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Treatment of Eosinophilia Myalgia Syndrome with Osteopathic Manipulative Medicine: Interview with Kim Sing Lo, D.O.

Kim Sing Lo, D.O. is board certified in Osteopathic Manipulative Medicine (OMM) by the American Osteopathic Association. He was in private clinical practice in New York City from 1994 until his retirement in 2015, rendering hands-on Osteopathic Manipulative Treatment (OMT) to a large assortment of patients with different medical conditions. Dr. Lo has also held several teaching positions. He served as Assistant Professor of OMM at the Kirksville College of Osteopathic Medicine in Kirksville, Missouri (the world's foremost institution of osteopathic medicine) from 1991-92. From 1992-94 he was Assistant Professor at the New York College of Osteopathic Medicine. Besides that, he has taught osteopathic intern physicians and students at Lutheran Medical Center in Brooklyn, NY. Dr. Lo was a recipient of a 1990 research grant from Burroughs Wellcome and Mead Johnson to study the effects of OMM on patients with fibromyalgia. Dr. Lo is a member of NEMSN's Medical Advisory Board, and has demonstrated the effectiveness of OMM in the treatment of EMS patient symptoms.

Since the 1989 epidemic, EMS patients have struggled with post-epidemic symptoms that can be overwhelming and debilitating. Very few effective treatments exist and some, like corticosteroids, can provide transient relief. However, sustained use of such drugs can lead to additional non-EMS complications. One possible alternative option is the use of OMT. This is not widely known or understood as a possible treatment for EMS and its myriad of assorted symptoms. Dr. Lo has practiced OMT for over 20 years, and NEMSN interviewed him on September 14, 2021, in order to gain more insight and understanding into the potential benefits of OMT in treating EMS patients. At various points Dr. Lo offers very technical information for any readers who want to acquire an in-depth understanding. The interview has been edited for brevity and clarity.

1. What is OMM?

Answer: OMM is the abbreviation for Osteopathic Manipulative Medicine, and treatment protocols are referred to as Osteopathic Manipulative Treatment (OMT). The American Osteopathic Association defines OMM as "… the [study of the] interrelated unity of all systems in the body, each working with the other to heal in times of illness". In addition, the Philadelphia College of Osteopathic Medicine, suggests OMM "... is a comprehensive approach to health care in which osteopathic physicians (DOs) apply osteopathic philosophy, structural diagnosis and the use of OMT in the diagnosis and management of patients".

As a D.O. of many years standing, I would prefer a simpler definition of OMM. First and foremost, the physician must utilize appropriate OMT techniques to maximize the patient's own healing potential and must consider the patient's own body intelligence. What do I mean by "body intelligence"? Our bodies have the ability to regulate homeostasis automatically. Friendly or hostile exogenous input to the body will elicit an automatic response. The body (host) protects itself. For example, if you ingest substances such as food, chemicals, inhalants or drugs that are not acceptable to the host, your body will find ways to expel the "toxic" substance through the gastrointestinal tract or integumentary system (which includes the skin and associated organs). In a similar manner, if I, as an OMT physician, apply inappropriate force to your tissue, the body will respond with more tension locally or elsewhere. Hence, I humbly "listen" (or respond) to these subtle signals, and allow the body to continue the self-healing process aided by my more subtle interactive contact with the patient.

2. What are some of the different techniques of OMT?

Answer: We have many different types of OMT techniques. OMT techniques can be differentiated into two categories and are categorized as direct or indirect. The direct technique attempts to correct dysfunction by approaching the physiological barrier with direct force. An example, a is high velocity low amplitude (HVLA) technique, namely the famous "popping and cracking" technique. It involves a quick adjustment for vertebral or articular restriction. Both patient and provider may get instant gratification, or fear, from the "popping and cracking" sound during adjustment. This technique carries a higher risk of injuring the patient, especially the vertebral artery in upper cervical spine adjustment. However, when correctly performed it is a very safe and effective technique for headache, brain fog and temporomandibular joint syndrome.

The indirect techniques may involve much more time and only very gentle force. The indirect techniques use an activation force, a gentle force applied by the physician's hands, opposite to the physiological barrier. One of these techniques, the muscle energy technique, is a typical one used in OMT. We use the Golgi tendon reflex mechanism to relax the muscle that is holding up the physiological barrier by providing force away from the latter. This approach is both very effective and offers minimal risk to the patient.

Consider an acute traumatic injury with lots of muscle spasm. A direct technique, such as HVLA, may correct the acute articular restriction and may restore normal range of motion immediately. But the acute traumatic injury may also benefit from indirect techniques such as muscle energy technique. If the indirect techniques of craniosacral or myofascial release can provide a similar result with minimal risk to the patient, then the direct technique may not be necessary, in my experience.

It is important to pick the appropriate techniques for the particular patient, since this will bring about a more optimal response by the patient's body.

3. In your experience can OMT be used to treat EMS patients?

The short answer is yes, but with caution and consideration. I have learned from experience to rely on the feedback coming from the patient's body, in general, and from the EMS patient's body in particular. I rely on a moment-to-moment analysis of what is happening to the EMS patient's body, determined by what my hands on the patient are sensing. I have had to learn not do too much, but to do the appropriate amount of manipulation. It has been very important to be careful not to over manipulate the patient's system but to give the right amount of treatment so that the body can accept and make use of the treatment. I learned with EMS patients that the amount of treatment they can tolerate might be smaller than what the typical patient can tolerate. It can be humbling for the doctor and patient alike to realize the healing potential in even very difficult physical situations. With the right amount of treatment, the patient is physically relaxed and has less discomfort immediately at the end of a session. The patient's own healing systems will be expressed afterward, to their potential and at their own pace, during the following days after an OMT session.

It is important to recognize that EMS patients are a unique subset of individuals who can benefit from OMT. The response of EMS patients to the same OMT techniques is different compared to approximately 95% of non-EMS patients treated by me. I have been asked specific questions about EMS patients in the past, such as the following. Are EMS patients hypersensitive to treatment? Are they less responsive to treatment? Or are they just more delicate and their body is only able to handle a small dose of treatment? Is their autonomic nervous system less responsive after direct spinal or joint adjustment?

In order to contemplate such questions, it might be useful to consider a known common medical situation. A good analogy is an obese patient recovering from a significant stomach bypass or removal surgery. If the patient starts eating before the intestinal tract is properly healed, this will cause an adverse reaction and assorted complications of the surgery. The desire of the patient to eat a "normal sized" meal is due to memory and behavioral conditioning, pre-surgery. If this patient then tries eating a smaller portion, say 25% portion of what he/she used to eat, then still has bloating or abdominal discomfort, cutting this small 25% meal to an even smaller portion should eliminate the symptoms. This action-response-action-response situation is similar to that practiced in OMT, but the difference is that in OMT the action-response is occurring "in real time" during an OMT interaction between the patient and the physician. The physician is constantly adjusting treatment, depending on how the patient's body's reactions feel to the physician's hands.

Another problem for EMS patients is the difficulty in recognizing that their ownmusculoskeletal and immune systems are significantly compromised. EMS patients may require a much longer period of time to recuperate from any physical stress than people without EMS do. Too much treatment by the physician may cause similar side effects and may hinder healing. In my opinion, the EMS patient's overall condition may be likened to that of a fragile newborn baby. All their organs, tissue, physiology and anatomy are working but are compromised in efficiency. Newborn babies will grow and mature, and it is similar with EMS patients. Consider the fact that a newborn baby vomits if it drinks more than the stomach is able to handle. Analogous situations occur with someone with EMS. In the case of EMS patients, recognizing the problems and

limitations of one's own body and then working with a physician using OMT may offer a gradual , but real, progression back towards some semblance of a productive and enjoyable life.

4. How does OMT work?

Answer: In the more conventional medical world, mechanistic considerations of how a therapeutic approach works is considered paramount. In the world of OMM a more holistic consideration is brought to bear. I cannot explain all of OMM in terms of basic mechanistic descriptors, but I do know that OMT facilitates the body's needs.

Every time I treat a patient in general, or an EMS patient in particular, there is a very real metaphysical connection between that patient and me. The patient's body directs me to apply the appropriate amount of contact at the skin or the body's inner structures. Again, I am a humble servant carrying out the patient's silent body commands.

We do understand elements of OMT and how it works. One example would be techniques in the craniosacral treatment repertoire to improve cerebral spinal fluid (CSF) and cranial venous flow. If the patient achieves better CSF and cranial venous flow, mental alertness will increase and brain fog will decrease. In a craniosacral approach, I am really talking about CSF production in the ventricles and absorption through the cranial venous system. Anatomical considerations to be considered include the jugular foramen and foramen magnum. Any significant muscular or articular tension in the suboccipital area will impede CSF flow between the cranium and the rest of the spine. We know our nerve fibers are very sensitive to any chemical or electrical composition changes. If the suboccipital area is tight, then vertebral arteries which serve as a back up supply from the posterior cranial fossa may be affected. Cranial nerves IX, X, XI and jugular vein exit through the jugular foramen. Hence cranial venous return may slow down. Cranial venous congestion is expected. Brain fog is a possible result. Occipitomastoid suture restriction from temporal bone dysfunction is a common finding. If you palpate deeply on the soft tissue of the occipitomastoid suture, this area is usually tender or painful to palpitation. There are techniques to release cranial suture restriction. These treatment techniques require a gentle touch and then a waiting period for the body to respond.

5. How is OMM related to the human Immune System?

Answer: Psychoneuroimmunology is the latest branch of science that is helping to unravel the mind, body and immune system connections. The glymphatic system of the central nervous system highlights the significance of normal cerebrospinal fluid, CSF, and cranial venous flow with lymphatic drainage. The adrenal hypothalamic connection also has indirect influence on the immune system. [*Editor: Distinct from the lymphatic system, the glymphatic system "is a network of vessels that clear waste from the central nervous system (CNS), mostly during sleep". Much more information at* https://neuronline.sfn.org/scientific-research/understanding-the-glymphatic-system.]

I have not looked into the scientific detail of myofascial connections with the immune system. It is my understanding that immune cells are everywhere at the fascial level. Any abnormal

stimulation from the nervous system to the fascia can trigger an unwanted local immune response. Most osteopaths that use the craniosacral approach believe that "the artery is supreme but CSF remains in control". *[Editor: The fascia is a type of connective tissue that extends from head to toe to provide support and protection to your muscles and bones. Myofascia is a particular type of fascia that surrounds muscles., and provides a strong support for the muscles, while at the same time allowing for flexibility.]*

6. Does OMT affect the Immune System?

It is a simple question, but it's not so simple to answer. So before I answer, it is important to understand what the autonomic nervous system (ANS) and immune system response (ISR) do within your body. The ANS is part of your peripheral nervous system that helps control many of your physiological processes such as heartbeat and blood pressure. It has three components, namely the sympathetic nervous system (controls activity and attention -- think of the fight or flight response), the parasympathetic nervous system (controls rest and digestive processes) and the enteric nervous system (controls primarily digestive processes). The ISR helps protect your body against microbial invaders such as bacteria and viruses. It consists primarily of the Innate IST (white blood cells such as eosinophils that kill microbes) and adaptive ISR (B and T cells that both produce and help antibodies in your bloodstream). Recently it has been shown that there are clear connections between your ANS and ISR. In particular, the acute activation of the sympathetic nervous system attenuates the innate immune response.

Now back to the question. I know from experience that my patients have been less prone to infection and have recovered from infection quickly. Both the ANS and ISR have been regarded as systems that cannot be easily influenced by treatment. However, as mentioned earlier, the activation of the sympathetic nervous system damps down the innate immune response. Thus, I believe that OMT facilitates the normalization of excessive autonomic input to the innate immune system by eliminating vertebral or fascial restriction. Thus a normal autonomic response will have influence on the adaptive immune system. In summary, yes, I believe OMT can affect your ISR, albeit in a somewhat indirect way, via the ANS.

7. For patients who have suffered from EMS, do you know if their immune systems are either immunocompromised or overactive?

Answer: I don't have any scientific data to conclude that patients who have suffered from EMS are either immunocompromised or that their immune systems are overactive. I could speculate based on my experience of treating a very limited number of EMS patients. As noted before, my patients didn't have more than the normal viral, bacterial or other opportunistic infections once I started treating them. I couldn't say if they were immunocompromised. Their central nervous systems may have been overactive. As mentioned earlier, it could be easy for an OMT doctor to over-treat patients with EMS. If this occurs, patients end up with more discomfort and pain the following week. I learned how to avoid negative responses by cutting down the amount and intensity of treatment. Patient reports confirmed this for me.

I've found with EMS patients whom I've treated and also with those I've been in touch with via NEMSN communications, that people remember what their healthy body systems were like before getting sick and expect to get back to their "normal". After being stricken with EMS they find that their physical abilities have dropped to such a low point that they, and also even I as a physician, can almost not believe it. If they then try to do all the same physical things they used to do, or even if I give them the amount and intensity of treatment that a person without EMS would benefit from, the result would be a temporary increase in pain and bodily dysfunction. Once the patient learns to not try to do too much physically, as I always try to listen to the patient's body more in order to give the appropriate amount of treatment, the patient may start making substantial progress.

8. For patients with EMS, fibromyalgia and autoimmune disease what can OMT do to alleviate symptoms?

Answer: As I explained previously for patients with EMS, I would start with short craniosacral treatment sessions or myofascial treatment sessions until I understood the amount of treatment appropriate for that particular patient. *[Editor's Note: Dr. Lo explains that myofascial release treatment is a gentle contact to the patient's body made in order to sense the direction and pulling of the fascia or myofascial tissue. Gently matching up or exaggerating the fascia or myofascial pulling force, based on the body's response to the touch, usually will elicit relief locally or in a bigger area of the body].* For those who exercise, I allow them to continue doing the physical exercises they like, but they should only do only 25% of the duration and intensity of their usual workout. If this is still too much, they must cut another 50%. If the patient still has problems at this point, the person must stop all exercises until treatment starts offering some relief. The bottom line is to find the appropriate level of exercise that will not add more fatigue or agony to their body. Again, the physician must remember that it is possible to over exert the patient with osteopathic treatment. The physician must respect the fragile body system of the EMS patient. Once both the patient and the doctor accept this fact, finding the appropriate amount of treatment is more readily attainable.

Fibromyalgia patients have a different problem. They frequently exhibit postural imbalance. They have repetitive trauma from abnormal posture. The prolonged use of cell phones and computers is a major factor to address. Most osteopathic treatment techniques are helpful for the fibromyalgia patient. Craniosacral technique for CSF and cranial venous flow frequently improve the quality of sleep. Exercises also help to decrease fatigue and pain. Finally, I have not treated enough autoimmune disease patients to make any further comment.

9. For patients suffering from "Long Haul Covid-19" would your treatments be different from how you would treat those same patients who have not had Covid-19?

Answer: First of all, please note that to date I have not treated any "Long Haul Covid-19" patients and cannot provide you with any actual experiences. What I tell you below is just my opinion. Any Long Haul Covid-19 patient and physician providing OMT should consider these suggestions.

My preliminary examination and interactions with a Long Haul Covid-19 patient would be the same as with any other patient. I would think about the same treatments considered for other patients, based on their symptoms. This is assuming that the Long Haul Covid-19 patient can tolerate treatment sessions, which typically may take 45 minutes or more. Having said that, Long Haul Covid-19 patients have some specific issues to address. A more careful examination of individual cranial bones is prudent. For example, the Covid-19 issue of not being able to smell and taste needs more careful assessment, plus treatment to the cribriform plate, crista galli, ethmoid bone, frontal bone, falx cerebri, falx cerebelli, and tentorium cerebri, besides making sure the CSF and cranial venous flow are smooth and adequate. Brain fog, headache and dizziness may improve with these treatments. Also, as I mentioned earlier, attention must be paid to the suboccipital area, which is important to improve lymphatic and venous return to the vascular system. Less tension in the suboccipital area will result in less soft tissue tension on the carotid and vertebral arteries.

If the patient has pulmonary issues after Covid-19 or Long Haul Covid-19, I would make sure the temporal bones are in normal motion. Let me explain. When you breathe, the movement of the joint between the sphenoid bone and the occipital bone, and the midline bones including the sphenoid, occiput, ethmoid, and vomer all undergo flexion and extension during inhalation and exhalation. This in turn is coordinated and responsible for the external and internal rotation of the pair bones in the cranium. Osteopathic physicians believe temporal bones can indirectly affect the rib cage motions. Direct treatment techniques applied to the mid-thoracic area may normalize the sympathetic innervation tone to the respiratory system. In addition, the release of the occipitomastoid suture to minimize irritation on the vagus nerve is also important to consider. This ensures proper parasympathetic innervation to the lung and gastrointestinal tract. Finally, both Covid-19 and Long Haul Covid-19 patients can benefit from craniosacral treatment to clean up any residual inflammation by providing a more normal CSF flow and less venous congestion in the central nervous system.

Dr. Lo, NEMSN thanks you for sharing your information, thoughts and experience!

To find a physician trained in cranial techniques that Dr. Lo recommends for EMS patients, go to https://cranialacademy.org/ or to https://www.jamesjealous.com/additional-resources/physician-directory/.

(Please note the opinions expressed in this article are solely those of Dr. Lo and do not necessarily reflect the viewpoint of NEMSN.
Readers should consult their own physicians if concerned about immunocompromised/overactive immune situations and Covid-19/Long-Haul Covid-19.)

Response to Dr. Lo Interview by EMS Patient Lois Vierk

I have suffered chronic pain and EMS symptoms with no respite for many years. At the time of the epidemic my symptoms were relatively manageable but in 1998 an unexpected, impactful, and debilitating attack occurred, leaving me with chronic pain and decreasing physical function. Unfortunately, for the next 18 months I found no help or understanding from the myriad of physicians consulted.

Finally I arrived at Dr. Lo's office in New York City in September 1999. By that time I was wracked with pain day and night, I was dizzy and short of breath, I sometimes had trouble swallowing, and I'd suffered a cognitive dysfunction. I went to see Dr. Lo basically to satisfy the insistence of my husband and family to "try everything" before giving up. My husband's family (in Florida) told me that they had found help for back pain from a local OMT physician. This doctor, in turn, told me that a former professor of hers, namely Kim Sing Lo, D.O., was a practicing physician in New York City, close to my home in New Jersey. I went to see Dr. Lo, with very low expectations, convinced this would be yet another fruitless trip to yet another indifferent doctor.

Dr. Lo listened carefully to me as I described my symptoms. (This already was different from the other doctors I'd consulted.) He observed how stiff my physical movements were. He was kind, compassionate and thoughtful. He told me to lie down on the treatment table. I don't remember how long that first session lasted but I have to guess about 45 minutes. The manipulation, done in large part to my head, was gentle yet I sometimes could feel a gentle tingling sensation flowing down to my legs and feet, even though the doctor was touching only my head. I didn't know what was happening, but it felt like there was movement within the body where there had been nothing but stagnation before Dr. Lo’s ministrations. It was somewhat surprising, but my body felt very relaxed after the treatment.

Dr. Lo suggested that I return in a week. I made the next appointment, glad that something had happened within my body, though I didn't know yet if it would ultimately be helpful or not. I don't recall exactly what that first week between appointments was like. I continued to come back weekly though. After a short time one horrible symptom, namely a constant burning pain inside the skull on the top of my head, went away completely. This symptom hardly ever comes back. The next symptoms that were alleviated, over more time, were constant shortness of breath, difficulty swallowing and the intractable dizziness that had plagued me for a year and a half. These symptoms gradually lifted and disappeared, and they hardly ever return now.

As a patient with chronic EMS it feels to me like the body constantly wants to tighten up. OMT does not cure this but certainly makes the tightening temporarily go away. I still get symptoms anywhere, from head to toe -- leg cramping, internal cramping in my chest and abdomen (which feels like torture), pain at the top and at the bottom of the spine, tingling neuropathy in arms and legs, dreadful trouble sleeping, stiffness anywhere, the list goes on. Dr. Lo's treatments would always loosen up the body and I would walk out of his office in much less pain, with all symptoms turned down, and feeling in a much better mood. In order to keep the effects of treatment for as long as possible, and as strongly as possible, I've learned to do supplemental things. I take it easy for the rest of the day after treatment. A nap is good. I do no physical

exercise that day and spend little time typing at the computer. I drink a lot of water, especially in the hours right after OMT. Usually the night after osteopathy is my best night's sleep for the week. Then starting the next day I begin exercising. Over the years I've depended on swimming and walking, augmented with anything else to relieve tightness, such as stretching exercises and a particular breathing discipline, which all help to relax the body. It's been hard to learn how much exercise to do and even after all this time I still don't always get it right. Too much exercise can bring on a painful attack but too little allows the pain and stiffness to quickly take over again.

Some symptoms go away forever after OMT treatment. The underlying EMS body tightness always returns however, with various manifestations. I get treatment weekly, even now. It's comforting to know that once again, treatment will bring down the pain and other debilitating symptoms. After finding Dr. Lo and OMT I was able to get rid of all my pain medications over a period of perhaps three years or so.

I went to Dr. Lo until he retired in 2015. Currently I'm fortunate to be seeing another OMT doctor in New York City who also helps me greatly. I know of another epidemic EMS patient who has seen this same doctor and also reports benefits from OMT. On the way to getting settled with my current doctor I visited a number of other OMT physicians. They were all different in the techniques they used to treat my symptoms and pain, but I benefited from each physician's work on me. One of these doctors shared with me that before moving to the East Coast, she had treated approximately a half dozen EMS patients who had been newly diagnosed after ingesting commercially available supplements.

I count myself lucky to have stumbled onto OMT, and I'm grateful to the physicians who have treated me over the years. Dr. Lo and his OMT colleagues have changed my life and made living with my pervasive EMS symptoms much more bearable. Conventional medicine failed me, but OMT, through the efforts of Dr. Lo and others, provided an alternative approach to treating EMS.