



## Whiplash Associated Disorders (WAD): An interventional pain & regenerative medicine approach.

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### Introduction:

The socioeconomic impact of “whiplash” trauma can not be understated. Since the 1950’s when the term was first used in JAMA by Gay and Abbot<sup>2</sup> this term has become a household term. The term “whiplash associated disorder (WAD) was introduced in 1995 by the Quebec Task Force, who published the first systematic review on whiplash injuries.<sup>6</sup> This term was chosen because of the broad spectrum of disorders associated with whiplash trauma injuries.

The cost of care nationally and internationally is staggering for WAD. And worse we really do not have studies on the prevalence of long lasting work disability associated with WAD. There are studies to suggest a significant number of individuals loose time off work 46%.<sup>8</sup>

In 2002 the estimated cost of WAD in the US alone was 201 million.<sup>1-3</sup> We will review some of the pathophysiology of whiplash trauma because it is critical for you to have some idea about the cause of chronic pain after whiplash trauma so you can be a more informed consumer of healthcare. Because many seek extensive treatment initially for injuries associated one can consume a significant amount of healthcare services at significant expense and find themselves having experienced very little improvement. It is helpful for a medical provider who is directing care to whiplash trauma patients to have a background in the various disciplines such as chiropractic, acupuncture, massage, manual medicine, physical therapy, rehabilitative medicine, interventional pain management. Finding providers like this is somewhat of a challenge but they are out there.

### Brief anatomy review:

There are a few things that you need to know in regard to anatomy of the cervical spine to begin to understand how chronic pain develops, why things may not heal and where new technological advancements becoming available to patients fit it. The cervical spine has some vertebra that are more typical. That is to say they have paired joints in the back portion of the spine called “facet joints” that are housed in ligaments called the “facet joint capsules”. These structures are critical for you to know about and we will be referencing them frequently throughout the remainder of this paper. Other features of typical vertebra in the cervical spine also have rounded vertebral bodies and discs that set between these segments. We will write more on

that arrangement later. There are also both typical and atypical vertebra that are found in neck. The atypical vertebra are for the most part in the upper neck.

The atlas: Seen as the circular bone to the right

The axis: Seen as the vertebra with a finger like projection to the right  
The occiput: The base of the back of your head.

One vertebra (the atlas ) does not even have a vertebral body but is a ring shaped bone that sits on a finger like process called the odontoid process shown in the image to the right. This arrangement allows for better rotation around the process. For this reason we enjoy a great deal of rotation motion at this C1 and C2 segment. The C1 segment also articulates with one of the bones of the skull called the occipital bone. The C1 “ring” (atlas) has joints on the top that join the occiput and that set of joints is more designed for flexing and extending you head forward and back. This atlanto-occipital joint and atlanto-axial joint is so complex we will address injuries to

this set of joints in a separate paper. In brief there are critical ligaments and soft tissues that support this region. And as we will see there are also critical muscles in this region that can also be a partial source of pain. An interesting thing about these joints in the upper cervical spine is there is no disc! This is very unlike the rest of the cervical spine. The anatomy of these upper cervical spine segments is quite complex. Just look at just one layer of the multiple small muscles attaching to this region. All of these small muscles are capable of producing pain and when tension in the muscles is maintained they are capable of causing joint dysfunction and persistent pain. But that is getting ahead of ourselves.

**Disc:** The cervical discs are anatomically dissimilar to discs in other regions of the spine. Those differences are not important for this discussion. The disc has fibrous rings on the outside of the disc similar to other regions of the spine. These fibrous rings are quite pain sensitive. The disc has a mobile center that simulates beef fat similar to other regions of the spine. See our article on the annular tear on this website for further information on the anatomy and function of the disc. These discs do degenerate over time which has a whole host of potential effects on the mechanics of the spine.

**Important vessels:** There are two important arteries that will be important to our discussion of whiplash associated disorders.

**Vertebral artery** – The vertebral artery travels through small holes along the “transverse processes” on the side of the spine as shown by the orange arrow to the right.

**Carotid artery** – The carotid artery travels from a large vessel at the base of the neck and extends up into the brain. It divides into 2 large branches the internal carotid enters the base of the skull and is a major supplier of the brain's blood supply. There are important nerves that literally wrap around this artery and make their way into the brain. These nerves are the sympathetic nerves. These nerves can be stretched in some patients during whip lash injury

leading to one of the associated whiplash disorders called Barre' Lou syndrome. This is not common but will be discussed briefly later in this article.

**Ligaments:** interspinous, supraspinous, fascia, muscles.

The ligaments that support and control motion of the joints as well as alignment of the spinal segments are key to our discussion of regenerative medicine procedures.

It is these structures that are our primary target when doing regenerative injection procedures.

Notice for example there are broad fan shaped ligaments between the bony prominences of the spine ( spinous processes). These ligaments ( supraspinous ligament, Interspinous ligament, nuchal ligament) can be stretched and torn in whiplash trauma rendering them incompetent in supporting spinal segmental stability.

**The Capsular ligaments:** Another very important group of ligaments in the cervical spine is the ligamentous around each of the cervical facet joints. In my opinion these are the most commonly injured ligaments in whiplash associated trauma and is an important source of chronic pain. Each of the cervical facet joints and the supportive capsular ligaments have a specific referred pain pattern. For example as shown in the picture to the right the C5- C6 facet joint refers its pain across the shoulder whereas the C6-C7 cervical facet joint refers its pain between and over the shoulder blade. The cervical capsular ligaments that support the cervical facet joints can be sprained leading to subtle segmental instability leading to chronic segmental pain, referred pain and secondary muscle pain and tension which we will describe later in this article. It is also important to understand that it is typically not just a single joint that is injured in a whiplash trauma but multiple joints often extending through the entire cervical spine. This is a critical concept when planning for therapeutic interventions for chronic pain associated with whiplash injury. The target of many of our interventions for whiplash trauma involved these ligaments. In fact, the target for manipulative therapy utilized by physical therapist, chiropractors and osteopaths also involve the restoration of mobility of these joints supported by the capsular ligaments. When these ligaments are sprained and instability develops patients may not respond as expected to manipulation and physical therapy. We will be referring to these ligaments later when we address regenerative therapies that are utilized to regenerate and restore the strength of these ligaments after injury.

Cervicogenic headaches: It is common place for patient's with whiplash associated injuries to experience headaches. There are numerous muscles, ligaments, soft tissues, and nerves that can be irritated following soft tissue injuries that can refer pain into the head and causes headaches. For example the sternocleidomastoid muscle shown in the picture to the right causes pain that can radiate over the eye, and over the ear and side of the face. This is in fact a common distribution of headaches experience with patients who experience headaches after post whiplash trauma. There are many more muscles and soft tissues that can refer pain into the head and a physician who is treating whiplash trauma patient's needs to have a detailed knowledge of all of these referred pain patterns in order to target appropriate treatment.

Post concessional headaches and closed head injury in WAD: Concussions or another common phenomenon associated with whiplash trauma. There are several mechanisms by which concussion can occur. One of them is simply called a contrecoup concussion with brain moves forward and back within the cranial vault during whiplash motion.<sup>4</sup> Regardless of the mechanism of concussion the important concept is that concussions do occur and there are a myriad of problems associated with concussion. One of the problems is associated headaches. It is important for a physician treating whiplash associated disorders to recognize the difference between patients having postconcussion headaches and headaches that are referred into the head from the neck and soft tissue injury. Surprisingly, many of the symptoms following head injury are associated with mild rather than severe head injuries. In many cases, the incidence of headaches is rather high in those without loss of consciousness or post traumatic amnesia.<sup>5</sup>

Little anatomical evidence exist to explain this phenomenon. However, impact forces are considerable even in low speed auto accidents. Patient's may also experience posttraumatic migraines although this is much more rare.<sup>6</sup>

Clinical features of posttraumatic migraines are for the most part identical to patients with normal migraines. These patients often have pre-existing history of migraine headaches that predate the trauma. This genetic predisposition is a potential set up for this type of headache. Trauma to the head or neck may trigger the migraine process in a susceptible individual.<sup>7</sup> Posttraumatic headaches and postconcussional headaches are treated differently than headaches that are derived from the muscles and ligaments of the neck. Therefore, I do spend time with patients sorting out the exact cause. Patients with postconcussion syndrome may also complain of dizziness, sleeping difficulties, change in mood or cognitive problems such as memory, concentration, and thinking. On occasion for those patients who I suspect having a postconcussional syndrome I do coordinate care with a neuropsychologist for purpose of neuropsychological testing. A comprehensive examination process that I will not cover in the content of this article but will discuss with my individual patients who I think require such an extensive evaluation.

Radiculopathy: There are times when someone exposed to whiplash trauma aggravates pre-existing degenerative changes as we have described below or may cause a disc protrusion that can irritate a nerve. Inflammation and pressure on the nerve can cause pain radiation into the arm. We term that phenomenon a radiculopathy. This may be associated with numbness and weakness in the muscles in which that nerve serves.

It may be interesting for you to know that the majority of people who are exposed whiplash trauma and complaining of numbness in her upper extremities, generalized weakness in her upper extremity, and pain in the arm in fact probably does not have atrial radiculopathy. Many of these patients have pain that radiates into the shoulder or arm because of other soft tissues that are injured or imaging pain. Remember previously we demonstrated the referred pain pattern for typical facet pain. There are also patterns of pain that can extend into the upper extremities from the cervical facet joints as well. In addition many of the muscles around her shoulder blade and neck can also refer pain into the arm. For example the pain pattern noted to the right stems from pain derived from the rhomboid muscle causing

pain referral down the arm as noted in the picture. It is common place when physicians are not well versed in all of the referred pain patterns of soft tissues to mistake pain coming from soft tissues and think that this pain is caused by a nerve. Many well intended pain physicians may perform epidural injections and other corticosteroid injections directed towards the nerve when in fact one does not have true radiculopathy. This typically results slight improvement or if failed response rather than a dramatic improvement in pain.

Trauma to pre-existing degenerative disc and joint disease: Most of us at least over 30 years of age and sometimes under 30 have underlying degeneration of our cervical disks and the joints in our neck. It is a fact of life. It is common place for patients to become quite surprised when we review an MRI study of the patient's neck and report to them the amount of degeneration they have. Many patients respond defensively stating "I never had a problem before" which is really a statement made in ignorance. You do not have an injury today and have a rapid degeneration that can manifest itself weeks after an injury.

Many individuals have pre-existing degeneration some which has given an individual trouble before and some with never had pain or problems with degeneration before. The degeneration however makes the injury much more complex and in fact more susceptible to injury. In the picture to the right the top picture shows a normal cervical vertebra with no degeneration. The bottom picture shows a vertebra with a degenerated disc where you can see the disc has lost its normal height. Each patient specific pattern of degeneration is unique and the consequences of this degeneration are varied. We will discuss all of the details of your specific condition and whether or not the degeneration that one has is an important issue or not.

Trauma superimposed in pre-existing pathology, previous injury and pain: One of the biggest problems we run into when evaluating a new patient following cervical spine injury is whether or not they have had previous injuries and most importantly previous neck pain and pathology that was present prior to the accident they are now being evaluated for. It is not uncommon for a patient referred to us to have years of previous chronic pain and extensive treatment for neck pain that predates the current date of injury. Some patients may have had this pain resolve with treatment and some patients have continued to experience chronic pain even to the date up to the accident and current question. It is important, in fact critically important that your physician understands the complex history that predates a specific accident. Important decisions are made based on this history which includes diagnostic imaging, diagnostic workups and even specific methods of treatment that may be implemented because of this complex history. Your chronic pain or previous injuries make an individual vulnerable for aggravation to pre-existing injury and it is critically important that your doctor know exactly what was present prior to your

injury. It is this reason that I take so much time in a patient's initial consultation in order to document everything that may have pre-existed the injury. Those of you for patients of mine no then I always ask if you have ever had any previous motor vehicle accidents, work-related injuries, or other accidents or injuries and your past. I always ask if you have had previous same or similar complaints such as neck pain, arm pain, headaches, etc. I also request that you tell me if you have ever had previous chiropractic or physical therapy. These questions and others like them will always be asked in my interview with the patient. I expect an honest answer. Previous treatment, medical records, hospital records, emergency room records, physical therapy records, diagnostic imaging all are easily obtained when you are involved in an accident. If you have filed a lawsuit or are in the process of filing a lawsuit against an individual who has injured you their attorneys and the insurance companies attorney has a right to all of that information and you give up that right for your "protective information" when a lawsuit is involved. So the HIPPA laws that protect her privacy are no longer in place and they have the right to discovery. The patient should not be naïve and off to think that attorneys and insurance companies do not have the resources to find this information.

Individuals with preexisting problems are often afraid to admit that they have had such extensive problems in the past. They often justify their non-disclosure of this information stating to

themselves but “I never had pain like this before”. This is something that I hear quite frequently. This is not for a patient to decide. If you are asked questions about your past it is important that your physician understand what you have had in your past. If I understand exactly what the pre-existing condition was it is the only way that I can defend a patient and make a determination of what contribution a specific injury has had to their pre-existing condition. The last thing you want from me as an expert witness representing you is to find out that you have lied to me when I get to a deposition, hearing or worse yet, on the witness stand in Court. I will never forget the first time this happened to me. I had to find out by cross examination in court by the defense attorneys who had a stack of records about a patients previous injury and treatment that I had no knowledge of. If I am met with such a surprise my testimony is going to make some dramatic changes in my ability to support a patient and any support for injuries that we have stated you have had. It changes everything when I found out that a patient lied to me when I interviewed them initially. It always ends badly. Therefore, typically when I meet an attorney for a pre-deposition or pretrial conference the first question I asked is “are there any surprises that I need to know about?”.

Honesty is the best policy: Honesty is truly the best policy. The only way that a physician and her legal team can defend you as an individual injured in an accident is to know what pre-existing conditions you have. It is only fair to the system that we make individuals with injured you responsible only for that which they have caused. So when you are asked about previous existing conditions, treatment, etc. honesty is the best policy. Do not be so naïve to assume that your records and prior history is not accessible to everyone.

Physical medicine in whiplash associated disorders (WAD): Physical medicine such as chiropractic and osteopathic manipulation, physical therapy, massage, exercise and a host of other treatment is commonly used in injuries involving whiplash trauma and whiplash associated disorders. Each of these disciplines can play a very important role in the treatment of whiplash injury. The best case scenario is

when patient’s response to these physical medicine procedures and modalities and have there pain and complaints resolve. As a physician board certified in physical medicine I often coordinate care within these various disciplines to optimize patient recovery. It is also important for a “team leader” to know when an individual has maximized her potential benefit from any one of these or all of these treatment procedures. There are times when a “integrated approach” is most valuable. That is when we integrate more sophisticated methods of treatment with your physical therapy and manual therapy. It is then and only then when the patient can often times achieve therapeutic goals. A patient seeking a chiropractic provider for example who continues for months and months without significant benefit is burning up their valuable economic resources available for your treatment. You have to realize that you have a specific dollar value that you have available after an injury for treatment. If you burned through those resources with ineffective treatment it often traps you into not being able to receive in Portland advanced medical care that would have been available to you. Time in time again I see this happen to patient’s involved in personal injury claims. They go to a specific provider they are treated for 8-12 months and suddenly when there insurance funds available for treatment run out the provider then concludes there is nothing more they can do for you. You must be an informed consent were in the healthcare system. Therefore, when you are not having resolution to symptoms you need to start asking questions. If your questions are not adequately answered and you are not referred to medical specialists to help coordinate your care more than likely you need to discontinue care and find a practitioner that can help you sort through what to do next. Do not continue ineffective care. The insurance money that is available for you is like a savings account. When it is gone, it’s gone.

It is not uncommon for patient to have gone through 8-10 months of chiropractic treatment and now has burned through all of their insurance funds and there is no longer any money for them to seek care elsewhere. Many of these patients are underinsured or not ensure other than their auto insurance policy. They present with a torn meniscus in the knee or some type of condition

that may require surgery and now, they have no access to surgeons that I would typically refer to. Many of the better surgeons simply do not take “third-party” cases which means they will have to wait to be paid on some type of settlement claim. So use the money that is made available for you wisely.

Traditional pain management approaches: the revolving door: Many patients who persistent symptoms and chronic pain following an injury may be referred to pain management physicians. Traditional approaches to pain management are often what we call “evidence-based approaches”. Traditional approaches may often be based on the results of randomized clinical control trials where a group of patients have undergone participation in a clinical study where patients who have not received placebo treatment have had a specific or statistically significant improvement. Pain physicians in patients with cervical whiplash trauma typically utilize injection therapies initially. This may be cervical epidural injections, selective nerve root blocks, or corticosteroid injections directed to the facet joints. Unfortunately, some pain physicians may indiscriminately utilize a series of epidural injections for a pain presentation after injury that may not involve radiculopathy or pain arising from the nerve roots. The patient may present with constant neck pain and only occasional arm pain and still they receive a series of

epidural injections and then wonder why they did not get better. It is because the epidural block is effective for patients with a certain type of pain stemming from a very specific cause. Epidural injections cannot be given indiscriminately. After a few epidural injections the patient may then undergo cervical facet injections with corticosteroid. The first injection may help which means that it was in fact the cervical facet joints that were probably the source of your pain to begin with. They may then want to do a series of these corticosteroid injections. If you do gain temporary symptomatic relief from the cervical spine facet injections which most commonly will since they are the most common source of the pain what do you do when the pain does not get better? Corticosteroids do not resolve or heal any injuries.

Therefore, the only other tool to resolve pain stemming from the facet joints is to use a radiofrequency thermal energy to kill the nerve that innervates the facet joint. Physicians trained in spine and pain medicine are technical experts. They are quite capable of placing a local anesthetic by injection under x- ray on the nerve that innervates the joint. If they block that nerve and you gain relief from that block the only other alternative they have in their “toolbox” is to use radiofrequency to ablate the nerve. This will, often result in pain relief at least for a period of time. The problem is that nerves regenerate and the pain returns. A patient undergoing such a procedure can expect to have the pain return within 6-9 months.

So what do you do then? Typically the physician repeats the procedure. However the nerve regenerates and you are caught in a revolving door. After several of these procedures the nerves that regenerate the joint, from other locations and therefore the regeneration is so complex that there is a lot of diminishing return with each procedure until eventually it is no longer effective. The next thing the patient knows is there taking chronic opioid medications and have a medicine cabinet full of pills which include muscle relaxants, anti-inflammatory medications, antidepressants, sleep medications, opioid medications, and a host of other remedies.

Regenerative medicine approaches to whiplash associated disorders: The scenario mentioned above utilizing nerve ablation techniques is something that I have done myself. Today, I have abandoned for the most part these procedures and now take a “regenerative approach” to repair a soft tissue and whiplash injury. Remember when we started this discussion we began with some specific anatomy and discussed the ligaments that support the cervical facet joints and cervical spine. Ligaments are made of collagen and other complex proteins. Would you be interested to know that there are actually forms of treatment that can be directed by injection to ligaments and connective tissues to support her spine that helped to lay down new collagen and strengthen ligaments? Treatment directed to ligaments help stabilize the subtle instabilities that are at the root of the chronic sprain problem. Over the last 25 years I have treated many

thousands of patients that have developed chronic neck pain following whiplash injury that failed to respond to conservative means, corticosteroid injections, etc. The oldest form of these techniques is a method of treatment called RIT (regenerative injection therapy) or prolotherapy. Over the years regenerative injection therapies have advanced and there are now numerous methods that are currently available to help resolve chronic sprain injuries and ligaments. For example we can use a self-

contained and your blood called a platelet to promote healing of ligament and soft tissue injuries. It turns out that platelets contain growth factors that provide a powerful stimulus for tissue healing and regeneration. It is your platelets that are often responsible for initiating a healing cascade in soft tissue injuries such as abrasions and lacerations.

These growth factors include TGF- $\beta$ , platelet derived growth factor (PDGF), vascular endothelial growth factors (VEGF), epidermal growth factor (EGF), fibroblastic growth factor -2 (FGF-2), which have the potential to enhance healing, grafting and connective tissue repair. The specific attributes of these growth factors are not as important as the basic understanding that these growth factors can dramatically influence the way connective tissues heal and proliferate. The use of these growth factors to influence regulatory function for healing has sparked significant interest in orthopedics.<sup>8</sup> When we inject platelet rich plasma onto injured ligaments these growth factors stimulate a cell called a "fibroblast". And these tissue fibroblast now stimulated by the growth factors begin to lay down collagen and connective tissue that promote healing and restoration of ligament strength. We perform the blood cell preparation utilizing special equipment that I personally use from Cytomedix called the Angel® System.

Over the years there have been many advances made in regenerative therapy that today are used to help heal a resolve soft tissue injury. I have a more detailed article on this website that discusses some of those methods in more detail and I advised she would to read that article if you have interest in these methods.

Advanced diagnostics: Patients who are subject to whiplash trauma frequently have multiple injuries that are not just limited to the neck but can extend into the mid back, lower back and pelvis and may even involve the extremities such as her shoulders, etc. The key to making regenerative medicine techniques work his precision diagnosis. The slogan "advanced diagnostics-definitive therapeutics" in fact has a significant meaning. Many patients undergo various forms of treatment without a real definitive diagnosis. Even patients that undergo multiple injection therapy such as epidural, etc. often are treated without a definitive or specific diagnosis. Is it any wonder why these patients do not respond? We work from the premise that the more specific we can be an diagnosis isolating specific ligaments, joints and soft tissues the more specific we can become an directing a therapeutic approach. Therefore, there are times when we take our patients exposed to these types of injuries and do advanced diagnostic blocks utilizing ultrasonography, fluoroscopy x-ray guided procedures, etc. to identify the specific source of the patient's pain. Once the precision diagnosis can be made we will then create a therapeutic interventional plan preferably using a regenerative medicine procedure to help with the best of our ability promote injury resolution.

Myofascial pain in WAD: Pain arising from the muscles and connective tissue supporting muscles is one of the most common complaints post whiplash trauma. Initial pain is often

secondary to rapid stretch injury. Interesting enough soft tissue damage created by rapid stretch injury heals relatively rapidly. Yet, all too common pain persists. There are many reasons for this. We have already discussed that during whiplash, ligaments are also sprained and sprained to the facet joints and ligament causes reflex muscle spasm and secondary pain. The muscles can be a source of pain. Muscle fiber anatomy is rather complex. Muscle is a contractile tissue made of

complex filaments that slide over each other during contraction. Each muscle fiber has many of these filaments.

Muscle fibers are bound into groups in those groups are bound together by connective tissue envelopes as shown in the picture to the right. Classically, maybe consider a muscle strain as a tear of tissue, swelling and inflammation as classically depicted by the artists condition of a strained trapezius muscle and the picture to the right. The interesting thing about this concept is this is typically not exactly the case especially in lower speed motor vehicle collisions. If you take an individual who has recently undergone a whiplash trauma and do a tissue biopsy overall you will not see microscopic evidence of muscle tearing. Then why, does a muscle experience pain and spasm after injury when there is no evidence of tearing of the muscle? The answer to that question is rather complicated and one has to have an understanding of how muscles contract. We are not going to get in to that much detail in this brief discussion. However, within muscle there are small membranes that are sort of like "chambers or bags" called the sarcoplasmic reticulum (seen in green in the picture to the right). These chambers contain calcium that are used for muscle contraction. When a nerve signals a muscle to contract it stimulates these "chambers" to release calcium which then behind to proteins on the filaments of muscles and caused him to contract together. Although a muscle may not demonstrate any outward evidence or visual evidence of muscle trauma if you take that muscle under "electron microscopy" which is a very powerful microscope that is able to magnify well beyond standard microscope is the answer to the question is more obvious. It turns out the chambers or "sarcoplasmic reticulum" are very sensitive to stretch and tear easily. So when you rapidly stretch a muscle you can tear the small chambers or calcium begins to spill out into the cell. Initially you may feel some tension in her neck but if you go to sleep and wake up the next morning and cannot move your head what has happened? Calcium that has been leaking out of the sarcoplasmic reticulum all night has caused a contraction of the whole muscle resulting in spasm.<sup>9</sup>

What happens next is rather interesting. There are specialized muscle cells within the muscle called spindle cells that contain special fibers that monitor the tone of muscle. It is these specialized fibers that are responsible for the reflex muscle contraction you get when the doctor taps on your knee with the reflex hammer. The special fibers constantly make adjustments in muscle tone based on tension in the muscle. If you have strained a muscle and have caused it to go into spasm for a period of a couple of weeks even though the muscle injury itself resolves and the sarcoplasmic reticulum (chambers containing calcium) are well-healed adaptations have been made by these muscle spindle systems. When the muscle is under spasm continuously the muscle spindles adapt and "reset". Now, when you try to relax her muscle these muscle spindle systems tell the muscle there is not enough tone and increased attention. Therefore,

following injury the muscle can be neurologically facilitated to maintain a contracted or shortened state and pain persists. If you place heat on the muscle, massage the muscle, do physical therapy, stretches, etc. the muscle may relax for a period of 15 or 20 minutes but then gradually the muscle tension returns because nothing has been done to reset the nervous system that is maintaining the increased tone of the muscle. Patients will find themselves frequenting chiropractors, massage therapist, and physical therapists for soft tissue mobilization just in order to obtain a short period of temporary symptomatic relief from the pain. The problem is often times pain persists. If you have gradual improvement of this pain then the soft tissue mobilization and

procedures performed by these practitioners are beneficial and should be continued. If however, pain is persisting despite the well and tended efforts of these practitioners there may be something more that can be done that may be more effective. You may be asking the question what could possibly turn off this neurologic program that maintains muscle tension? The method to do this utilizes none other than and acupuncture needle. No, we are not talking about traditional acupuncture technique but something quite different. I was first introduced to this method of treatment by a physician by the name of C. Chan Gunn, MD in then to her Canada. He was also a professor at the University of Washington where I attended fellowship training.

Dr. Gunn called this method IMS and it is now out of respect to him called Gunn IMS. The mechanism by which this works is rather interesting. The needles used for this procedure are rather small. One can see the size of an acupuncture needle up against a standard paperclip in the picture to the right.

The physician who is trained specifically to do this procedure will isolate an target specific muscles for this procedure. The needle is placed inside a small plastic tube because the needle is so thin it will collapse when trying to push it through the skin. The tube is In the needle is inserted into the muscle. This process is completely painless. Once this occurs the needle is inserted into the belly of the muscle. The needle is slightly turned and grabs the muscle fibers and elicits a stretch reflex. The patient will experience a result of muscle contraction. That muscle contraction occurs within the section of the muscle that has been neurologically maintained to have an increased tone and when this reflex is elicited the muscle “reset”. We often stretch the muscle right after the stimulation to allow the muscle to reset. The relief of muscle tension is usually immediate. Even when the patient has not responded to traditional acupuncture they may respond to Gunn IMS. I have had years of experience utilizing this technique and can say that I am honored to have been chosen by Dr. Gunn to take over his teaching of this technique internationally in conjunction with Heather Tick, MD a pain physician at the University of Washington.

Sleep in WAD: Sleeping difficulties are rather commonplace after injuries and motor vehicle accidents. I believe it is something that is important to address and I asked all of my patients whether or not they are having difficulty sleeping. We will not get into the details of sleeping difficulties but it will suffice to say that we do address these issues during the course of your treatment.

The victim: Letting go of the blame is part of the healing process:

It is not uncommon for individuals who have been injured at the hands of another individual to experience a number of the motions. Some individuals psychologically begin to take on the role of a victim and the process over getting even, or continue to remain angry and frustrated. Letting go of the blame is part of the healing process. The anxiety, and stress associated with the victim eyes roll has negative psychological effects on pain which can in fact aggravate pain complaints.

Depression & Anxiety disorders in WAD: It is not uncommon for patients with whiplash associated disorder still also have difficulties with depression and anxiety. We will address this subject in a separate papers since the complexity of the discussion is far beyond the scope of this article. We do address issues of depression and anxiety and do concomitantly treat symptoms of depression and anxiety when needed as part of the overall comprehensive rehabilitation program. We also coordinate and collaborate with other healthcare practitioners to accomplish this task when needed.

Disability after WAD: Many individuals make the decision to go off work following an injury and to remain off work for an extended period of time. This decision is a slippery slope. Maintaining your activity level and work activity may be more important that you realize in your recovery. Remaining off work for extended periods of time has significant physical and psychosocial effects on you and your family. Periodically I encounter patients who are instructed to remain off work by their attorneys in an attempt to magnify the extent of injury. I would hope that if you are requested to do something like this that you refrain from such a thing. There are times when it is appropriate to remain off work. There are other times when it is important to work even though in pain. I exhorted you to remain honest in regards to the extent of your abilities to work.

WAD: the polytrauma phenomenon. It is not uncommon for individuals involved in motor vehicle accidents to have multiple injuries. This “polytrauma” phenomenon is problematic to most patients who have such multiple injuries. These patients find themselves somewhat frustrated because each of the providers that a patient sees may not be willing to deal with all of their complaints. For

example, you may be seeking care from a chiropractor who may be interested in manual therapy of your spine and your spine complaints but may not be well equipped to deal with the shoulder, knee or ankle complaints. He may be seeking the care of a physical therapist who is unwilling to treat multiple body parts because of the amount of time that requires and they will stay focused on 1 problem at a time. This is even a common phenomenon in orthopedic surgeons practices. I have encountered on many occasions and orthopedic surgeon who specializes in shoulder or knee surgery that convinces the patient to deal with 1 problem at a time and allow him to proceed with a surgical intervention for a shoulder problem and ignore other musculoskeletal complaints that could be treated simultaneously. This can result in 6 months of postoperative recovery where patient is not receiving care for other injuries. 6 months later the patient finds himself one year from the date of the initial onset and never having had the majority of their injuries addressed. At a 1 year date following injury a patient's attorney is then pressing them to settle.

Therefore, it is my opinion that you need to have her care coordinated by a physician specialist who is willing to address the complexity of your presentation and all of the complaints appropriately. This may require multiple areas or multiple soft tissue injuries requiring treatment at the same time. For this reason we have always addressed the entire patient and the whole problem. It is in my opinion the only way to affect rapid recovery and desired outcome.

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