back pain of less than six months.

Intervention: All treatments included both OMT and acupuncture. Fifteen patients received OMT followed by acupuncture. The other group received acupuncture followed by OMT during the same session. All treatment sessions lasted 30 minutes, once a week for four weeks.

Main Outcome Measure: Patients reported pain levels before the first treatment and at the end of the last (fourth) treatment, using a simple 0-10 pain scale.

Results: Both groups showed similar beginning and ending pain scale values. They also showed nearly identical improvement.

Conclusion: OMT and acupuncture during the same session for acute mechanical low back pain over four weekly sessions resulted in significant lessening of symptoms. The order in which OMT and acupuncture were done did not result in any difference in pain symptom outcome between the two groups.

Key Words

Osteopathic Manipulative Treatment (OMT), acupuncture, acute mechanical low back pain, somatic dysfunction, Ming Men.

Introduction

OMT is a recognized, well-documented, and effective treatment modality for somatic dysfunction.[1] Andrew Taylor Still, MD, in 1874, founded a philosophy and medical system with a holistic perspective of health and disease, emphasizing the central position of the neuromusculoskeletal system in illness and injury, with osteopathic palpatory diagnosis and treatment being integrated into successful health care.[1] OMT has been the subject of a growing body of research especially for the purposes of treating pain and dysfunctions of all types, including low back pain.[2]

Back pain of various kinds, especially low back pain, affects millions of Americans of all ages and backgrounds.[3] Patients with many types of back pains, acute (less than six months duration) and chronic (greater than six months), are treated by physicians of many specialties, including neuromusculoskeletal medicine and osteopathic manipulative medicine (NMM/OMM), family medicine, orthopedics, neurology, rheumatology, and internal medicine. Non-physician health care practitioners including nurses, physical therapists, and occupational therapists also play a significant role in the patient care milieu. The spectrum of back pain is treated with a broad spectrum of pharmacological and non-pharmacological modalities.[4]

Acupuncture has an ancient and interesting history. It is enjoying a recent surge in interest, development, refinement, and research.[5] Acupuncture is practiced around the world in a number of styles by a wide variety of health care practitioners for probably all known illnesses and injuries.[5] Osteopathic (DO) and allopathic (MD) physicians of all specialties in America may integrate acupuncture into their practices.[6,7] The National Institutes of Health (NIH) delivered their "Acupuncture, NIH Consensus Statement 1997", reviewing over 2300 research papers addressing the use of acupuncture for a wide variety of illnesses and injuries, including their recommendation for its use in low back pain.[8,9] The World Health Organization (WHO) recognizes and encourages the use of acupuncture for a number of conditions, including low back pain.[5]

A computer-based literature search through large, online sources such as the National Library of Medicine, Medline, Ovid, PubMed, and DO-Online will reveal thousands of papers and books on acupuncture and as well as OMT, for a wide spectrum of conditions. There are a few references of combining the two or combining the two for low back pain.[5,10-32] No studies have been done to determine if the sequence of OMT and acupuncture affect clinical outcomes.

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Methods

The author conducted a two-year retrospective case study (2004-2005) of 30 patients in his practice specializing in OMT and medical acupuncture. The patients all had acute, mechanical low back pain. Acute symptoms were defined as less than six months from onset. Most were seen within a few days of onset and all were former patients who had been treated by the author for various conditions in the past with OMT, or OMT and acupuncture combined. Patients were a mix of male (n = 18) and female (n = 12) with ages ranging from 22-84 years old (average 62.6). The risks and benefits of the OMT and acupuncture treatments were explained verbally to each patient before treatment. Each patient gave verbal consent to treatment.

All the patients presented with symptoms of acute low back pain including: localized lumbar pain, lumbar to hip region pain, pain radiating to the anterior pelvic area, numbness or tingling in the low back and/or pelvis, stiffness, and difficulties with various activities such as sitting, bending, standing, etc. Pain was measured on a verbal scale from 0-10, with 0 being no pain, and 10 feeling like the worst or most severe pain possible. This pain scale is a well-recognized and documented pain measurement tool.[33] Pain values were recorded on the first visit before treatment, and on the last visit after treatment. Some of the patients had no known predisposing or prior low back conditions, while others had chronic, low back conditions. Other medical conditions were not used as inclusion or exclusion criteria. No analgesic medications were prescribed and patients used their own discretion as to whether to use over the counter analgesic agents.

> *Diagnosis of acute, mechanical low back pain was made from the patients' history and physical exam with special emphasis on osteopathic palpation. Every patient was diagnosed using some combination of standard osteopathic methods. Visual and palpatory measurements of body position and/or motion were noted on the patients. Active and passive range of motion tests were performed. Somatic dysfunction was diagnosed in every patient, justifying the OMT.*
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> *Somatic dysfunction is defined as: "impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodial, and myofascial structures, and related vascular, lymphatic, and neural elements".*[1] *Somatic dysfunction may also be described in terms of visual and palpatory positional and motion aspects, using the simplified mnemonic "TART": "tissue texture abnormality, asymmetry, restriction of motion, and tenderness, any one of which must be present for the diagnosis".*[1]

Because there was a wide range of segmental dysfunctions, a variety of OMT techniques were used in the treatments. The author chose techniques and sequencing taking into consideration the many factors of the patients' conditions, responses, etc. The results of the combined OMT and acupuncture treatments were: relief of somatic dysfunction, improved ranges of motion, decreased pain, decreased swelling, normalized skin temperature, and relief of the patient's fears and anxieties. Every patient felt some relief after each treatment session, with maximum relief felt and recorded after the fourth session.

Acupuncture was performed on every patient, either before or after OMT. Acupuncture points GV-4, BL-23 bilaterally, and BL-52 bilaterally (total of 5 points, also called "Ming Men") were chosen for their individual and combined known effects on the local sensory and motor signs and symptoms, as well as their energetic properties.[5,34] Acupuncture was performed with sterile, single-use, stainless steel needles, 0.22 mm in diameter and 25 mm in length (Helio Medical Supplies, Inc., San Jose, CA). Needles were inserted 25 mm in depth, in manual tonification (i.e., pointing them in the direction of the flow of the meridian and turning them clockwise, eliciting a De Qi or sensation of energy response felt by the patient and physician), and were left in place for 10 minutes per session.

The first group of 15 patients treatment protocol was examination for 10 minutes, OMT for their low back pain for 10 minutes followed by the acupuncture protocol for 10 minutes. Total session time was 30 minutes each. The second group of 15 patients was examined then treated with acupuncture followed by OMT. The time allocations were the same. If any patient had other areas of somatic dysfunction he or she was gently treated in those areas while the acupuncture needles were in place. Treatment was administered so as not to disturb the needles or low back area in any way. Patients were treated once a week for four weeks.

Results

There were no adverse events from treatments. Eighteen were male (60%) and twelve were female (40%). The average age of the group that received OMT first was 60.6 years old (ranging from 28-80 years old). The average age of the group that received acupuncture first was 64.6 years old (ranging from 22-84 years old). For the OMT first group, the average pain score before the first treatment was 6.66, and then 0.933 after the last treatment. For the acupuncture first group, the average pain score before the first treatment was 6.46, and then 1.0 after the last treatment.

Group statistics for the OMT first group were: N = 15, Mean = 5.80, Standard Deviation = 0.676, and Standard Error Mean = 0.175. For the acupuncture first group the data were: N = 15, Mean = 5.53, Standard Deviation = 0.743, and Standard Error Mean = 0.192. $P < 0.05$. The Independent Samples Test/t-test for equality of means for the pain differences between the two groups showed a standard error difference of .259, and a 95% Confidence Interval of the difference as lower -.265 and upper .798. There was practically no difference between the outcomes of the two groups. See Tables 1-4 The statistical analysis was done using statistical software SPSS 11.0.

Discussion

Low Back Pain

Back pain can have many causes: neuromusculoskeletal, postural, scoliotic, arthritic, vascular, visceral, emotional, traumatic, post-surgical, infectious, cancerous, etc. Acute (less than six months) and chronic (greater than six months) back pain has plagued humanity since time immemorial. Back pain of all types, especially low back pain, affect millions of Americans,

account for a large proportion of doctor's visits, millions of dollars spent on treatment, and millions of work hours lost from productivity.[1-4,35-38] Physicians representing many specialties, physical and occupational therapists, and other health care practitioners all play a role in the diagnosis and treatment of low back pain, using a wide spectrum of pharmacological and non-pharmacological treatment modalities.[4] OMT and acupuncture, separately and together, are used, researched, and recommended for the treatment of low back pain.[1-32,39-42,66-85]

Acute, mechanical, low back pain is usually due to some activity such as bending or lifting. It presents as various symptoms including localized lumbar, sacral, or hip pain, pain radiating from the lumbar to pelvic or lower extremity areas either posteriorly or anteriorly, muscle, fascial, tendonous, ligamentous and/or joint pains, strains, or sprains, stiffness, numbness or tingling in the low back or pelvis, and/or difficulties or dysfunction with activities such as sitting, standing, bending, etc.

Evaluation of back pain is done in many ways including: lumbar, sacral, and pelvic palpatory testing for somatic dysfunction, visual assessment of the lumbar, sacral, pelvic, and lower extremities for asymmetry, the anterior spinal compression spring test, spinal lumbosacral spring test, lumbar and pelvic ranges of motion, Thomas test for psoas muscle shortening, sensory, motor, and reflex testing of the areas innervated by the lumbar and sacral nerve roots (patellar L4-5 reflex, Achilles S1-2 reflex, lower extremity dermatomes, etc.), and muscle testing for strength, range of motion, and tender points (the reader is referred to chapter 50 of *Foundations for Osteopathic Medicine* for an excellent and complete review and explanation of these tests).[1]

About fifty OMT techniques are listed in the glossary of the Osteopathic profession's standard textbook *Foundations for Osteopathic Medicine*, and the author used mainly two of them to treat somatic dysfunctions: myofascial release and strain-counterstrain. The techniques were chosen after visual and palpatory diagnosis, as well as taking into consideration the many factors of the patients' history, conditions, pain levels, and response to past treatment.

Osteopathic Manipulative Medicine

Osteopathic manipulative treatment (OMT) – holistic osteopathic palpatory diagnosis and treatment – is indicated for most illnesses and injuries.[1] OMT techniques, done by Doctors of Osteopathy (DO), cover a broad range of treatments to aid and enhance in the treatment of every part of the body, mind, and soul, its solids, liquids, gases, and energies. The techniques vary with the skills, knowledge, background, and temperament of the practicing osteopathic physician. Skilled and imaginative practitioners may combine and modify techniques in response to their needs as well as the needs of their patients. The holistic osteopathic philosophy and principles allow and encourage individuality, inventiveness, and inclusiveness. Osteopathic techniques are easily integrated with those from other traditions. →

Table 1.

O.M.T. First Treatment Group				
Patient #	**Sex**	**Age (M/F)**	**Pain Before (0-10)**	**Pain After 0-10)**
1	F	74	6	1
2	M	80	6	1
3	M	36	5	0
4	F	30	8	1
5	M	50	7	2
6	F	52	7	1
7	M	28	7	1
8	M	79	6	1
9	F	60	5	0
10	M	73	7	0
11	M	77	8	2
12	M	49	6	0
13	M	75	8	2
14	F	76	7	1
15	F	71	7	1
Average Pain Scale			6.66	0.93
Average Age		60.6		
Acupuncture First Treatment Group				
16	M	67	5	0
17	F	72	6	1
18	M	48	7	1
19	M	70	7	1
20	F	78	7	2
21	M	44	6	0
22	F	36	7	1
23	F	65	8	2
24	M	74	5	0
25	M	75	7	0
26	M	80	5	1
27	M	22	7	2
28	M	78	8	2
29	F	76	5	1
30	F	84	7	1
Average Pain Scale			6.46	1.0
Average Age		64.6		

Table 2.
Independent Samples Test

t-test for Equality of Means

		Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Pain Difference	Equal variances assumed	.259	-.265	.798
	Equal variances assumed	259	-.265	.798

Table 3.
Independent Samples Test

t-test for Equality of Means

		t	df	Sig. (2-tailed)	Mean Difference
Pain Difference	Equal variances assumed	1.028	28	.313	.27
	Equal variances assumed	1.028	27.753	.313	.27

df = degrees of freedom
Sig. = significance

Table 4.

INDEPENDENT SAMPLES TEST

		LEVENE'S TEST FOR EQUALITY OF VARIANCES F	SIG.
GROUP			
Pain Difference	Equal variances assumed	.516	.479
	Equal variances not assumed		

F= a robust measure of homogeneity of variance
Sig.=significance

Any technique may take seconds to minutes. Medicines may be added at any time. Acupuncture on any region at any time during the treatment may also be combined successfully.[5-6,10-32]

Osteopathic manipulative medicine (OMM) finds its efficacy in its addressing of the principles of the interrelatedness of form and function, anatomy and physiology. Anatomy is said to be the foundation of medicine. "O Lord! Give me more anatomy each day I live…" said Dr. Still.[43] An understanding of anatomy, physiology (and neurophysiology in particular), and biomechanics explains many of the osteopathic principles and treatments. The unifying anatomical and physiological properties of fascia provide for much of OMM's diagnostic and treatment success. Fascia has many properties and functions as it pervades practically everywhere throughout the body. Fascia provides structure, supporting, dividing, connecting, covering, maintaining, nourishing, and communicating with all parts

of the body. It has biochemical, biomechanical, bioelectrical (piezoelectrical), and communicating properties, which define its many functions, which can be affected by dysfunction of any kind, anywhere. These, in turn, may be treated by virtue of fascia's many properties and pervasive presence.[44] It is this author's personal experience that, because of fascia's ubiquitous presence and properties, any one part of the body may be used to diagnose and treat any other part of the body. This vitally important holistic concept is emphasized as well in acupuncture. Dr. Still gave fascia an important and prominent part in his writings, philosophy, and techniques.[43]

Pain (nociceptive and neuropathic) mechanisms, as well as various reflexes (facilitated reflexes, inappropriate proprioceptor reflexes, etc.) also help determine patient signs and symptoms, and subsequent treatments. Nerves do more than simply convey signals over their length. They also contain and transport trophic factors responsible for homeostasis, growth, and maintenance of their destination organs. Various reflexes have been identified throughout the body, including viscerosomatic (from internal organs to the more external neuromusculoskeletal regions), somatovisceral (from external to internal), viscerovisceral (internal to internal), and somatosomatic (external to external).[1,45]

Every cell has an electric charge, multiplied in effect through the many organs of the body. James Oschman, PhD writes and speaks specifically about osteopathy and OMT, and describes in detail the consequences of alignment of the body's collagenous networks for the energy field of the body. He describes magnetic fluxes through the vertebral column and surrounding tissues which give rise to the overall field of the body, as well as the effects of derangements of the parallel collagenous fibers, which reduce the total magnetic flux through the system and reduce the overall energy field.[46,47] Osteopathic physician/authors have also contributed to the subject.[44,48-53] Another new and novel concept published in 2005 is that OMT may be mediated by the endocannabinoid system.[54]

Myofascial release techniques combine several types of OMT, including cranial osteopathy, visceral manipulation, strain counterstrain, facilitated positional release, etc., and can be combined with any form of OMT. Myofascial release techniques are directed to all the soft tissues of the body, and can be basically divided into either direct (to or through a barrier/restriction) or indirect (away from the barrier/restriction). Myofascial release techniques may be used for virtually any diagnosis of somatic dysfunction, either alone or in combination with other manipulative techniques. The techniques may be passive (patient relaxed and not assisting) or active (physician and patient both actively participate) or both.[1] The main object of the technique (and perhaps all manual techniques) is to affect or enhance motion. Other goals and physiological principles of treatment have been summarized.[55,56] Strain-Counterstrain (or simply counterstrain) is an indirect, myofascial release technique developed by Lawrence H. Jones, DO, FAAO, in the 1960s.[57-65]

Acupuncture

Acupuncture is being rediscovered in America and flourishing with a momentum matched only by its efficacy. Acupuncture is both old and new. It has been found in various forms in various cultures for thousands of years, and new discoveries about its mechanisms of action and ability to treat most illnesses and injuries surface every day. Professional and popular books, journals and research papers in every language are just the tip of the iceberg promoting and explaining this phenomenon. Where did it come from and how did it get here?

Acupuncture's long and winding road began thousands of years ago when ancient peoples around the world began using sharp objects to treat their ailments. Stone needles were invented in China around 4000 B.C. The most important written records in China began with the *Yellow Emperor's Classic of Internal Diseases* (from about 500-200 B.C.), which formed the basis for the hundreds of Chinese textbooks on the subject that followed over the centuries.[5]

The ancient Egyptian papyrus scrolls from 1550 B.C. discuss lines of energy throughout the body, which we now call meridians. The Ayurvedic physicians in India used acupuncture for thousands of years. Various forms of acupuncture, using simple sharp objects, were practiced by such diverse groups and cultures as South African Bantu tribes, Arabs in North Africa and Arabia, Eskimos (Inuit) and South American natives. Chinese acupuncture concepts spread all over Asia, including and especially in Japan, Korea, and Southeast Asian countries, where it blended with and was shaped by the local populations.[5]

Since the 16th century, acupuncture and acupuncture texts were translated and brought to Europe, especially France and Germany, where it is taught today in many modern medical schools as part of the curriculum. Again, acupuncture is refined and modified with each culture, even in modern Europe. The French have provided some of the most important research and advances in ear acupuncture, called auriculotherapy or auricular medicine, where the entire body can be diagnosed and treated through the ear, using either tiny needles or electrical stimulation.[5]

Acupuncture came from Europe to the Americas with the early colonists. Dr. Franklin Bache, Benjamin Franklin's great grandson, wrote the first medical acupuncture article in the U.S. in 1825, entitled "Memoirs on Acupuncture" and translated French acupuncture textbooks into English. Dr. Edward Warren's 1863 medical and surgical text discussed the use of acupuncture and acupressure. Acupuncture was used during the U.S. Civil War. Sir William Osler, one of the most famous physicians of the 19th century, in his 1892 textbook, *Principles and Practice of Medicine*, recommended acupuncture for the treatment of many conditions, especially back pain and sciatica. He wrote, "For lumbago, acupuncture is, in acute cases, the most efficient treatment".[5]

Acupuncture research has expanded exponentially in the last 50 years, mostly in China, Japan, Europe, America, and Canada. Tens of thousands of research articles and books have been printed in dozens of languages. Almost all known diseases, every organ system in the body as well as psychiatric conditions are affected by acupuncture and have all been researched using acupuncture. The many acupuncture systems with their multiple effects help describe a working model of a multisystem information network all contributing to the explanations of the various aspects of acupuncture.[5]

Acupuncture points as seen under the microscope are found to be vertical columns with the tissue, myelinated and unmyelinated

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nerves, lymph, and blood vessels concentrated, woven, and organized in a distinctive fashion, with a thinning of the epidermis at the acupuncture point.[5] Acupuncture points have a lowered electrical resistance, allowing for increased electrical conductance along fascial planes in the body. Electrical resistance to a current passed between acupuncture points has been shown to be consistently lower (i.e., greater conductance) than resistance between nearby control points.[5] In fact, transmission of acupuncture electrical activity is not entirely dependent on an intact nervous system, but rather moisture and electrolytes appear to be the necessary vectors between points.[5] Fascia has been shown to mechanically couple with the acupuncture needle, possibly delivering a mechanical signal into the tissue.[66,67] Technetium 99, a radioactive tracer, when injected into acupuncture points, diffuses in fascial trajectories which topographically correspond to classically described acupuncture pathways or meridians, giving substantial and modern proof of these ancient phenomena. When technetium 99 was injected in nonacupuncture sites, no linear tracing pattern was observed. Stimulation of the injected acupuncture points with a needle, electricity, or helium-neon laser all increased the migration rate along the meridian trajectories.[5] Fascia is electron-rich crystal lattice, allowing electron transfer and bioelectric fields to be transduced throughout the body, making an ideal semiconductive matrix and communicating network that conveys biochemical and bioelectrical information throughout the body, from a microscopic to a macroscopic level, throughout the fascial planes/meridians. The bioelectrical properties of acupuncture points in particular and fascia in general help provide a reasonable explanation for the meridians or acupuncture energy pathways. Researchers have described acupuncture points as penetrations of nerve-vessel bundles through perforations in the fascia.[5] It should not be surprising that the Chinese term for acupuncture point – **xue wei** – means "hole between the fascia", thus underscoring the importance of fascia.

Several studies have been done, and correlations have been made between acupuncture points and trigger points (71%), tender points (virtually 100% since any acupuncture point can be tender during a disease process, these are called "ah shi" or "ouch" points in Chinese), strain-counterstrain points (80%), and Chapman's points (60%).[27] A recent osteopathic article on trigger points suggests that trigger points (and possibly acupuncture points) are evoked by abnormal depolarization of motor end plates.[31] Trigger points have always responded to multiple treatment techniques, including dry needling (acupuncture) and OMT.[68-70]

Acupuncture signals modulate the relative contrast between background neuronal activity and pain signals, predominantly with the endogenous opioids, though major neurotransmitters are all involved and extensively documented at various levels: serotonin, norepinephrine, substance P, gamma aminobutyric acid, dopamine, adrenocorticotropic hormone (ACTH), beta-endorphin, methionine-enkephalin, leucine-enkephalin, dynorphins, histamine, bradykinin, prostaglandins PGE2 and PGF2 alpha, angiotensin, vasoactive intestinal peptide, and cholecystokinin.[5]

Bioelectromagnetic hypotheses add possible explanations to acupuncture's many mechanisms of action. William Tiller, PhD, Professor Emeritus of the Department of Materials Science at Stanford University, California, speculates that there seems to be a driving electrical field pushing positive ions to the surface of the skin, organized electrical fields from internal organs, as well as an electromagnetic field along the acupuncture pathways (meridians), all combining and creating an additional induced bioelectrical field at the skin's surface.[5] The standing wave superposition hypothesis proposes that the body's many electrically charged ions, electrolytes, and proteins all create bioelectrical fields pulsing through the body. The body contains many charged oscillators, emitting electromagnetic radiation of various wavelengths (as per the discussion above measuring organ electrical output with the ECG, EEG, etc.). These waves travel throughout the body, subject to decay, reflection and refraction at various boundaries of various densities or states of health (bones, muscles, etc.). The accumulation of these waves creates interference patterns, with the fascia and unique acupuncture point morphology with its increased electrical conductance, creating, channeling, and forming these cumulative wave amplitudes at the sites we call acupuncture points. These bioelectrical wave patterns from all over the body also accumulate at certain areas of the body to form somatotopic reflex patterns such as at the ear (ear acupuncture or auriculotherapy) and other sites (this author has counted some 25 such holographic microsystem sites throughout the body). The propagation of energy signals along the neuro-myo-fascial acupuncture pathways would occur without loss of charge because the body's metabolic energy constantly regenerates the standing fields and waves.[5] The bioenergetic fields and waves might, in fact, fluctuate with corresponding states of health and disease or somatic dysfunction, reflecting physical, emotional, and/or energetic blockages anywhere in the system and their consequent treatment. Sensitive practitioners of any tradition can sense these changes and diagnose and treat accordingly.[5]

A number of explanations, researches, and hypotheses have arisen over time to provide and explain some aspect of acupuncture's many mechanisms of action, and a few have been provided here. Each of these explanations provides a piece to the larger puzzle of its multisystem model, and each will create further investigation. These include:

- Fascia as bioelectrical conductor
- Distinctive neuro-hemo-lymphatic point morphology
- Bioelectrical transmission of signals
- Biochemical transmission and signaling of neurotransmitters, endorphins, enkephalins, hormones, and immunomodulators
- Peripheral and central nervous system cascades
- Diffuse noxious inhibitory control (DNIC) system modulation
- Increased vasodilation, blood flow, and temperature
- Homeostatic control of blood glucose (increasing blood glucose levels if they are hypoglycemic, and decreasing the levels if they are hyperglycemic)
- Reducing serum triglycerides and cholesterol
- Immune system modulation (increasing lymphocyte blastogenesis, increased phagocytic and fibrinolytic activity, increased beta and gamma globulins)

- Vibrational resonance
- Hologramatic interrelatedness of the body
- Enhancing the body's resistance to stresses through its autonomic and immune effects (Dr. Hans Selye, the pioneer researcher of stress, suggested acupuncture for these reasons)
- Microtubules and cytoskeleton bioelectrical and biochemical transmission
- Bioelectromagnetic hypotheses
- Thermoelectrical phenomena: when an acupuncture needle is inserted into the body, the tip is warmer than the handle, creating an electrical and temperature gradient and flow of electrons.[5]

Most ancient systems have named the effects of acupuncture by basically describing it as an energy phenomenon. Every language or tradition has devised names for the energy, the most frequently used being "chi" or "qi" (Chinese) or "ki" (Japanese). More modern practitioners have used the terms this author tends to use, such as bioenergy or bioelectrical energy, etc. The Asian acupuncturists describe various types of chi or energy, but the generic "energy" or "bioenergy", etc., is sufficient for the purposes of this paper. These generic terms are easier to use when integrating acupuncture into modern medical usages.[5]

The meridians or bioenergetic pathways have been called by many names over time. There are several circuits of meridians or meridian systems in the body, some paired left and right (mirror images of each other), some unpaired, and some as combinations of the others. A meridian forms a number of bioenergetic circuits and subcircuits through fascial planes, and thus develops from the embryo.[5]

Acupuncture points as well as their names have a long and interesting history. It is probably safe to assume that most acupuncture points and treatments were first discovered serendipitously. The Chinese have poetically and elaborately named and described each acupuncture point extensively, sometimes writing pages for a single point and its effects. There are over 300 traditional points on the meridians, with several hundred more not on the meridians. The points were originally named. The numbering system now used is a recent innovation. New acupuncture points and their effects are being discovered every year. Both old and new points are used in new combinations to treat old as well as modern diseases.[5]

Acupuncture needles have evolved over time. Acupuncture needles come in a variety of lengths and diameters, ranging from lengths of less than a centimeter to several centimeters, and diameters from .2 to .4 millimeters in general. Needles may be used for most areas of the body, thus determining their size, from tiny needles in the shallow surface of the ear to large needles in the large muscles of the back or legs. Needles may be inserted and left in place anywhere from seconds to minutes (sometimes even hours or days), depending on the condition/patient, with a rough average probably being 10-20 minutes. Needles may be manipulated, stimulated with magnets or electricity of varying frequencies and amps, positive or negative charges (by attaching an electric clip to the needle handle), or various herbal, homeopathic, or medicinal preparations may be attached to the needle handle.[5] The variety and combinations of acupuncture points, meridians and needling techniques are virtually endless. And combined with other healing modalities, especially OMT, the possibilities for treating and effectiveness are that much greater. The Food and Drug Administration (F.D.A.) in 1996 classified acupuncture needles as medical devices.

The three acupuncture points used in this study are described below.

- GV-4 (Governing Vessel #4). Its Chinese name "Ming Men" is approximately translated as "Gate of Life". GV-4 is located in the posterior midline depression inferior to the spinous process of the 2nd lumbar vertebra (L2). It is used frequently with BL-23 and Bl-52 bilaterally (these total of five needles are called "Ming Men"), reinforces and strengthens the lumbar region and back in general.[34]
- BL-23 (Bladder #23). It's Chinese name "Shen Shu" is translated as "Kidney Shu", the "Shu" points being a series of 12 points on the Bladder meridian on the back which affect each of the 12 major or Principal meridian/organ systems. BL-23 is 1 ½ cun (a Chinese term referring to body "inches"), or two fingers' width bilateral from GV-4.[34]
- BL-52 (Bladder #52). Its Chinese name "Zhi Shi" is approximately translated as "Will Chamber". BL-52 is located 3 cun (4 fingers' breadth) lateral to the inferior border of the spinous process of L2, thus 3 cun bilaterally from GV-4 or 1 ½ cun from BL-23.[34]

Together these five points, the midline GV-4 and the bilateral BL-23 and BL-52, are a special combination, greater than the sum of their parts, called **Ming Men**. A careful reading of acupuncture textbooks reveals that these points are quite strong, affect the body and mind in many powerful and profound ways, and address low back pain. As powerful and versatile as this acupuncture combination is, there were no English language articles found through an online literature search on the use of Ming Men. The Helms Institute course of Medical Acupuncture for physicians, sponsored through U.C.L.A.'s and Stanford University's medical schools recommends the use of Ming Men. Dr. Helms' course textbooks *Acupuncture Energetics, A Clinical Approach for Physicians* and *Point Locations and Functions*[5,6,34] also recommends Ming Men. This author is impressed by its efficacy for many conditions, and has used it often. The combined effects of reducing back pain and energizing the usually energy-drained patient more than recommend and justify its use. It may be combined with other acupuncture points or protocols for added effects.

There are a number of major and minor acupuncture styles, philosophies, and techniques evolving throughout the world. These include Traditional Chinese Medicine (TCM), many Japanese styles such as Toyo Hari and Ryodoraku, Yamamoto New Scalp Acupuncture, Five Element, Auriculotherapy and Auricular Medicine (ear acupuncture), Korean hand acupuncture, French energetic acupuncture, Percutaneous Electrical

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Nerve Stimulation (PENS), periosteal stimulation, and a number of acupuncture microsystems (5). As mentioned above, it is hypothesized that some combination or interaction of various wave fields and/or hologramatic patterns may be responsible for forming the many microsystems within the body (5).

The National Institutes of Health is spending millions of dollars on acupuncture research. It convened a consensus conference in 1997 on acupuncture, reviewing over 2300 research papers on acupuncture, determining that there is clear evidence for some uses of acupuncture, and is appropriate as part of comprehensive care in many medical conditions. Chairperson, Dr. David J. Ramsay (President of the University of Maryland) stated, "There are a number of situations where it really does, in fact, work – the evidence is very clear-cut. It has few side effects and is less invasive than many other things we do. It is time to take it seriously."[71] The World Health Organization recognizes and encourages the use of acupuncture for a variety of conditions, as do mainstream medical organizations like the American Osteopathic Association:

"Whereas, Osteopathic Medicine is not limited in the use of any beneficial therapeutic or diagnostic modality; now, therefore, be it resolved, that the American Osteopathic Association recognizes that acupuncture may be a part of the armamentarium of qualified and licensed physicians."[72]

Literature Review of Combined OMT and Acupuncture

A computer-based English literature search through several large sources, including the National Library of Medicine, Ovid, PubMed, Medline, and DO-Online reveals thousands of papers on acupuncture, OMT and other manipulative modalities, and recommends these as separate treatments for patients/conditions. Only a very small number of papers, books, and lectures have been written specifically combining OMT and acupuncture. They will be listed here in chronological order with brief comments.

- The May 1972 issue of *The D.O.* contained four articles on the subject of acupuncture, only the second and third recommended combining OMT and acupuncture:
  1. Chinese Medicine: a Firsthand View (an interview with Kenneth Riland, DO by Barbara Peterson);[10]
  2. How One DO Uses Acupuncture (an interview with Harold S. Saita, DO, by George W. Northrup, DO);[11]
  3. DO Demonstrates Acupuncture on National TV, Teaches at Rehabilitation Conference (a report on Henry Nemerof, D.O., by Barbara Peterson);[12]
  4. Acupuncture: Notes from Written Sources (an article by Barbara Peterson).[13]

The first article, an interview with Kenneth Riland, DO, was in response to President Richard Nixon's 1972 visit to and establishing diplomatic relations with the People's Republic of China. Dr. Riland was President Nixon's personal physician, and while accompanying him to China, was invited to observe acupuncture treatments, including surgery and anesthesia, which totally amazed him. Dr. Riland, an avid supporter and practitioner of OMT, knew nothing about acupuncture prior to this visit. This visit opened relations between the U.S. and China, and sparked the new renaissance of acupuncture in the States.

The second article is an interview with Harold S. Saita, DO, who explains in detail how he treated patients with acupuncture and combined it with OMT. He observed that there was a correlation between acupuncture points, Chapman's points and trigger points.

The third article reported Henry Nemerof, DO, demonstrating acupuncture that same year on the Mike Douglas show. Dr. Nemerof, a physiatrist, had lectured on acupuncture at the American Osteopathic College of Rehabilitation Medicine conference. He experimented with acupuncture and electrical currents, sound waves and vibro-massage. He combined OMT with acupuncture.

The last article was a review and discussion on what little was known at the time of acupuncture, including comments by Dr. I. M. Korr: "Acupuncture appears to have a neural basis, but it seems to involve pathways not yet known." These four articles together are a little piece of history, for they are the beginnings of the Osteopathic profession's exploration of the "new" world of acupuncture and integrating it into their own.

The next seven articles are out of print:

- Clinical Experiences with Acupuncture, by H. Nemerof, DO[14]
- Acupuncture in the Service of Osteopathic Medicine: A Pathway to Comprehensive Patient Management, by H. Nemerof, DO[15]
- Modern Scientific Medical Acupuncture, by H.S. Saita, DO[16]
- Acupuncture – A Measured View, by D.H. Mills[17]
- Acupuncture: Its Status Today, by H.A. Ross and H. Nemerof, DO[18]
- American Acupuncture, Editorial[19]
- Acupuncture in the Management of Headache, by H. Nemerof, DO[20]
- Trigger Points vs. Acupuncture Points, by Louis Vanderschot, DO.[21] This was originally presented to the American College of Sclerotherapy at the 1975 AOA Convention. He correlated acupuncture points with trigger points, and recommended combining OMT, acupuncture, and sclerotherapy.
- Correspondences Between Chapman's Reflexes and Acupuncture Points, by John E. Upledger, DO.[22] This paper correlates 48 Chapman's points with a number of acupuncture points, as well as "Associated Points" (now called "Shu" points) on the back with their paravertebral, segmental, and visceral relationships. He mentions his combination of treating acupuncture points with Chapman's reflex points.
- Osteopathic Medicine and Traditional Chinese Medicine, by John E. Upledger, DO, FAAO.[23] This brief paper describes acupuncture concepts, and describes several ways in which acupuncture and osteopathic philosophies and techniques complement one another. "Their philosophies are based on widely divergent cultural experiences, but share an underlying holistic approach to man as the maker of his own medicine… In my experience, the two schools of medicine complement each other well."[23]
- Integration of Acupuncture and Manipulation, by John E.

Upledger, DO, FAAO.[24] Indications and complications of acupuncture are discussed, then several conditions are addressed, using small 25 or 27 gauge disposable hypodermic needles instead of acupuncture needles, and combining all with OMT: acute low back pain, sciatica, acute sacroiliac dysfunction, specific intervertebral motion restrictions, acute intercostal neuralgia and herpes zoster, mobilization of the diaphragm, relaxation of the cervical musculature, and headache.

- Management of Autogenic Headache, by John E. Upledger, DO, FAAO, and Jon D. Vredevoogd.[25] This article discusses combining cranial techniques with acupuncture.
- Acupuncture: A Comprehensive Text, by John O'Connor and Dan Bensky, DO.[26] This large (741 pages) textbook, coauthored by an osteopathic physician/acupuncturist, has become a classic in acupuncture literature since 1981. OMT is recommended with acupuncture for several conditions: cerebrovascular accident (CVA), headache, chronic low back pain, and stiff neck.
- Acupuncture Energetics, A Clinical Approach for Physicians, by Joseph M. Helms, MD.[5] This is the premier acupuncture textbook for physicians (757 pages), and this author has quoted from it extensively in this paper.[5] Dr. Helms has traveled all around the world for thirty plus years learning and then teaching acupuncture. Probably more than any other physician, he is responsible for introducing and teaching medical acupuncture in the USA, as well as founding the American Academy of Medical Acupuncture. He recommends the combination of OMT (especially cranial osteopathy) with medical acupuncture, and has devoted a subchapter in his textbook to this topic.
- Acupuncture and Osteopathy, by David E. Teitelbaum, DO.[27] This lecture was given at the 1999 American Academy of Osteopathy Convocation in St. Louis, MO. Dr. Teitelbaum delineated the many similarities between OMT and acupuncture, philosophically and in practice, correlating acupuncture points with Chapman's Points, Travell's trigger points, and Jones' Strain/Counterstrain points. He also touched upon the efficaciousness of OMT and acupuncture treatments of energetic, psychological, and spiritual conditions.
- Integrating Acupuncture and Manual Medicine, by Jay Sandweiss, DO, and Dan Bensky, DO.[28] This paper discusses the similarities and differences between manual medicine (and OMT) and acupuncture. It shows how putting them together synergistically complements their therapeutic efficacy.
- Osteopathic Vertebral Manipulation and Acupuncture Treatment Using Front Mu and Back Shu Points, by David E. Teitelbaum, DO.[29] An anatomic analysis of Mu and Shu acupuncture points, which are used to affect visceral function, proposes that they have a similar mechanism of action to OMT in alleviating hypersympathetic viscerosomatic reflexes.
- Acupuncture and Osteopathic Manipulative Medicine for Ulnar Neuropathy, by William H. Stager, DO, MS.[30] A case report describing combining OMT and acupuncture on a patient who had accidentally severed his left ulnar nerve at the elbow. The nerve was reattached a week after the accident but the expectation for recovery by the surgeon was extremely low. The patient has regained most of his strength and sensation over time with combined OMT and acupuncture.
- Travell Trigger Points – Molecular and Osteopathic Perspectives, by John M. McPartland, DO, MS.[31] This paper goes into great detail on trigger points and the latest research and theories of origin, perpetuation, and treatment, including OMT and acupuncture.
- Yamamoto New Scalp Acupuncture (YNSA) Acupoint Frequency in the Treatment of Herniated Lumbar Disc, Lumbar Radiculopathy, and Mechanical Low Back Pain, by Richard A. Feely, DO, FAAO, FCA, FAAMA.[32] YNSA is a fascinating, new (since 1973), and complete acupuncture micro system. All the treatment points are located on the head and face. This study of 115 patients concluded that YNSA and OMT for low back pain resulted in immediate relief with a minimum of needles.

As further examples of some of the hundreds of papers and books written on the separate subjects of OMT and acupuncture, two textbooks and eleven papers are listed in the reference section for the interested reader.[73-85]

Conclusion

Osteopathic manipulative treatment (OMT) and acupuncture can be used to treat patients with acute mechanical low back pain. The two modalities can be used separately or combined together for effective results. To date, there have not been any studies to determine if order of treatment makes any difference in outcome. The results of this small retrospective case study reveal that the order of treatment did not result in any significant difference in outcome of pain relief.

An overview and explanation of OMT and acupuncture, including some of the latest scientific research and theories have been discussed. They share a great deal in their holistic, inclusive philosophies, and their many and similar mechanisms of action, along with their central theme of the all-pervading fascia and its many biomechanical, biochemical, and bioelectrical properties. Palpatory diagnosis and treatment are also central to both systems, from a physical to an energetic perspective.

Limitations of this study include:

It has a small number of subjects.[30]

It is a retrospective study.

The author had previously treated all of the patients for various conditions, so they could have had expectations that could account for a possible placebo effect.

The osteopathic diagnosis was individualized to the patient.

The osteopathic manipulative ireatments were similar but not identical.

It is hoped that this paper will lead to future studies addressing such issues as: do OMT and acupuncture impact frequency, severity, and/or duration of a condition, costs, etc.

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Combining osteopathic manipulative medicine and acupuncture is rewarding for both patient and physician, providing a contemporary, integrative, interdisciplinary approach to an ever-broadening scope of complete patient care.

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CME QUIZ

The purpose of the quiz found on the next page is to provide a convenient means of self-assessment for your reading of the scientific content in the *"Osteopathic Manipulative Medicine and Acupuncture Combined: A Retrospective case study to determine if order of treatment makes a difference in outcome for acute mechanical low back pain"* by William H. Stager, DO, FAAO. Answer each of the questions listed. The correct answers will be published in the March 2008 issue of the *AAOJ*.

To apply for Category 2-B CME credit, transfer your answers to the AAOJ CME Quiz Application Form answer sheet on the next page. The AAO will record the fact that you submitted the form for Category 2-B CME credit and will forward your test results to the AOA Division of CME for documentation.