EDITORIAL
BY GLORIA GILBERT, PT, MSC, CAPM EDITOR

The last 2 CAPM newsletters (Spring–Summer 2013) and Winter 2013 have discussed ‘persistent post traumatic pain’ (PPTP) and its sequelae in great detail. Distinction has been made from the phrase ‘chronic pain’ (neither of which should be used as a diagnosis). The reality is that people who have sustained trauma (particularly neck trauma) often experience ‘other’ symptoms that can cause problems with postural alignment, balance and spatial awareness, sensitivity to light, movement and noise, as well as memory and concentration challenges. Something has happened to the visual, vestibular and proprioceptive system. What and why has this happened? How can we treat/manage these symptoms/problems?

Post-concussive syndrome and TBI (Traumatic Brain Injury) are buzz words that we are now hearing frequently. We are in the midst of an explosion of research, sports guidelines, and a general ‘awakening’ campaign by both the lay public and health professionals of the possible sequelae of head trauma.

This newsletter highlights many important topics. The first lead article is titled ‘Understanding Visual Dysfunction Following a TBI’ written by Dr. William Padula, O.D. DNAP, FAAO, FNORA. Dr Padula a founding member of NORA (www.nora.ca), assisted by colleague April Spurling, OD. For members unfamiliar with the Neuro-Optometric Rehabilitation Association, I would recommend you visit the website and not only read the material, but download pertinent information for your patients.

A more extensive biography of Dr. Padula and Spurling is provided at the end of their article. Dr Padula has more currently developed the Padula Institute of Vision (www.padulainstitute.com). Integrating vision with movement and posture are components of curricula included in different levels of courses offered through the Institute. All courses are open to optometrists and other health professionals who want to integrate knowledge about the visual system into their own practice. In 2010, Dr. Padula, physiotherapist Darrien Lazowski, PhD and this health practitioner presented at a meeting of the Canadian Pain Society in Vancouver on ‘Delayed Recovery Post Neck Trauma’, (Perhaps it is timely to update that information!)

Dr. Eleni Hapidou, PhD., is the treasurer of CAPM and a psychologist in the Chronic Pain Management Unit at Chedoke Hospital, Hamilton Health Sciences (HHS). She is also an Associate Professor in the Department of Psychiatry and Behavioral Neurosciences. Dr. Hapidou provided Academy members with an in depth overview of PTSD (Post-Traumatic Stress Disorder) in the summer 2013 newsletter. Dr. Hapidou’s current contribution is more specifically on the relationship between chronic pain (symptoms-editor’s note) and PTSD.

Dr. Richard Nahas has written an article on ‘Chronic Pain, TBI and Integrative Medicine’. Dr. Nahas is a general practitioner with a focused practice in chronic pain management. His special interest is in the effects of chronic whiplash and concussion. Dr. Nahas is an assistant professor in the Department of Family Medicine at the University of Ottawa where he teaches a pre-clerkship curriculum in evidence-based integrative medicine. Learn more about his Clinic called Seekers Centre for Integrative Medicine at www.seekerscentre.com.

Educational sites and initiatives, useful journal articles including a Response to the new Fibromyalgia (FM) Guidelines are included in this newsletter.

Academy members were previously provided a CASE STUDY of a young man with ‘delayed recovery post MVA’. That discussion continues .......

I must admit, if I was ‘a little younger’ and knew then what I knew now about chronic pain and TBI, ...
EDITORIAL CONTINUED...

(something that is usually on everyone’s wish list) I would consider attending optometry school. The visual system greatly impacts on our ability as rehabilitation providers to attain good ‘treatment outcomes’. It is not enough for the patient to ‘feel better’ or for the pain and disability scores to have decreased a little (even if they are statistically significant); the essential question remains “What can the patient do? (home, work, leisure).

Each of us can only ‘diagnose’ within the scope of our practice. Treating/managing the person with persistent pain – whether caused by trauma or not, directs us to expand/enhance our professional abilities and ‘integrate’ new information and methodology.

Your editor continues to encourage all CAPM members to either contribute articles-or provide ideas for articles for future newsletters. “Pain news and initiatives” are always welcome as well.

As professionals who have always used that (challenging four letter word) PAIN- we are aware of the multi-factorial approach that must be taken to assist our patients.

Sharing that information with others will only enhance our treatment outcomes.

Perhaps, one day- sooner than we think, no researcher, health provider or patient will use that word PAIN without also adding some descriptor or verb! CAPM continues its work to become a leader in the inter-disciplinary pain environment.

Past newsletters are available on the CAPM website. Click on www.canadianapm.com and go into ‘Announcements & Newsletters’.

The CAPM Annual Meeting will be held this year at the Canadian Pain Society Meetings in Quebec City (May 20-23, 2014). Hope to see you all there!

UNDERSTANDING VISUAL DYSFUNCTION FOLLOWING A TBI
WILLIAM V. PADULA, OD, DPNAP, FAAO, FNORA

Following a TBI, persons often report visual symptoms, such as visual fatigue, eye strain, intermittent blurred vision and headaches. These are commonly recognized as signs of eye problems.

However, people who have had a TBI can experience other symptoms that are unrelated to structural problems in the eyes and optic nerve, but arise from trouble with the visual process. These may include: difficulty with balance, dizziness, vertigo, photophobia (glare sensitivity), double vision, seeing print appear to move when reading, difficulty functioning in crowded, busy environments, panic attacks and visual hallucinations.

The visual problems that can occur with a TBI are often overlooked and these symptoms are attributed to other sensory or motor dysfunctions. Unfortunately, when those other perceived problems are treated, they usually fail to stop the visual symptoms.

What is vision?

Vision is a dynamic, interactive process of motor and sensory functions. Our brain uses our eyes to help organize and control the movement of our bodies and to stabilize what we see around us – this is called the visual process. When it is out of balance, it interferes with all aspects of performance, including cognitive perception.

A common misunderstanding is that “seeing” (perceiving something with our eyes) delivers information to the brain much like a computer. Seeing is much more complex. It is related to movement, posture and balance, our motor system in general. Because our brain usually coordinates these functions so rapidly and so well, most people take the entire process for granted. Only recently have we begun to learn more about how vision, movement, and perception are connected.

We have two kinds of vision. The focal visual process carries images through the central part of the eye and helps us see details. It also enables “fixation” – the ability to look directly at something – and supports attention and concentration. However, the focal process only delivers information on an object to the brain if the eye is directly fixed on it.

The other kind of vision is the ambient visual process. The ambient process delivers information to the brain from the peripheral retina. Peripheral vision (what we see in the ‘margins’ of our vision instead of what is directly ahead) affects our awareness of where we are in space and where things are around us. This part of our vision is very important to the body’s motor system. It also serves to organize our focal visual process by spatially orienting us before we look at details. The ambient visual process must work in conjunction with the focal visual process for effective vision.
UNDERSTANDING VISUAL DYSFUNCTION FOLLOWING A TBI
CONTINUED ...

Post Trauma Vision Syndrome

In any neurological condition, such as with traumatic brain injury, cerebrovascular accidents, and multiple sclerosis, imbalance can occur between the ambient and focal visual process. Research using Visual Evoked Potentials (brainwave tests) has documented this dysfunction, which is called Post Trauma Vision Syndrome (PTVS). In my experience, PTVS is common in TBI.

In PTVS, the ambient visual process loses its ability to organize information spatially. When that process is affected the person becomes “focally bound” or overly fixated on visual details, and has to work harder to use his/her vision. The extreme effort and intensity required to use the focal visual process leads to visual fatigue, headaches and eyestrain.

PTVS can also cause individuals to visually fixate on individual letters instead of words when reading, and to have difficulty “releasing” or moving their vision away from letters and words. This causes words to appear to jump and move about the page as the person attempts to read. It can also cause the intermittent blurring and even double vision (diplopia) that some individuals experience.

Some persons with PTVS also find it more difficult to function in busy, crowded environments, such as supermarkets or shopping malls. They identify people walking around in the peripheral vision as detail instead of background and that becomes confusing. In some cases, persons with severe dysfunction of the focal and ambient visual process will become anxious or even develop panic attack syndrome, due to the way that their visual world is being re-ordered.

Visual Midline Shift Syndrome

The ambient visual system also works with the other senses and neuromotor system to give the brain information on how the body is oriented in space. If the ambient system is dysfunctional, the person will have difficulty with movement and balance, which often happens following a TBI.

For instance, our ambient vision and motor system tell us where the midlines of our bodies (imagine an invisible line drawn down the center of your body from head to toe) are in space. Normally you know where your midline is, both front to back (anteriorly and posteriorly) and from side to side (laterally). But if either your ambient vision or your motor system is impaired, your sense of midline may be shifted, distorting your sense of space. This has been termed Visual Midline Shift Syndrome (VMSS).

When a person has VMSS, part of the visual process causes the brain to experience the floor as being tilted. They then begin to lean and/or ‘drift’ to one side when walking due to the VMSS. The person’s posture may be distorted, affecting sitting or standing as well. They may even experience back pain or muscle rigidity (i.e. Changes in postural tone).

Simple tests can be performed to determine if a person has VMSS. By simply observing the person walk, one can frequently observe increased weight bearing on one side or the other. In addition, the person will frequently tend to drift to one side when walking. They also will sometimes bump into objects more on one side that the other.

Recent research has proven that the posture and balance can be improved by use of prescriptive yoked prism glasses that will realign the concept of visual midline.

Neuro-Optometric Rehabilitation

We tend to think about our individual sensory processors (our eyes, ears, nose, tongue, mouth and fingers) as separate systems, so we have highly specialized professions to treat each of them. Optometry and Ophthalmology provide care of sight and the eyes, Audiology for hearing and specialist in olfaction for smell. We usually get effective treatment for a specific sensory organ, but this specialized approach is not effective in dealing with problems that involve both the sensory and motor systems.

Persons with a TBI who have visual dysfunction can benefit from a Neuro-Optometric Rehabilitation evaluation. This exam is very different from a routine eye exam. Its purpose is to analyze in depth the relationship between the ambient visual process and the neuro-motor system using a variety of tests.

After a comprehensive evaluation is made, prescriptions can be given for various types of lenses and glasses that can counter the effect of VMSS. Frequently, the doctor will prescribe specially designed “yoked-prism” glasses which shift the visual midline affecting balance and posture.

A prism is a wedge of glass or plastic that produces an optical effect. When you look through the prism at an object, it will appear to be shifted in position toward the apex or thin part of the prism. Prisms accomplish this effect by expanding or compressing part of the visual field. It is the compression and expansion of the prism that when properly prescribed can effectively treat PTVS and VMSS.
UNDERSTANDING VISUAL DYSFUNCTION FOLLOWING A TBI
CONTINUED ...

In some cases, glasses can dramatically improve posture and balance. The person will shift his/her weight in the necessary direction and will have better balance. If the midline shift is to one side, yoked prisms can be used to shift the midline and prevent leaning and reduce risk of falls.

Yoked-prism glasses are usually prescribed for therapeutic use in short time intervals each day and should only be used under the direction of the prescribing doctor. The doctor may also recommend using these prisms during Physical or Occupational Therapy. Another therapeutic aid that can be employed is binasal occlusion. This involves placing two strips of opaque vertical tape on the part of each lens that is closest to the nose. The ambient visual system does not see detail, but instead organizes space and orients to vertical lines and boundaries in the visual environment. The binasal occlusion provides a new vertical boundary to which the malfunctioning visual process can anchor itself.

Prisms and binasal occlusion can also be used to treat PTVS by reducing symptoms and enhancing visual performance. Individuals with PTVS experience a compression in the peripheral vision, and these tools can help counter that effect by reducing the central field of vision and expanding the periphery. This reduction of stress in the visual system frequently improved attention, concentration, memory and cognitive function.

Treatment is available as described above. Improvement of patient function and reduction of the symptoms that are being caused by the PTVS and VMSS can occur through the use of lenses, prisms and therapy.

It must be recognized that PTVS and VMSS are often part of the problem affecting balance, posture, attention, concentration, etc. following a TBI. However, for many the dysfunction of the visual process can be a primary cause of the symptoms that are experienced. The treatment through Neuro-Optometric Rehabilitation becomes an interdisciplinary approach that can maximize potentials in other therapies such as Physical, Occupational, Speech and Cognitive therapies.

Symptoms of PTVS include:
- Double vision
- Headaches
- Blurry vision
- Dizziness or nausea
- Attention or concentration difficulties
- Staring behavior (infrequent blinking)
- Spatial disorientation
- Losing your place when reading
- Not being able to find the beginning of the next line when reading
- Visual memory problems
- Pulling away from objects when they are brought close to you
- Seeing objects as moving when they are actually stationary

Symptoms of VMSS include:
- Dizziness or nausea
- Spatial disorientation
- Consistently drifting to one side of hallway or room
- Bumping into objects when walking
- Poor balance or posture- leaning forward, backward or to one side when walking, standing or seated in a wheelchair
- Back pain or muscle rigidity

William V. Padula, OD, SFNAP, FAAO, FNORA
William V. Padula, OD is a graduate of the Pennsylvania College of Optometry and is a Fellow of the American Academy of Optometry and a Fellow and Founding President of the Neuro-Optometric Rehabilitation Association. He is the past Treasurer of the National Academy of Practice and Founding Chairperson of the American Optometric Association Low Vision Section. Dr. Padula has lectured about research and the clinical application of neuro-visual processing rehabilitation for persons who have had a neurological event throughout the United States, Asia, Canada and Mexico. He continues to be a consultant to several rehabilitation institutes in the US.
Dr. Padula has written numerous publications including two books titled: Neuro-Optometric Rehabilitation and Neuro Visual Processing: An Integrated Model of Rehabilitation. He has also developed three award winning professional video tapes about vision, Post Trauma Vision Syndrome and Visual Midline Shift Syndrome. Dr Padula is also the primary author of a chapter on vision in Brain Injury Medicine. Awarded four U.S. Patents Dr Padula is currently in private practice in Guilford, CT.

April Spurling
Dr. April Spurling focuses her practice on Neuro Optometric Rehabilitation. She works with children and adults who have vision related learning difficulties, as well as patients who have experienced visual and postural changes following a neurological event including traumatic brain injury.
Dr. Spurling is a graduate of Western University College of Optometry. She pursued fellowship training in Neuro Optometric Rehabilitation at the Padula Institute Of Vision Rehabilitation, and is the recipient of the Padula Institute of Vision Rehabilitation Award and the OEP clinical curriculum award.
Comorbiditv of PTSD and Chronic Pain in Veterans

PTSD in the DSM-5

According to the latest edition of the Diagnostic and Statistical Manual of Mental Disorders – 5th edition (DSM-5) released in May 2003, the diagnostic criteria for Posttraumatic Stress Disorder (PTSD) have undergone several changes (American Psychiatric Association, 2013).

Criterion A has become more explicit in terms of specifying traumatic events. Criterion A2 (emotional reactions to the traumatic event such as fear, helplessness and horror) has been eliminated.

The three major symptom clusters for PTSD in the in DSM-IV were re-experiencing, avoidance/numbing, and arousal. In the DSM-5, there are four symptom clusters with avoidance and numbing symptoms having been allocated to different clusters: Persistent avoidance and negative alterations in cognitions and mood. The latter includes most of the DSM-IV numbing symptoms, but also adds a new symptom cluster “Negative alterations in cognitions and mood” (Criterion D). This includes numbing symptoms (previously in the DSM-IV) and new symptoms on negative self and other perceptions and expectations as well as negative emotionality. This latest cluster is more similar to dysphoric or depressed mood.

Moreover, the PTSD diagnostic criteria are now developmentally more sensitive in that thresholds have been lowered for children and adolescents and separate criteria have been added for children younger than 6 years of age.

Comorbidity / Symptom Overlap

Having been diagnosed with PTSD, one is 80% more likely to be diagnosed with other mental disorders such as depression, anxiety or substance use (p. 280, DSM-5, APA, 2013). Symptom overlap among many mental disorders renders the differential diagnosis of PTSD quite challenging (Schillaci et al., 2009) and probably problematic in the courts (Young 2013). For example, diminished interest in things previously enjoyed, sleep and concentration difficulties, feeling estranged or detached from others, guilt, and anger may be symptoms of PTSD, depressive disorders or both. Moreover, depressed mood is common in both chronic pain and PTSD. A study by Blehm et al (2013) sought to examine the factor structure of PTSD and depression based on the DSM-5 symptom criteria. Utilizing a non-clinical sample of 226 participants with a history of trauma, they found that the Criterion D factor of “negative alterations in cognitions and mood associated with the traumatic event(s)” was best associated with the non-somatic factor of depression. They both tapped into negative affect. This overlap has been argued to have forensic implications (Young, 2013).

Polytrauma in Veterans

The American Veterans Health Administration (VHA) has defined “polytrauma” as two or more injuries to physical regions or organ systems, one of which may be life threatening, resulting in physical, cognitive, psychological, or psychosocial impairments, and functional disability”. Chronic pain, PTSD and persistent post-concussive symptoms (PPCS) attributed to traumatic brain injury (TBI) constitute the “polytrauma clinical triad” in Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) veterans (Lew et al., 2009). TBI is also listed as co-morbid with PTSD in the DSM-5 with a co-occurrence of 48%.

PTSD and chronic pain are considered to be perhaps the two most prevalent and functionally disabling conditions for returning soldiers. Lew and colleagues (2009) examined the extent to which these conditions co-occur in veterans. Out of a group of 344 veterans from the Iraqi war, only 12% met no criteria for a mental disorder diagnosis. The remaining met criteria for the diagnoses of chronic pain (81.5%), PTSD (68.2%), and Persistent Post-Concussive Symptoms (PPCS) (66.8%). All three conditions occurred simultaneously in 42.1% of the sample. The highest percentage of these veterans had chronic pain in the back (58%), head (55%), shoulder (21%), neck (19%) and knee (18%) (Lew et al., 2009).

Twenty-five percent (25%) of the 103,788 veterans from the Iraqi war seen in the American Department of Veteran Affairs facilities were diagnosed with at least one mental health diagnosis the most common of which was PTSD (Seal et al., 2007).

Sleep disturbance, difficulties in concentration and attention and negative affect associated with PTSD may negatively affect one’s ability to cope with chronic pain and/or TBI and vice versa. Poor concentration is common in PTSD and PPCS as well as in depressed CHRONIC PAIN patients. Chronic pain exacerbations may trigger PTSD symptoms such as hyper-arousal and depressive affect. Hyper-arousal in itself may then increase pain perception. The vicious cycle is well recognizable here.

The overlap in symptomatology, as outlined above, can pose challenges for a health professional who is trying to most accurately diagnose and most effectively treat a patient’s condition (Schillaci et al., 2009). The fact that these conditions share physical, cognitive and emotional difficulties, suggests that they should be treated simultaneously in order to prevent the exacerbation of the vicious cycle.

Another commonality between PTSD and chronic pain is the risk and harm associated with the use of prescription opioids for the management of CHRONIC PAIN. In U.S. veterans of Iraq and Afghanistan, those with mental health diagnoses, especially PTSD, were more likely to be prescribed opioids for pain management, and veterans with both chronic pain and PTSD treated with opioids, experienced negative life events in the course of their care (Seal et al., 2012).

Conclusion

In conclusion, chronic pain, PTSD and TBI, and perhaps substance abuse, all complex conditions in their own right, also overlap with one another in the wounded/traumatized returning soldier (Lew et al., 2007). This overlap and co-morbidity present challenges to the health professional working with veterans and would support the important role of interdisciplinary team approaches to assessment and treatment (Lew et al., 2009). This further points to the need for integrated approaches to the treatment and management of chronic pain and PTSD.

Treatment approaches will be discussed in the next article in the series on PTSD.
PTSD AND CHRONIC PAIN IN VETERANS
Continued ...

REFERENCES:


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MESSAGE FROM CAPM EXECUTIVE
DR. ELDON TUNKS, President, Canadian Academy Pain Management for the CAPM board

Dear Members, there are two important developments we want you to know about. One is that we want to begin this year to move ahead with a program that will allow us to credential in Canada using content consistent with Canadian health care practice. The other is that all Canadian corporations and not-for-profit corporations must by October 2014 adopt new letters patent and bylaws that are consistent with the new Canadian legislative framework for corporations.

With regard to credentialing, we will be offering new courses covering a comprehensive curriculum of what pain practitioners want to know, that would help them practice effectively and this material will be given over about four sessions, repeated so that members can have a choice of times. At end of each session the attendees have the option of sitting an examination to satisfy part of the educational requirements for CAPM credentialing. Because some of our members may be geographically remote or for other reasons unable to attend live courses, we are recommending the alternative of an online option offered by either two other programs that we think provide high quality content appropriate for pain management practitioners.

We will also be beginning to offer advanced credentialing for specific professional skill/competency areas beginning with interventional procedures by MDs, and another advanced credentialing options are a long way toward completion.

The pathway we have already been using for the last nine years of using the American Academy of Pain Management credentialing process still remains an option for CAPM credentialing, and many members will continue to use the AAPM-CAPM credentialing option because it offers the advantage of dual membership, the American Academy conferences and educational website.

With regard to the changes in corporate requirements for letters patent and bylaws, I will be circulating the new documents shortly and will be asking you to read the critical items that will need your vote and then vote: we will be asking all of you to respond because we need two thirds majority approval in order to pass these changes.

Wishing you much success in your work in the 2014 year and looking forward to seeing you at our educational programs and at the Canadian Pain Society Annual Meeting in Québec May 20-23.

Dr. Eldon Tunks, President, Canadian Academy Pain Management for the CAPM board

Dr. Tunks was recognized at the Patients’ Choice Awards. Patients describe him as kind, caring and passionate about his work.

http://www.hamiltononews.com/community/public-chooses-top-docs/
FIBROMYALGIA CONSENSUS REPORT: AN UPDATE
GLORIA GILBERT, PT, MSC

The last newsletter commented on the “new” 2012 Canadian Guidelines for The Diagnosis and Management of FM Syndrome.

Dr. Mary-Ann Fitzcharles, one of the committee members spoke at a recent meeting of the Inter-Disciplinary Pain Program at Western. She reminded us that these Guidelines were endorsed by the Canadian Pain Society (CPA) and the Canadian Rheumatological Association (CRA).

To highlight:
- FM patients are best managed in a primary care setting
- Multi-modal treatments are best, research has shown only a modest effect of drug therapy (editor’s note: “How do we decide type, frequency and which modality or therapy—for each individual patient?”)
- Most essential goal is for patient to maintain function and stay in the workplace if possible.

Of concern is that:
- Many physicians do not diagnose FM correctly and do not attend to mood, sleep and may be over-treating with medication and more investigations.
- Patients: often have no functional goals, want a magic pill and have unrealistic expectations (of what treatment can offer).

As health providers, we must ensure attention is provided for social, Psychological as well as physical support.

All members of CPS and CRA can obtain a FM slide kit ... which is available on the web.

Reaction/response: Dr Fitzcharles reported on a social media campaign that is underway- directed at the government and particularly to the Canadian Pension Plan. For years the National ME/FM Association Network has been telling government health officials that:
- FM is a very disabling illness.
- Patients who have severe FM are also severely disabled and cannot work—and therefore need to be supported with some kind of insurance.

It obviously will take time to both inform health providers and patients about appropriate management of this condition... and over time it may change the availability of the benefits that have been so diligently fought for (and won by) the FM and legal /medical communities.

ARTICLES IN THE NEWS
GLORIA GILBERT, PT, MSC

1. Concussion:

Concussion Recovery Delayed by Mental Activity, Study Shows

Can Animals Help Limit Concussions?
http://nyti.ms/1kdfmOb

2. Neuromodulation:

Cranio-electrotherapy and magnetic therapy has been integrated into many health providers practice. Electrotherapeutic devices such as the alpha-stim have been described in a previous edition of this newsletter.

The following article may assist health providers in better appreciating the possible use of electrotherapy for anxiety and depressive disorders.


Correspondence to Peter Giacobbe peter.giacobbe@uhn.on.ca

Key points: (as noted in the original article)
- Major depressive disorder is often refractory to standard pharmacologic treatment but may respond to neuromodulation.
- Transcranial magnetic stimulation is least invasive but is less effective than electroconvulsive therapy (ECT) or deep brain stimulation for treatment of major depression.
- The acceptability and tolerability of ECT is hampered by adverse effects on episodic memory and other forms of cognition.
- Neuromodulation can lead to major long-term improvements in depression ratings and quality of life.

The Narrative Medicine Committee, Faculty of Medicine, Western University is pleased to invite all members of the public, both campus and community to experience the stories of people living with illness.

This semi-annual event will be held on WEDNESDAY MARCH 19, 2014 from 6.30-8.30 pm in the Wolf Performance Hall, situated in Citi Plaza across from the London Public Library.

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CHRONIC PAIN AND TBI - AN INTEGRATIVE APPROACH
DR. RICHARD NAHAS, MD, CCFP

The treatment of chronic pain is always challenging, but chronic pain after a motor vehicle accident is even more difficult to treat. As a pain physician with a focus on chronic whiplash, the broader goal of my work is to help people improve their lives, and this requires me to use a broad range of tools and strategies. The emerging paradigm of integrative medicine, which incorporates complementary and alternative medicine (CAM) therapies and a unified understanding of physiology that includes body, brain, mind, and spirit offers insights that are important for anyone who treats pain. I hope to share a few of these ideas here.

Concussion

Many patients with chronic pain have sustained a mild traumatic brain injury, also known as a concussion, at some point in their lives. A motor vehicle collision is one common cause. This can sometimes be associated with a head injury or impact, but this need not be the case. It is widely accepted, but not widely known, that rapid deceleration of the head and neck creates a shearing force that can stretch and disrupt axonal fibers in the brain. This axonal injury is considered the key lesion that initiates the cascade of events affecting the brain in TBI.

Asking about prior concussions or head injuries should be part of the routine evaluation of chronic pain. Patients should be asked if they have ever been in a car accident, ever struck their head, were dropped on their head as a child, slipped on the ice and hit their head or played contact sports. They should be asked if they have ever ‘seen stars’ or felt dazed or ‘out of it’ for a few moments after a fall, a fistfight, a tackle or an elbow to the head.

While many of the symptoms of post-concussion syndrome (PCS) are similar to those of chronic pain, some are much more suggestive of PCS. In a prospective study at a head injury clinic in Pittsburgh, 32 patients who had suffered a mild TBI were compared to 63 patients with chronic pain and no TBI history. Noise sensitivity was reported in 69% vs 42% (p=0.01), light sensitivity in 65% vs 30% (p=0.001), double vision in 28% vs 11% (p=0.04), memory problems in 94% vs 67% (p=0.01), concentration problems in 94% vs 78% (p=0.05) and taking longer to think in 94% vs 71% (p=0.04). Interestingly, sleep disturbances were less common, reported in 72% vs 97% (p=0.0003), and so was restlessness, in 63% vs 87% (p=0.005). These findings are of great potential importance, but the study has not been replicated.

The prevalence of missed concussions in chronic pain is important in light of the growing appreciation of the role of the brain in maintaining chronic pain. This has been termed central sensitization, and includes changes in deep brain structures and specific cortical areas that have been documented using functional MRI testing in several published studies. If chronic pain involves the brain, then any comorbid factors that involve the brain are important risk factors to consider when making decisions about treatment.

The treatment of PCS usually consists of physical and cognitive rehabilitation to help patients improve their functional status. While not widely used, several innovative therapies show promise. While two studies of body acupuncture is commonly used and a Cochrane review suggest some benefit, Ear acupuncture is a specialized system of treatment that can sometimes yield impressive results. Needles inserted on specific areas of the ear are said to increase blood flow in specific areas of the brain, and early fMRI studies support this notion. Clinical evidence of varying quality has been reported on ear acupuncture in patients with anxiety, epilepsy and attention deficit-hyperactivity disorder (ADHD).

While routine electroencephalography (EEG) has been used for decades to diagnose seizures, Quantitative EEG assessment provides much more information about the electrical activity of the brain. Developed in the 1970s, it is enjoying a renaissance, partly due to improvements in sensor design and computing speed. A number of specific abnormalities can be seen in the brain after TBI, and while it cannot yet be relied on for medicolegal diagnosis TBI, it provides a very reliable assessment of brain dysfunction.

The qEEG assessment can also be used to develop a protocol for EEG biofeedback, also called neurofeedback. This innovative tool allows patients to see information about the electrical activity of their brain in real time on a computer screen. This helps them learn to ‘feel’ their brain and create changes in it at will. There is very good evidence that neurofeedback improves outcomes in epilepsy and ADHD, but while so far the only published data comes from case series, many practitioners claim to have seen dramatic improvements in TBI patients.

Stress and mindfulness

Another comorbid factor that is under-appreciated is the role of psychological stress in perpetuating the pain cycle. This may include a post-traumatic stress disorder (PTSD) which can be commonly overlooked, particularly after a motor vehicle collision or other trauma. Patients should be asked if they get nightmares or see images of the accident in their minds when awake (flashbacks) or if spontaneous thoughts about the accident occur often. If they get fearful, nervous or tense when in a car as driver or passenger, in traffic, at high speed, when stopped at an intersection or in the vicinity of the accident, or if they avoid any of these situations, PTSD should be considered.

In the new DSM V guidelines, PTSD was reclassified so it is no longer an anxiety disorder. Anxiety can certainly be a comorbid pre-injury disorder, but it can also be associated with pain and other symptoms. Kinesiophobia is fear of movement, and catastrophizing is fear of the future. These predict the development of chronic pain, but they can also develop as a result of it. This is because chronic pain itself is a cause of psychological stress. Social isolation, physical inactivity, job stress and family stress, all of which are common sequelae of chronic pain, are other significant sources of stress.
CHRONIC PAIN AND TBI - AN INTEGRATIVE APPROACH

Continued ...

One of the key principles of integrative medicine is the interaction between different body systems. The complex interactions of the psycho-immuno-neuro-endocrine (PINE) system is a key element of this paradigm, and the impact of stress on the body is a good example of integrative physiology. The primary symptoms of chronic pain involve the nervous system, but it also affects higher cognitive and emotional functions typically associated with ‘the mind’. Its impact on the immune system and the endocrine system is increasingly appreciated, mediated by changes in the hypothalamic-pituitary-adrenal axis, inflammatory neuropeptides and many others factors.

There are different tools that can help address psychological stress. Cognitive-behavioural therapy is perhaps the best studied intervention, in which patients learn to be more aware of the things that trigger negative thoughts and emotions, and learn that they can choose different responses to these triggers. Sometimes, fear of movement can be reduced by something as simple as reassuring patients that reasonable movement or exercise will not damage any structures and that it is safe.

Trauma-focused psychotherapy tries to desensitize patients through repeated exposure therapy, with each session being slightly more intensive than the one before. This can be incorporated into massage, osteopathic and other gentle manual therapies by having patients describe their trauma during treatment. This has not been formally evaluated, but clinical experience has shown that when a deeply relaxed state is paired to a painful memory, it is reprocessed by the nervous system in a different way. Patients often experience a deep emotional release, and with proper guidance from the therapist, this can be deeply healing.

Mindfulness-based stress reduction is a structured 8-week course that introduces participants to breathing, muscle relaxation, guided imagery, stretching and other mindfulness-based practices. It is administered by hundreds of facilitators in hospital and community settings around the world. Controlled trials provide some evidence of benefit in TBI, and a systematic review found 3 trials of 117 patients found that while pain reduction was mixed, pain acceptance was consistently improved.

Physical activity

Every patient should be encouraged to become more physically active. While pain can be a barrier to some forms of exercise, others lend themselves very well to chronic pain. Nordic walking is an excellent option for people in pain for many reasons. Walking poles shift the centre of gravity forward, taking strain of the spine and the knees. The swinging motion of the arms doubles the caloric output of the activity, but perceived exertion is only minimally increased.

The most fascinating reason is that it increases blood flow to the brain. This is because the rhythmic gripping and releasing of the poles fatigues the intrinsic muscles of the fingers, which triggers a vasodilatory nitric oxide (NO) release. This is designed to increase blood flow to the fingers, but it has a systemic effect that includes the brain and deep muscles of the spine. Nordic walking can be done alone but we often suggest that patients find a walking partner or group to add much-needed social interaction. It can also be done while walking a dog if the leash is fastened to the walker’s waist.

Restorative yoga is a newer system of this ancient practice that focuses on slow, gentle movements, sometimes in a chair, for people in pain. When done in a heated room, the relaxation response is heightened. Swimming is a great option for patients who have access to a pool. The buoyancy of water reduces pain in many cases, and the structure of a pool lends itself well to short bursts of exercise. We encourage patients to swim one lap every five minutes and spend the time in between moving slowly and floating in the water. Find out which pool in your area has the warmest water. If there is no warm pool in your area, call one and inquire about the possibility of a ‘warm day’ to make their facility more accessible to people in pain.

There is good evidence that tai chi improves outcomes in fibromyalgia, and in our experience it is helpful for people with any chronic pain syndrome. The Alexander technique, which teaches mindful posture, also yielded very impressive outcomes in a large controlled trial in people with chronic low back pain. These approaches to mindfulness-based exercise may not burn calories, but they improve cardiovascular and other chronic disease outcomes just as much as aerobic exercise and resistance training.

Natural Health Products

Natural Health Products (NHPs) include vitamins, minerals, herbal medicines and nutritional supplements. There are hundreds of NHPs commonly available to patients, and studies suggest that they are widely used by patients. While there are some reasons for concern related to manufacturing and formulating standards, a growing body of evidence suggests that these may be helpful in treating chronic pain, and that adverse events are exceedingly rare. There are several natural health products whose proposed mechanism of action leads us to consider their use in appropriate patients. While a comprehensive review of the evidence for their use is beyond the scope of this article, a few examples are provided.

Vitamin B12, also known as cobalamin, exists in many different forms. Deficiency is common and the only reliable laboratory marker, urine methylmalonic acid, is not widely used to evaluate B12 status. Two short-term trials have demonstrated that B12 can dramatically improve back pain in some patients. Hydroxycobalamin and cyanocobalamin have been used for decades, but recent evidence suggests that methylcobalamin may be more bioavailable and more effective. We prefer sublingual use of about 1mg daily. A one-month trial may reveal improvements in mood, energy, pain and sleep, and it can be used on an as needed basis after this.
Magnesium is another NHP that often helps patients. It is an NMDA receptor antagonist, with many other potential mechanisms of action involving muscles and nerves. It has been used for decades, but surprisingly only one modern trial in low back pain has been published, yielding positive results. It can be dosed liberally, as deficiency is common, toxicity is rare and the only common side-effect is some loosening of stools, which is often desirable. It is sold in various forms and doses, and in most cases 3-4 capsules per day would be considered reasonable. A 2-3 week trial should be sufficient to see a reduction in muscle tension or spasm, or other pain-related symptoms.

Herbal medicines that have some evidence of benefit, and which been helpful in some of our patients include curcumin, an anti-inflammatory extract of turmeric; devil’s claw, another anti-inflammatory herb; St John’s wort, a very well-studied botanical antidepressant; chamomile tea and lemon balm, which have sedative and anxiolytic properties.

Coenzyme Q10 can improve energy, and in one placebo-controlled trial, it led to a 50% reduction in frequency in 47.6% vs 14.4% of patients. Melatonin is a safe and effective sleeping aid, with particularly good outcomes in people with delayed sleep onset. Probiotics often improve intestinal symptoms and treating vitamin D deficiency can have a number of positive effects. These are just a few of the most widely used NHPs that may benefit people with chronic pain, and there are many others. Some background knowledge of their use may be helpful before prescribing them, but judicious trials in appropriate patients are often the best introduction to these therapies.

Patient-centered care

People with chronic pain have to become active participants in their care. The degree of dysfunction that has set into their lives, at work and home, day and night, with family and friends, during every waking moment, requires them to change themselves.

Victor Frankl wrote that when we are no longer able to change a situation, we are challenged to change our selves. Indeed, patients should be guided to an understanding of their situation that helps them accept responsibility for their future without blaming them for their present.

If our patients with chronic pain are to be challenged to change themselves, then we as practitioners must change ourselves. We must see ourselves as more than doctors and therapists, we must become teachers and leaders. We cannot allow ourselves to become hopeless about their future, to assume that they will never improve, or that our interaction with them will not lead to a successful change. This sabotages the therapeutic relationship and threatens to reduce the benefit of the interaction. We must embrace the placebo effect as something to be harnessed and strengthened whenever possible.

We must also help our patients see a vision of their future that they can work towards, and that must include the possibility of being pain-free. While many patients are told that they are going to have to live with their pain because it will never go away, this author believes that this is a very unhelpful approach. A more useful approach is to help patients understand a subtle paradox - that if they can learn to accept their present situation, a better future becomes more likely.

Overview

While some practitioners may not feel totally comfortable prescribing non-drug therapies for various reasons, chronic pain is a challenging problem that hugely impacts our patients’ lives. In this author’s opinion, the potential benefits of these options far outweigh their risks, and this is particularly important for people whose suffering persists despite our best efforts with conventional treatment.

Integrative medicine considers the whole person, incorporates a wide range of therapies, and encourages the patient to become an active participant in their care. This makes it a very useful paradigm for our most challenging patients.


CASE STUDY
BY GLORIA GILBERT, PT, MSC, CAPM EDITOR

CASE STUDY:

The last newsletter presented a case study of a young man, injured in a MVA who did NOT recover well from injuries sustained in that event. The CAPM membership was asked to review the situation and submit their thoughts on initial or early investigation, treatment and management etc. that would ‘ideally’ have improved the outcome.

To review:

Jack, a 22 year old single male with a grade 12 education was the front seat—belted driver of a car that was rear-ended. Jack had slowed/ stopped to make a left turn at a traffic light. The car that hit him was travelling 60 p.m. Damage to Jack’s car appeared to be limited to the rear bumper and trunk.

Jack reported an immediate onset of headaches.

Jack has worked in a small auto parts factory since graduating from high school. He earns a good salary, has good benefits and enjoys many sports and leisure activities. He recently purchased his own home, anticipating that he would fix it up and ‘resell’ it for a good profit. Jack has never been injured before. However, 2 years before the MVA he was off work for 5 months and ‘on stress leave’ because he had inter-personal problems with one of his co-workers. During this time period, Jack did not see a counselor or psychologist. He was prescribed medication for anxiety by his physician.

How should we (have) proceeded after the MVA?

First Medical Visit:

Jack may have gone to the ER - and if he did, the ER physician should have examined his neck (in particular) but also his torso, taken x-rays (would be nice if we could immediately do an MRI!!), noted the mechanism of injury, asked some ‘orientation’ questions and sent Jack home with instructions to take it easy for a few days and to see his family physician as soon as possible.

If Jack attended with his family physician, a thorough history since the MVA (day by day) should be taken. Considering Jack’s past attendances with the MD (he does not attend on a regular basis but was off work on a 5 month stress leave 2 years ago); perform a detailed examination of his neck and body - noting any bruises or cuts or discoloration. The physician would also encourage Jack to stay off work for at least 2 weeks and ‘rest’ (since Jack does heavy work). (Many people think they are ‘o.k.’ and do not go to their physician immediately. When they do make an appointment, it is often after they have had a sleepless night and could NOT lift their head off the pillow in the morning - then they [of course] panic!)

Given the immediate onset of headaches, the physician may be concerned about the extent of the neck trauma (in particular) but also about the possibility of a concussion. The family physician asks Jack to keep a detailed history of how he is feeling (discussing feelings is hard for Jack) to do and sees him in again in another week. The physician knows it is difficult for Jack to stay ‘off work’ since he earns a good salary and lives a very physically active lifestyle.

At the next appointment, the physician discusses referral to a physiotherapist or chiropractor for improved symptom control. Because the physician knows that Jack is an intensely physical and yet introverted person, he refers Jack to a health professional that he knows will provide a lot of education about both the type of injury, the constellation of symptoms as well as one that encourages self-management. The MD knows that this PT or DC will proceed slowly and cautiously with treatment (and not have Jack immediately start lifting weights!!!). The physician is aware that allowing the acute inflammatory response to settle, and assisting Jack to develop a plan (about both rehabilitation and return to work) is the best way of assisting this young man. The physician specifically asks the PT or DC to inform him of Jack’s progress or any other concerns.

At the second visit, the physician is concerned about the ongoing complaint of headaches, inspite of conservative management and appropriate (mild) prescription medication use. (However, he may specifically have to ask Jack if he is also smoking marijuana!) The physician refers Jack to a neurologist or medical specialist familiar with trauma and concussion management and also encourages Jack to see a psychologist. The physician appreciates that it will be difficult for Jack to stay off work (for a few more weeks or possibly longer).

Jack’s recovery continues slowly and cautiously...and when symptoms have stabilized, a structured return to work program is put in place (occupational health personnel or ideally an occupational therapist is the best person to assist with this task). Dialogue is maintained between the employer and all treating health professionals, with work modifications and restrictions instituted. In spite of this ‘plan’, Jack may still have some challenges in returning to all his pre-accident activities and lifestyle!
PAIN COMMUNITY NEWS

On November 6, 2013, during National Pain Week, the Hamilton Health Sciences (HHS) Michael G. DeGroote Pain Clinic hosted their first Party for Pain fundraiser.

Hamilton has a longstanding legacy of providing service to people with chronic pain and the need for such services continues to grow. The Chronic Pain Management Unit at the Chedoke site has been operating for over 20 years and the Pain Management Centre at the Hamilton General site has provided service in its current form since 2000. Together they comprise one of the largest university-affiliated pain programs in the country. In addition to service delivery, these institutions also train medical and allied health professionals and conduct research on various aspects of pain. The Michael G. DeGroote Pain Clinic plays a vital role in the delivery of specialized care for more than 2.3 million residents of south-central Ontario. Providing leading edge care requires investment in the most current equipment, which, like many of the services at the core of pain treatment, are not presently covered under government health care funding. Proceeds from the Gala on November 6th are supporting pain services, so that Hamilton can offer improved and enhanced care for our patients.

The evening program included a video with testimonials from patients, leaders at the hospital speaking about the amalgamation of pain services at HHS, live entertainment and a silent auction. Special presentations were awarded to Dr. Eldon Tunks, founder of the Chronic Pain Management Unit and Dr. Jay Forrest, founder of the Pain Management Centre, who were both recognized for their academic and clinical leadership in the practice of pain management throughout their distinguished careers.

The Party for Pain fundraiser will be an annual event and the next Party will be held on Wednesday, November 5, 2014.

The newsletter of the Chronic Pain Management Unit (CPMU) at HHS is available on the Web or by emailing pain@hhsc.ca.

EDUCATIONAL WEBSITES

1. The Arthritis Society: www.arthritis.ca

This health practitioner continues to receive regular email communication from the Arthritis Society in South West Region. Of particular interest are regular chronic pain management workshops - which are ’free’. These workshops may specifically discuss arthritis or chronic pain generally and are targeted for either children or adults. Go onto the website of the Arthritis Society to see what is being offered in your region of the country.

2. WebMD.com - is an online website that has excellent information (including slide shows) on many pain conditions and problems. Although your editor has posted about this information site before, it is now being sent as a reminder to “test it out”. It is also ‘free’ for professionals and the public.

3. Dr. Mike Evans, a family practitioner at St. Michael’s Hospital in Toronto may be familiar to many. He developed an interesting You-tube Video called 23 ¼ about the health benefits of exercise. However, Dr. Evans also has a You-tube video on Concussion 101. (Because it moves so quickly, the only problem is that it makes you dizzy !). A variety of topics are available on his website at www.myfavouritemedicine.com

4. Exploration of Mind-Eye Connections

April 27-28, 2014 Northbrook, IL

For further information contact Dr. Deborah Zelinsky, OD at mindeyeconnection@msc.com

GOALS:

- To understand that the brain has multiple systems concurrently functioning, all interacting with the eye in some way.
- To realize how executive functions can be decreased when Mind-Eye Dysfunctions trigger overriding survival functions.
- To understand that eyeglasses affect perceptual, cognitive, emotional and physical function.
- To recognize which patients exhibit red flags for needing therapeutic eyeglasses.
- To understand what diagnostic and treatment options can help rehabilitative outcome and/or quality of life.

OBJECTIVES:

1. To teach the differentiation between eyesight (external visual systems) and organization of time and space (internal visual systems) – both image forming and non-image forming.
2. To discuss four main mechanisms that glasses have on perceptual, cognitive, emotional and physical function.
3. To demonstrate how even with 20/20, people can still need individualized eyeglasses to stimulate or inhibit brain activity and balance imbalances.
4. To teach participants a quick screening to determine Mind-Eye Disconnects or imbalances.
5. To explore the collaborative efforts to produce optimal patient care in patients

I. Exploration of Patient/Environment interactions
II. Exploration of Sensory/Motor interactions
III. Exploration of Neurological/Biochemical interactions
IV. Case Discussions and Screening Procedures to explore diagnostic and treatment options in patients with:

- neurodegenerative diseases
- concussions
- attention deficit
- autism
UPCOMING MEETINGS AND COURSES

2014 – CPS Conference
May 20 to May 23, Quebec City, Quebec
Contact CPS office at 905-404-9545
office@canadianpainsociety.ca or
www.canadianpainsociety.ca

IASP
October, 2014, Buenos Aires

CAG 2014: Landscapes of Aging
October 16-18, 2014 Niagara Falls, Ontario
Contact CAG
http://CAG2014.ca

National Pain Awareness Week
Canadian Pain Coalition – November 2-8, 2014
Contact CPC at 905-404-9545 or
office@canadianpaincoalition.ca

National Jeans Day — Canadian Pain Coalition
Thursday November 6, 2014
Contact CPC at 905-404-9545
office@canadianpaincoalition.ca

2015 – Charlottetown, PEI
May 20 to May 23
Contact CPS office at 905-404-9545 or
office@canadianpainsociety.ca
www.canadianpainsociety.ca