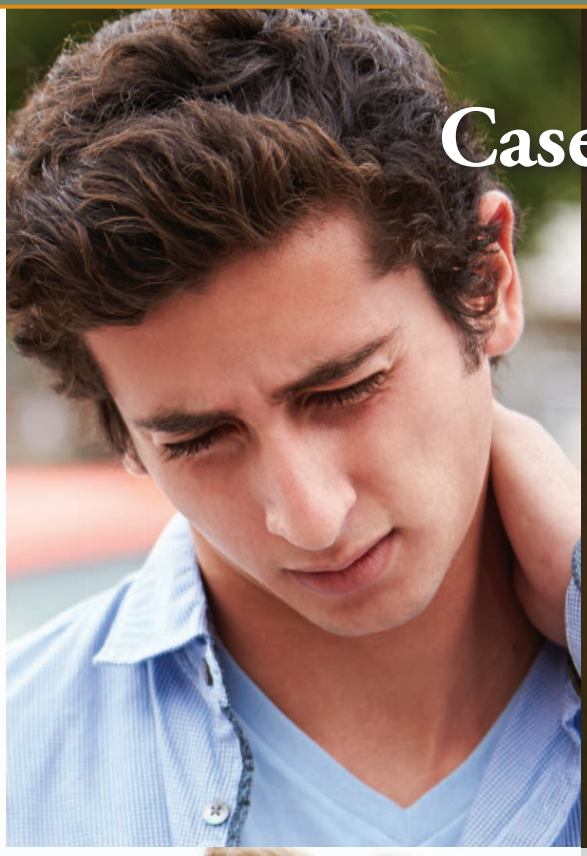
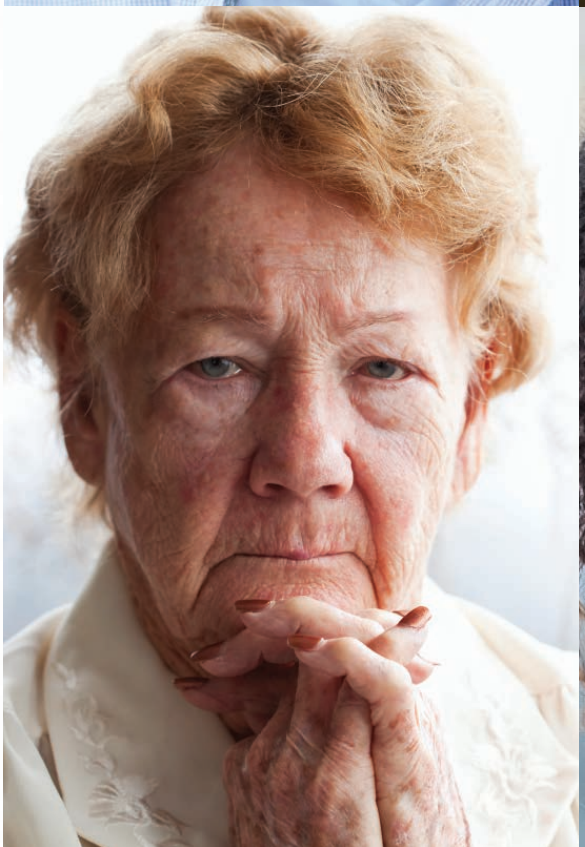
Vital Link
The journal of the Canadian Association of Naturopathic Doctors

Case Reviews and Acute Care

Volume 24, Issue 2
Fall 2017

Feature Articles





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The *Vital Link* is the professional journal of the Canadian Association of Naturopathic Doctors (CAND). It is published primarily for CAND members and features detailed reviews of specific causal factors: philosophical and research-based papers, clinical practice articles and case reviews, as well as international updates on the profession. The *Vital Link* has an outreach to other health care professions and promotes qualified naturopathic doctors to corporations, insurance companies and the Canadian government.

Forthcoming Themes
Winter 2018 Prescriptive Authority in Naturopathic Medicine
Spring 2018 Case Reviews: Acute Mental/Emotional Health
Summer 2018 Case Reviews: Age-related Factors
Fall 2018 Case Reviews: Health and Environment

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When writing for the *Vital Link*, keep in mind its broad readership and out-reach to other professions. Your contribution to the *Vital Link* will benefit the naturopathic profession as a whole and provide you with personal professional exposure. Previously unpublished material is preferred. Please contact the managing editor for submission guidelines.

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Naturopathic Notes

Dr. Iva Lloyd, BScH, ND

Case studies are an essential aspect of any healthcare profession, especially one that falls under traditional and complementary medicine, and that prides itself in being leading edge, and offering patients unique treatment approaches to challenging symptoms and conditions. In this edition of the *Vital Link* we are focusing on case studies associated with conditions such as whiplash, concussions, anxiety and depression.

The promising role of a naturopathic approach is highlighted in the case study by Dr. Sarah Tanner, ND, entitled, "Post-Concussion Syndrome (PCS) following a Motor Vehicle Accident." Dr. Tanner provides an effective review of how a multi-faceted naturopathic approach can effectively address the numerous symptoms associated with PCS, and how it complements other treatments, such as vision retraining.

In Dr. Angela Hanlon, ND's case study she provides a look at the use of self-guided self-muscular release techniques, and its ability to decrease the risk of acute whiplash due to a motor vehicle accident (MVA) resulting in chronic symptoms. This case-review highlights the importance of a multi-factorial treatment approach after an MVA, and the important role a patient can play in their own recovery.

Dr. Nicole Daniels, ND's article is a practice piece looking at anxiety from a naturopathic perspective. The article highlights the link between gut health and mood with an emphasis on the role of the microbiome in treating anxiety. The article also reminds us of the importance of stress management techniques such as mindfulness, meditation, exercise and spending time in nature as part of a comprehensive treatment for anxiety.

In the case report titled, "Comprehensive Naturopathic Approaches to Women's Health and Mood Disorders", Dr. Baljit Khamba, ND provides a look at the benefit of naturopathic treatments for a patient that has suffered with depression and anxiety for years. The multi-factorial approach of naturopathic care and the ability to see mood disorders from many windows is the basis of this case study. The article highlights the link between inflammation, especially of the microbiome. The author also covers the topics of mood, and the importance of addressing basic nutritional and lifestyle factors for individuals dealing with chronic anxiety and depression, especially in the presence of a history of prescription medications.

In September 2017, Dr. Dugald Seely, ND hosted a webinar on how to conduct effective case studies. If you missed that webinar, you can access it on the CAND members only site. Subsequent editions of the *Vital Link* will continue to focus on case reviews, and the CAND is committed to working with NDs to strengthen their case-review-writing skills.

Thank you for your support of the *Vital Link*. We welcome your feedback and suggestions.

"Why Do I Feel Anxious?" – Naturopathic Approach to Anxiety

Dr. Nicole Daniels, ND

Anxiety is a normal reaction some people experience in response to stress. It is when the anxiety is chronic (greater than six months), when it causes significant distress, occurs without an environmental or psychosocial trigger, or inhibits everyday function that it needs to be addressed and treated.

The DSM-5 defines anxiety as anticipation of a threat and categorizes anxiety disorder into three different spectra dependent on their shared genetic, psychological and neurobiological features – generalized anxiety, OCD (repetitive thoughts and behaviours) and trauma (PTSD and acute stress).[1] For the basis of this practice paper we will focus on the assessment and treatment of generalized anxiety or 'feeling anxious'. Specifically, the idea of the 'gut brain' and link between the microbiome and anxiety will be reviewed, stress management techniques such as mindfulness, meditation, exercise, and grounding with nature will be described, and lastly, effective anxiety naturopathic treatment modalities will be discussed.

Physiologically, individuals with chronic or extreme anxiety have a dysregulation of the biological stress response. The stress response is a protective measure to allow individuals to survive immediate threat. There is an acute autonomic pathway initially that responds to stress with the release of adrenaline from the adrenal medulla.[2] If the stress is prolonged, then the chronic neurohormone pathway involving the HPA axis activates, releasing cortisol. The continued release of adrenaline and cortisol accounts for the common symptoms of anxiety such as: heart palpitations, increased heart rate, lack of concentration, irritability, muscle tension, restlessness, dizziness, hyperventilation, increased blood pressure, headaches, sweating, insomnia, and digestive issues. In situations of chronic or extreme anxiety, the sympathetic nervous system produces a constant state of fight, flight, or freeze.[2] This is not a sustainable state and eventually the person will 'crash' having periods of exhaustion, depression, and plausibly sickness due to an impaired immune system.

There are numerous genetic, neuroendocrine, lifestyle and psychosocial factors that make an individual susceptible to anxiety. From a biological perspective, one theory is that there is a deficiency of serotonin or GABA, or an excess of norepinephrine or glutamate. This is why these neurotransmitters are the target of pharmaceutical anxiety treatment, with SSRIs and GABA agonists being the most common. However, the premature prescription of allopathic medication may hide the underlying or root cause of the anxiety, hindering appropriate treatment and the innate ability of the individual to heal. For example, there could be a secondary thyroid disorder, hormonal imbalance, iron deficiency, environmental or food sensitivities, heavy metal toxicity, candida, past trauma, nutritional deficiencies, sleep disorder, or adrenal dysfunction.[20] Naturopathic doctors are ideally suited to treating patients with anxiety, as NDs consider the whole person, and the complexity of connections between systems and symptoms. NDs look at the mind-body connection and all the factors involved, rather than treating the mind and body separately. There is not one key trigger or a single cause of anxiety. It is our responsibility as naturopathic doctors to address and assess all factors including the biological, lifestyle, environmental and psychosocial factors contributing to our patient's anxiety, and treat by guiding and supporting them in enhancing their natural ability to process and adapt to stress.

Coping with Panic Attacks

Generalized anxiety and panic disorder tend to be grouped together in definition and in treatment. One who has experienced both anxiety and panic might emphasize that these are not interchangeable terms. Anxiety is often a low to mid-grade feeling of discomfort that heightens in response to external stimuli. Panic attack is literally that – an attack of panic that comes unprovoked by stimuli. A panic attack can last a minute to hours where the patient has no control of their physiology and feels symptoms similar to a heart attack (why many people mistake panic attacks for heart attacks). There is difficulty breathing, lightheaded/dizziness, cold sweat, heart palpitations or arrhythmia and an intense feeling of dread. Unfortunately, there is no medication or supplement that will abolish a panic attack once it is elicited (clonazepam/lorazepam is a popular panic medication but needs to be taken 30 minutes before the attack to be effective[27]). Once the panic hits, it needs to resolve on its own. If the patient can identify their triggers or symptoms leading up to a panic attack, then they can employ certain distraction techniques to try and prevent panic. By not letting anxiety provoking thoughts build and gain momentum, patients can possibly prevent panic by halting the release of further cortisol and adrenaline. Common distraction techniques including: counting, counting backwards by 6s or 7s, spelling words backwards, anything that involves computing or complex processing

to engage the prefrontal cortex. Other tricks are to drink water, deep breath, go outside in the fresh air, visualize, or listen and sing to music. As naturopathic doctors, the most important thing we can tell our patients if, and when they experience a panic attack, is that it will pass. Many patients do not understand what they are experiencing, and when they do have panic they humanly fear the worst.

Naturopathic Assessment:

One of the strengths of naturopathic medicine is its comprehensive and complex patient intake process. By performing a detailed and thorough patient intake NDs can identify factors affecting a person's resilience and ability to handle stress. The less resilient a person is, the more hypersensitive and reactive they are to stress. Hence, it is important to address naturopathic basics such as diet, water intake, sleep, breathing, and stress to see what their baseline is. If one or more of these health basics are lacking, then the individual will be less resilient to stress and prone to feeling anxious. Below are suggested points to address in your naturopathic intake:

- Family history – Check for addictive behaviours, anxiety, depression and other mood disorders in the family history. Ask about their parents' ability to deal with stress and what stress coping mechanisms they may have inherited. Ask about previous childhood trauma or anxiety.
- Characteristics of the anxiety – Ask about the onset of the anxiety, the frequency of anxiousness or panic attacks, and whether the frequency has increased or decreased over time.
- Digestive health – Address food sensitivities, dietary intake, how and when they eat. Also ask about their relationship with food, as a previous history of eating disorders is a risk factor for anxiety.
- Hormonal health – Hormonal laboratory testing or detailed questioning specific to identifying female or male hormonal imbalances.
- Thyroid health – Question about thyroid symptoms (e.g., hot/cold intolerance, appetite, bowel movements, circulation, hair/skin/nails, lump in throat). If you suspect thyroid involvement, check the thyroid and hair/skin/nails on physical exam and give them a BBT chart to take home and fill out.
- Heavy metal toxicity – Test via hair or urine analysis
- Fungal infection or candida – Use a Candida questionnaire and/or test via blood or urine
- Previous history of infection – Can affect the patient's immune system and make them susceptible to lowered immunity function and hypersensitivity
- Adrenal function – Questionnaire for adrenal fatigue and chronic fatigue
- Psychosocial health – Ask about their general mood since they were a child, during puberty, and now. What situations make them anxious? What does that anxiety feel like? How do they deal with anxiety? What is their support network like? Do they have other health care professionals that they see? Have them create a support map of relationships that help (or hinder) them.
- Anxiety screening tools – The GAD-7 is a seven-question screening tool for a complete assessment for anxiety.[3] Other screening tools are available through the DSM-V or CMHA.

Depending on what information you collect on the intake, you may need to request certain laboratory tests to further diagnose the causal factors for your patient's anxiety. Below are suggestions of addition tests you can use:

- Food sensitivity test (IgG and/or IgA) or testing for 'leaky gut'.
- CBC, ferritin, AST, ALT, vitamin D, B12, HbA1C, blood glucose (test for blood sugar dysregulation)
- Thyroid panel – TSH, fT3, fT4, rT3, anti-TPO, anti-TBG
- Hormonal panel – estradiol, progesterone, FSH, LH, prolactin
- Adrenal Health – four-point salivary cortisol or 24 urinary cortisol
- Heavy metals – hair analysis or urinary metabolites
- Genetic test for susceptibility for anxiety via genetic markers.

The Gut-Brain Connection – Food as Medicine:

The gut-brain connection has been widely understood by naturopathic doctors for some time; however, it has only been recently investigated empirically as to its function in cognitive health. Research has focused on how the microbiota communicates with the CNS via neural, humoral, immune and metabolic pathways, thereby influencing brain function.[4] Bidirectional communication between the gut and brain is referred to as the "gut-brain axis".[5,6] Five communication routes between gut microbiota and brain are hypothesized, including the gut-brain's neural network, neuroendocrine-hypothalamic-pituitary-adrenal axis, gut immune system, some neurotransmitters and neural regulators synthesized by gut bacteria, and barrier paths including intestinal mucosal barrier and blood-brain barrier.[7,8] All pathways allow for communication between the brain and gut microbiota.

Each adult individual is believed to possess a unique gut microbiota composition, analogous to a fingerprint, that constitutes a highly dynamic ecosystem with high inter-individual variability.[9,10] Our gut microbiota is critical for brain processes such as myelination, neurogenesis and microglial activation and can effectively modulate behavior and influence psychological processes such as mood and cognition.[11] Since the microbiota is more 'medically' accessible and modifiable than the human genome, it is now being used as a

therapeutic target for prevention and treatment of neuropsychiatric conditions.[12] However, there are critical time windows during infancy, adolescence and aging when the gut microbiota is most vulnerable to external influence and stress.[13] Hence, it would be best to treat gut issues in infancy and children to be most effective in preventing anxiety and other mood issues.

Certain bacteria in the gut microbiota are strain-specifically able to produce different essential neurohormones such as GABA, serotonin, catecholamines, acetylcholine and dopamine.[8] These bacteria can be damaged by environmental stressors such as food, medications, stress, and infectious agents. Hence the importance of supplementing with probiotics as a treatment for gut repair and secondarily anxiety. Damage to the gut lining not only creates an immune response, which increases inflammation in the body, but impairs the ability of resorption of important vitamins and minerals necessary for neurocognitive health. These include, but are not limited to, B12, omega-3, amino acids (such as tyrosine and tryptophan), folic acid, vitamin C, and magnesium.[14] To further treat the gut microbiota naturopathic doctors should follow the '4 Rs' (remove, repair, replenish, and reintroduction of foods). Remove any aggravating foods, repair the gut lining with supplements and herbs, such as L-glutamine and slippery elm, replenish the microbiota with probiotics and fermented foods, and lastly reintroduction slowly of nutritious non-aggravating foods.

When it comes to diet and food choices there are certain foods to avoid in anxiety treatment. Suggest to patients to avoid stimulants such as alcohol, caffeine, refined sugars and processed foods as they will cause a rush of adrenaline after ingestion. Acid forming foods (e.g., yoghurt, pickles, eggs) may cause a reduction in magnesium levels and should be limited. Individuals with anxiety tend to prefer a diet high in carbohydrates as they provide a certain level of comfort and influx of serotonin. However, carbohydrates are broken down into simple sugars that cause a rise than fall in blood sugar which can cause an anxiety-like feeling. Foods to incorporate into their diet include: vegetables, water, tryptophan-rich foods to improve serotonin levels (e.g., oats, poultry, sesame seeds), magnesium rich foods (nuts, seeds, beans), and omega-3 rich food (fish, flax seed, nuts).

Stress Management and Lifestyle – Restore with the Outdoors

Any activity that helps to reduce stress will ultimately help to reduce anxiety. Meditation, or 'mindfulness' are considered the most popular of stress reduction techniques, as numerous studies have shown objectively through fMRI and EEG positive results of improving mood and reducing anxiety.[15-17] The most researched techniques in children and adolescents are mindfulness-based stress reduction, mindfulness-based cognitive therapy, yoga meditation, transcendental meditation, mind-body techniques (meditation, relaxation), and body-mind techniques (yoga poses, tai chi movements).[18] Constant practice of meditation has the best effect as it will help address and neutralized the learned component of anxiety. Meditation takes practice, and people with anxiety may abandon meditative practices because they do not provide immediate relief or because they are uninterested in it to begin with. The best kind of meditation is the type that resonates positively with your patient. They can use guided imagery, podcasts, YouTube guided mediations, colouring, art therapy, crafts, music, dance, walking, journaling or drawing as a form of meditation and stress relaxation.

It is also best to spend time in nature. Nature has a natural calming and grounding effect. Anxious patients need to feel the ground to feel grounded. Research suggests that physical activity in nature and feelings of connection to nature enhances psychological health and well-being.[19] Just the act of walking through nature helps improve breathing and oxygen levels (as hyperventilation is a precursor for anxiety) and physical activity helps release or 'burn off' adrenaline. Advise your patients to go out in to nature, forest walk, join walking or running groups, visit botanical gardens or even garden centers. If they do not have nature available to them they can use guided visualization to imagine walking through nature, as visualization activates the sensorimotor and visual cortex, the same parts of the brain engaged when a person physically walks through and experiences nature. Exercise should be encouraged with anxiety patients even if it is only 15 minutes per day. They can do yoga, stretching, jump rope, skipping, dancing, going to the park with their kids, anything that will increase their heart rate and improve their mood elevating neurotransmitters.

Going outside is also a great bonding or social activity. In many instances, individuals suffering from anxiety feel isolated and rejected, becoming more withdrawn physically and mental-emotionally.[20] Conversely, social isolation and rejection is a risk factor for anxiety. Talking with a naturopathic doctor about anxiety can be therapeutic as patients feel heard without judgment (which may be something they do not have in their life). Within their comfort limits, encourage your patients to share their feelings of anxiety with trusted friends or family members, or suggest attending support groups. By sharing their feelings of anxiety, they may experience an immediate feeling of relief. Suppressing their emotions for sake of embarrassment or judgment from their peers leads to more detriment to their self-esteem and mood as it increases their feelings of isolation and rejection.

Naturopathic Treatment Modalities

In addition to nutritional and lifestyle counseling, other naturopathic modalities are beneficial in treating anxiety. Acupuncture treatment using meridian points elicits a feeling of relaxation in comparison to nonsensical acupuncture (placebo).[21] A recent study showed acupuncture treatment (GV 20, GV 24, Sishenchong, Anmian, PC 6, Ht 7, KI 6, and BL 62) to be significantly better than the control group treated with traditional anxiety medication (alprazolam).[22] Individual TCM cases and pulse/tongue diagnosis should be done with each patient to determine their constitution and treatment. Typical mind calming points used are: KI 1, Ht 7, Pc 6, Shenmen, Sp 6, LI 4 and KI 3.[23] If acupuncture causes more anxiety due to a

fear of needles, you can teach patients how to do acupressure or use ear seeds on the points instead.

Herbs in tea or tincture form are an effective treatment for anxiety and mood disorders. Typically, herbal sedatives, hypnotics, relaxants, and antispasmodic herbs are used. Common sedatives and hypnotics are: corydalis, hops, wild lettuce, passionflower, kava, Jamaican dogwood, and skullcap.[24] These herbs should be avoided in patients with depression and insomnia with increased restlessness in the morning.[24] Common antispasmodics and relaxants are: wild yam, motherwort, lobelia, chamomile, passionflower, kava, skullcap, tilia, valerian, peppermint, and crampbark.[24] These herbs are generally safe and well tolerated; however, be aware of any side effects or drug-herb interactions if the patient is taking medications. Teas are a good vessel for dispensing herbs since it encourages the patient to sit still and rest (while drinking tea) for at least 15 minutes a day.

Nutritional medicine can be used to treat anxiety in conjunction with lifestyle and dietary counseling. Common supplements used are: B3, magnesium, B12, folic acid, B6, B complex, minerals, fish oil, L-tryptophan, inositol, GABA, glycine, and 5-HTP.[25]

Homeopathy is also an effective treatment method for anxiety, especially in children, pregnant women, and patients on a plethora of medication that have a multitude of drug interactions. Common homeopathic remedies used acutely for anxiety are: Aconite (sudden fear), Argentum nitricum (anticipatory anxiety), Arsenicum album (fidget and restless), Calcarea carbonica (overwhelmed, worry and dread), Gelsemium (weak, cold, paralyzed), Ignatia amara (grief and loneliness), Kali Phosph (overworked and oversensitive), Lycopodium (lack of confidence), Nat-mur (withdrawn and easily hurt), Phosphorus (insecure and clingy) and Silicea (shy and serious).[26] To find a constitutional remedy, conduct a proper homeopathic intake, where the intake itself has therapeutic properties.

Key Points and Take-Home Message

Anxiety is a symptom commonly experienced and common misunderstood and misdiagnosed. As naturopathic doctors, it is our job to investigate those factors affecting a patient's resilience, to determine underlying neurohormone and dietary causes, to address past trauma and family history, and to enhance patients' awareness of their own mind-body connection. Anxiety is ultimately a learned response due to prolonged stress; it can be unlearned with practice, as there is power in the patient's innate ability to heal. Many patients dealing with anxiety lose hope and feel like they have no control over their own mind and/or body. Many patients have learned through childhood to repress and suppress their emotions to resolve conflict, contributing to a dysregulated stress response system in adulthood. We need to feel to heal and to express rather than repress. Anxiety is a natural way for the body to discharge and regain homeostasis after prolonged contained stress. It is our role as naturopathic doctors to support and guide our patients through the anxiety process as they reclaim calm and balance in their lives.

About the Author

Nicole Daniels, ND is an eclectic naturopathic doctor working in Maple, Ontario with a special focus in women's health and fertility, mental health, skin issues and acne, hypothyroidism, and digestive issues.

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Comprehensive Naturopathic Approaches to Women's Health and Mood Disorders: A Case Report

Dr. Baljit Khamba, ND, MPH

Chronic depression and anxiety are associated with reduced quality of life and can contribute towards increased mortality and morbidity.[1] Within Canada, 1.5 million people over the age of 15 years (4.7%), experienced a major depressive episode (MDE) in the past year, and 11.3% within their entire lifetime.[2]

Over the last few years, there have been efforts to bolster support services for this population, despite that, there have been no changes in the annual prevalence rate for MDE (4.8% in 2002 vs 4.7% in 2012).[2] Depressive disorders can often relapse and reoccur throughout an individual's lifetime. According to a US population based study on MDE, 26.5% were experiencing a chronic episode of two years or longer.[3]

To combat the chronicity of symptoms in depression with anxiety, the recommended first-line treatment is psychotherapy followed by pharmaceutical medications, namely second-generation antidepressants.[4] However, long term use of second generation antidepressants, most commonly SSRIs (selective serotonin reuptake inhibitors) could potentially lead to negative side effects. Some of these adverse events include sexual dysfunction, increased suicidal ideation, gastrointestinal symptoms, insomnia and weight gain.[4]

A repeated pattern of medication use, in ongoing depression with anxiety, creates an optimal opportunity to involve the principles of naturopathic medicine. Particularly in discovering the root cause of an individual's mood disorder. One such perspective to consider would be around the inflammatory influence of mood. Specifically, elaborating on recent research indicating that modulations of inflammatory markers mediated by the immune system can elicit changes in behaviour, especially around sadness and depression.[5] This could potentially develop a chance for naturopathic doctors to offer treatment through a number of different modalities within our scope, such as lifestyle management, nutrition, acupuncture, and natural health products (NHPs). Thus, it is hypothesized that multiple concerns around inflammation and deficiencies may be contributing to the patient's symptoms. Thus, using naturopathic principles to treat the potential root causes would help improve her mood.

Case Presentation

IC (Initials altered to protect the patient's identity) was a 5' 6" female in her mid-thirties, who weighed 173lbs at her initial consult. She was a homemaker and assisted her husband with their company. She presented to clinic in February 2016 with chronic depression and anxiety, with her most recent bout ongoing since June 2014. She had a long-term history of antidepressant use throughout periods of her life, starting at 13 years of age. IC described symptoms of repeated crying, chronic insomnia, panic attacks, lack of motivation, being irritable and angry. She further reported difficulty in losing weight, despite repeated efforts with exercising, and dietary changes. IC discussed a family history of mental illness, as her mother had a history of depression and a maternal aunt with bipolar disorder. The patient elaborated that since June 2014, she had tried citalopram, bupropion, venlafaxine, duloxetine, and mirtazapine in varying doses, as well as psychotherapy, with no significant improvement.

Further, IC noted some adverse effects while taking medications, particularly, while on citalopram 40mg/day, she noted increased insomnia throughout the night. She had episodes of urticaria while taking bupropion. When on mirtazapine, she had improved sleep, however would feel disoriented and tired throughout the day. She also reported taking duloxetine, cortisone, and chiropractic treatment for one year to treat a right-sided shoulder pain from a previous injury. She had noticed increased episodes of diarrhea when taking the duloxetine and venlafaxine.

In addition to her mood, other potentially relevant symptoms included gastrointestinal concerns, particularly gas and looser stools which become worse when consuming dairy. IC stated that she had struggled to lose weight after her last pregnancy (seven years ago). She sought advice from a dietician who restricted her calories to 1600/day and she participated in high impact interval style physical training most days of the week, with no change to her weight or mood. IC reported that she often did not have an appetite, but eats out of necessity. Food cravings are around her menstrual cycle and are typically for processed carbohydrates.

Her menstrual cycle was every 34 days, with heavy bleeding and passing clots. For the first two days of her cycle, she reported needing to empty her full silicone menstrual cup 2x/hour. She stated that she had intense abdominal cramping which had steadily been getting worse over the last six months. As such, she was scheduled for an abdominal ultrasound in a week's time by her family physician.

She reported increased anxiety, particularly irritability and anger a few days prior to commencing her menses. She had felt that the symptoms and bleeding progressively resolved over a period of seven days. In addition to the recent abdominal cramping, other symptoms that had worsened over the last six months included her fluctuation in premenstrual moods and chronic vaginal candidiasis.

Upon examination it was noted that her seated blood pressure was 122/90mmHg in her right arm, temperature was 37.3C, and her pulse was at 72bpm. She had maintained a normal seated position during the visit and had no obvious signs of distress. She reported tenderness on deep palpation in the lower right quadrant, however, Psoas, Obturator, and Rovsing's signs were all negative. The patient denied any nausea, periumbicular pain, anorexia or recent fever. Heart and lung auscultation were performed and established that they were within normal limits. External gynecological exam revealed opaque white discharge with a cottage-cheese consistency from the vagina, as well as moderate erythema along the vulva.

The patient reported that at the time of the appointment she was not taking any medications or supplements. After completing the examination, the following laboratory tests had been recommended: CBC, vitamin B12, 25-hydroxyvitamin D3, TSH, and Ferritin. It was also requested that she take Metagenics Ultralfora IB (50:50 blend of *L. acidophilus* NCFM Strain and *B. lactis* Bi-07, totaling 60 billion live organisms), one capsule at bed-time. With her meal, she was to take Metagenics EPA-DHA Liquid 1200, two tsp/day which delivered 600mg EPA and 600mg DHA per tsp. From a nutritional perspective, IC was advised to reduce refined carbohydrates, such as those found in sugar, rice, and wheat products. It was recommended that she discontinue dairy, since she found it to increase her loose stools, and incorporate garlic, turmeric, and black pepper into her diet. It was requested that she return in two weeks, after having completed the requested blood work and her ultrasound.

At the follow-up visit, IC reported that she her moods had remained the same, with no major fluctuations, the abdominal pain remained unchanged, however, she had reported better sleep initiation and longer periods of remaining asleep. She stated that there was mild to moderate vaginal itching, but no discharge since starting the probiotics. She had eliminated the requested foods, but found that she was craving sugary treats. She had completed the ultrasound the day before the appointment and was scheduled to see her family physician for the following week. Her blood test results were within normal range, with no major deviations in lab values, except for 25-Hydroxyvitamin D which was 25 nmol/L (specifically, Ferritin 42 µg/L, TSH 3.2 mU/L, vitamin B12 221 pmol/L). It was recommended she take Genestra D-mulsion 1000 IU as cholecalciferol, at five drops/day (5000 IU), as well as weekly intramuscular vitamin B12 (1cc in the right deltoid) injections for a period of six weeks and then monthly for six months.

The patient followed up in one week for the vitamin B12 injection and noted that she has had improvement in her moods. Particularly, she describes feelings of joy, a lighter sensation and finding herself smiling more often. She denied any panic attacks since initiating the probiotics and B12, as well continued to note improvement in her sleep. Further, she stated that she was on day five of her menstrual cycle with more mood stabilization since her previous cycle. She noted that her pain and flow were still comparable to her cycles in the recent past. Her abdominal ultrasound was within normal limits, and thus her family physician referred her to an Ob/Gyn for further evaluation. It was recommended that the patient continue the 1cc vitamin B12 intramuscular B12 injections (methylcobalamin), and was prescribed Pascoe Neurapas, containing dry extracts of St. John's wort (4.6-6. 5:1) 60mg, valerian root (3.8-5. 6:10) 28mg, and passionflower herb (6.25-7.1. 1:1) 32mg, per tablet. It was recommended that IC take two tablets three times daily.

Over the next four weeks, IC came in regularly for the vitamin B12 injection (methylcobalamin, 1cc, intramuscular). She continued to report improvement in her depressive symptoms with increased happiness, overall sleep, and with no panic attacks. During her next menstrual cycle she stated that she did not experience the mood fluctuations she would typically experience. She noted that her previous anxiety triggers no longer influence her as greatly, and that she was able to cope and manage stress much better. The pain in her lower-right quadrant continued, however she noted changes in its characteristics. From sharp and shooting, it had become duller and the pain would be more intermittent rather than persistent. Her vaginal candidiasis had resolved. She also noted a reduction in her waist and hip circumference.

IC returned one month after her last vitamin B12 injection and stated she felt that her moods had drastically improved since she began. Specifically, she described being able to cope with workplace stressors efficiently, being happier overall around her children. However, the pain in her lower right quadrant had remained intermittent and dull. She had since seen the Ob/Gyn and was being examined for potential ovarian cysts. She noted that if she consumed refined carbohydrates and dairy (which would cause irritation to her gastrointestinal tract), her anxiety symptoms would begin to worsen, and on occasion suffer a panic attack. IC was prescribed Webber Magnesium Citrate powder (300mg) in warm water at bed-time, and NFH B6 SAP, which was a complex of B vitamins with 100mg vitamin B6, one capsule per day with breakfast. Pascoe Neurapas was to be discontinued on a daily basis, and only to be taken for one week, five days prior to her menses beginning.

Upon returning one month later, IC continued to report consistent moods, she weighed 155 lbs, 5lbs away from her pre-pregnancy weight. She noted that since taking the magnesium and B6 SAP, her cravings for sugar have resolved, she was able to consistently lose weight, at approximately 1-2 lbs per week. Her lower abdominal pain had almost resolved, except during ovulation. Her menstrual flow was still heavy, however she had tolerable cramps for one day, and no longer passed clots. She was scheduled to see her Ob/Gyn to follow up. Future steps with IC would involve further examination of her female reproductive hormones, particularly as they relate to her moods.

Discussion

Retrospective consent had been obtained from IC through e-mail and telephone discussion. IC displayed characteristics of having anxiety with underlying episodes of depression, which had been recurring throughout her life. There were various factors which increased her risk of having repeat episodes, particularly, being female (women have a higher annual prevalence rate at 4.9% than men at 2.9%), having an earlier age of onset, disruption in sleep-wake cycles, family history of psychiatric illness, and stressful life events.[2] The physiological impact of the risk factors can help to elaborate its contribution to the depressive and anxious behaviour, as can be seen in the alteration of bacteria within the intestine.

Humans and animals are populated with rich and diverse communities of microorganisms, with the majority of them within the intestines.[6] Many metabolic activities occur from the intestines, such as the production of vitamin K, B complex and the metabolism of carcinogens.[7] It has recently been studied that alterations within the balance of microbiota, particularly within the intestines, can influence the adaptive effects of the mucosal immune system and as such be linked to inflammatory disease.[6] There are many factors that can disrupt the balance of bacteria, such as diet, stress, medication use (i.e., antibiotics). Psychological stressors tend to elevate circulating inflammatory cytokines, which can further impact mood.[6] One study examined the impact socially disruptive situations had on mice microbiota and circulating inflammatory cytokines. The study showed that the stressful event reduced the diversity of bacteria, elevated inflammatory cytokines, such as IL-6 and MCP-1. Thus, microbacteria are involved in the interaction between stressful events and increased inflammation. It is suggested that the lowered adaptive effect of the immune system contributes to a depressed mood[5,6]. This was evident with IC, as she experienced depression at a young age, and throughout her life, as well as gastrointestinal concerns and an unexplained lower right quadrant pain.

Those who have depression or anxiety, often have alterations in the regulation and function of the hypothalamus-pituitary adrenal (HPA) axis. As a result, they tend to have higher levels of plasma cortisol, elevated corticotropin releasing factor (CRF) levels in their cerebrospinal fluid. These factors further influence the disruption of intestinal microbacteria and increased production of inflammatory cytokines. The neuroendocrine impact of the HPA axis on the gut bacteria can influence the production of neurotransmitters. It has been shown that gamma aminyobutric acid (GABA), which is an inhibitory neurotransmitter is also synthesized within the intestines.[8] Changes within the expression of GABA influence the pathogenesis of depression and anxiety.[9] Further, one study showed that anxiety changed the intestinal bacteria through the inflammatory cytokines. Specifically, there was an abundance of indole-positive Alistipes strains, which could disrupt the intestinal serotonergic system, thereby influencing anxiety and depression. However, Alistipes strains and other gut microbacteria can be altered through dietary approaches.[10] One study examined the influence of using specific strains of bacteria and the resultant impact on chronic fatigue and anxiety. The investigators showed that ingesting *L. casei* induced a significant alteration in lactobacillus and bifidobacteria in humans with chronic fatigue syndrome, along with a significant decrease in anxiety symptoms. This study lends further support to the gut-brain axis of mental health and the potential to use probiotics in anxiety treatment.[11,12] These were the strains of bacteria used with IC, which may have aided in supporting her gastrointestinal tract and improve her mood.

Further to the inflammatory theories of mood, another treatment considered in IC's care was omega-3 polyunsaturated fatty acids (PUFA). It has been noted PUFAs have a variety of functions in the body, one of them being balancing pro and antinflammatory processes.[13] In 2004, it was reported that nearly 70% of people in the United States were deficient in PUFAs, which contributes to many diseases, such as cardiovascular, inflammatory and neuropsychiatric.[14] Omega-3 PUFAs include, alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docohexaenoic acid (DHA). Their metabolites are involved in various physiological processes within the body, including having a role in mood regulation. One study specifically examined the endogenous levels of ALA, EPA, and DHA within non-medicated patients diagnosed with major depression with and without comorbid anxiety. The results showed that the patients with depression and anxiety had the lowest levels of EPA and DHA.[13] The results for such comorbid patients strongly lend to support IC's use of the high dose EPA and DHA PUFAs.

In addition to the inflammatory mechanisms around depression and anxiety, supplementation can provide further support of the intestinal and brain serotonergic pathways. Particularly, b-vitamins, including vitamin B12, are synthesized within the bacteria of the intestines and serve as key methyl donors in the production of neurotransmitters such as GABA and serotonin.[15] One study examined the combined synergistic effect of vitamin B6 and magnesium with premenstrual anxiety. They divided the women into four groups and gave them either 1) magnesium, 2) B6, 3) magnesium and B6, or 4) placebo. The investigators found that the group of women who were in the combined magnesium and B6 group had the greatest relief from premenstrual anxiety.[16] This relief in premenstrual anxiety, cravings and pain was also noted with IC. Lastly, to continue supporting serotonin and GABA neurotransmitters, the herbal supplement containing St. John's wort, valerian and passionflower was prescribed. Studies have repeatedly shown St. John's wort to be comparable to other SSRIs, such as imipramine, in improving depressive symptoms,[17] and valerian and passionflower to be effective anxiolytic, comparable to benzodiazepines.[18,19]

Conclusion

IC had presented with a long history of antidepressant use, premenstrual symptoms and pain. She had tried various medications, but would experience adverse effects from them and not gain therapeutic benefit. Upon initial assessment, supporting her from a gut-brain axis approach seemed to be the best fit. She responded well to her treatment of probiotics, omega-3, B vitamins (both oral and intramuscular), vitamin D and the herbal supplementation. She had noted improvement in her depression and anxiety, sleep, weight loss and reduced premenstrual symptoms. She continues to re-check with her naturopathic doctor every three months with good success.

About the Author

Dr. Baljit Khamba, ND, MPH is a clinic supervisor at Bastyr University Clinic and a core faculty member at Bastyr University California. She treats a variety of conditions but has special interest in nutritional approaches to anxiety, stress, depression, focus and attention, memory and cognition. While completing bachelor and master's degrees, she worked as a research analyst at the Centre for Addiction and Mental Health (CAMH), where she researched alcohol addiction and anxiety, as well as nutrition and mental health. Dr. Khamba also has experience working in integrative psychiatric clinics, as well as more generalized practice, as well as being involved with research projects at the University of Alberta on natural health product safety. Before coming to Bastyr University California, Dr. Khamba worked in private practice in Oakville, Ontario, Canada. Dr. Khamba is a licensed naturopathic doctor in California and is a member of the American Osteopathic Association of Prolotherapy Regenerative Medicine.

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Grief and Health Implications: Going Beyond Disease-Focus and Towards Positive Transformation

Dr. Hanifa Menen, ND

A plethora of research is available to understand grief and its impact on an individual's psychological, biological and spiritual health. It is an area so vast and so full of intricate, individual complexities that many healthcare practitioners shy away from approaching the discussion of this experience with patients.

Grief/loss is an inevitable, universal experience. There are many experiences of loss in life; it has been said that going through life is to endure a series of losses, which include the loss of health, roles, identity, pets, homes, faith, and/or loved ones. Grief is the normal emotional response to loss, a response all too familiar to healthcare practitioners who undoubtedly experience this through their patient care regularly as well as through their own personal life experiences. How we help our patients matters. Historically, medicine (modern or naturopathic) has looked at grief from a reductionistic perspective that focuses on the symptoms or the disease process linked with the experience of grief. New thinking is showing that grief and loss can provide for a positive transformational experience for individuals. This paper reviews the awareness gained from the research and offers suggestions for managing patient care through their personal experiences with this process. Healthcare practitioners (and naturopathic doctors specifically) have a unique opportunity to help guide patients to work through grief/loss with a focus on the possible gains from the experience. If the focus of treatment shifts to this goal, the approach to patient care will need some shifting as well.

Some History

The experience of grief has been examined in terms of a variety of factors that impact an individual's psychological, biological, and spiritual life. Theoretical models of bereavement offer different perspectives on the development, management, and treatment of grief.[1-5] The best known models include Freud's Model of Bereavement, the Kubler-Ross Grief Cycle, and Bowlby's Attachment Theory. In short, Freud's emphasis is about personal attachment that has been lost. He describes mourning (state of melancholia) as a detachment from the loved one, and suggests that when mourning goes wrong, melancholia escalates. Melancholia is seen as a profound presentation of depression involving a complete loss in pleasure in all or almost everything. The process of mourning is seen as a task to rebuild one's inner world by experiencing the intense pain of loss that reawakens the loving affect of the lost loved one.Freud suggested that in grieving, the bereaved is letting go of multiple attachments that are involved in the formation of a relationship. The Kubler-Ross Grief Cycle was originally developed to explain the experience of those dying from terminal illness. It is now also widely used to explain the process of grief more broadly. Most are familiar with this five-stage theory that includes the stages of denial, anger, bargaining, depression and acceptance. Bowlby's Attachment Theory forwards that attachments develop early in life and offer security and survival for the individual, and that it is when these attachments are broken or lost, that individuals experience distress and emotional disturbance such as anxiety, crying and anger. Bowlby suggests that there are four general phases of mourning that include: numbing, yearning and searching, disorganization and finally reorganization. Other grief models include Lindemann's grief work, the Multidimensional Model and Strobe's Dual Process Model. Although different in their approaches, the commonality of all of these models is that each does understand grief to involve a painful emotional adjustment that takes time and cannot be hurried along, although each person's grief experience will be unique.

These models offer a good historical awareness of how theories have evolved over time; however the practical application of theory is what is needed for tangible results. If we look at the research on disease as a result of grief and loss, we can see that cancers, heart disease and depression are the most common disease-related effects of grief.[6-12] These are, of course the inflammation-related diseases that are the focus of much current research and patient management/treatment. This has become very much the focus of medical literature that concentrates currently on disease prevention/treatment through the eyes of risks and fears. What about the equally large body of research that is showing that grief and the experience of bereavement offer a transformational opportunity in a person's life? This is an area that needs some elaboration, as practitioners have a wonderful opportunity to help their patients optimize their normal, but difficult life experiences for their best health moving forward from grief. Note that some research is also discovering that both of these aspects may happen as a reciprocal interaction as well (see: Eisenberger NI, et al. In Sickness and In Health: The Co-Regulation of Inflammation and Social Behavior. Neuropsychopharmacology. 2017;42(1):242:253).

Seligman and Csikszentmihalyi explain that before World War II, the field of psychology focused on curing mental illness, making patients'

lives more productive and fulfilling, and identifying and nurturing personal skills/talents. Furthermore, they observed that following World War II, psychology focused on healing that concentrated on repairing damage within a medical-disease model of human functioning, rather than focusing on ideas of wellness and thriving, and seemed to forget the latter two of its original goals (making lives productive and fulfilling and nurturing talent). Because of this disease-focus, Seligman and Csikszentmihalyi forwarded that "the field of psychology has developed a distorted view of what normal – and exceptional – human experience is like".[13] This disease focus has loomed large in the area of bereavement research where the emphasis has been on non-positive emotions associated with the experience of loss. Bonanno provides an excellent critique of this focus, and shows ample evidence that "resilience represents a distinct trajectory from the process of recovery, that resilience in the face of loss or potential trauma is more common that is often believed, and that there are multiple and sometimes unexpected pathways to resilience".[14] Seligman and Csikszentmihalyi explain that the goal of positive psychology is to spark a transformation in the focus of psychology from a fixation on repairing the most negative/difficult experiences in life to acknowledging already existing positive qualities, and building new ones in patients. This in no way implies that this is an easy process for the griever; the work involved to move from an awareness of loss to a place of understanding the positive value of the experience in an individual's life is just that – work – which involves validating the real and painful emotions felt while also helping the griever re-focus on the positive within the experience. In situations of loss of a life, patients can be reminded about the value of the life lived and the compassion and empathy they themselves gained through the process. Over time, more focus can be spent on the re-awakening of personal, individual strengths and abilities of the griever as they work at their own speed towards positive healing. There is a lot of information to move us into a positive awareness of the potential benefits of the experience of grief on the griever, and many ways to encourage this positive growth in our patients as well.

Grief, Bereavement and Mourning

The terms of grief, bereavement and mourning are often used interchangeably, but do/can have different meanings. The definitions offered by the National Cancer Institute Dictionary are most useful (see www.cancer.gov).

Grief has been defined through this source as a normal process of reacting to losses that may be physical (for example, a death) or in response to social or job losses. Losses mean that something has been taken away from someone (for example, job security, income, friends or bodily functions like vision/mobility/memory). This may be experienced as a mental/emotional experience (and, therefore, may include anger, guilt, anxiety, sadness and despair), a physical experience (may include sleep or appetite changes, pain/illness) or a social experience that may include changes related to social environment of friends, family or the general public. Bereavement is the period after a loss during which grief is experienced and mourning can occur. Mourning is the term used to describe the process by which people adapt to a loss and is often influenced by cultural customs and rituals as well as society's rules for coping with loss.

More simply put by authors Friedman and James, grief is the natural reaction to loss. Grief is both a universal and a personal experience. Individual experiences of grief vary and are influenced by the nature of the loss. Some examples of loss include the death of a loved one, the ending of an important relationship, job loss, loss through theft or the loss of independence through disability or aging. A novel way of defining grief/loss is one forwarded by the same authors states that "grief is the conflicting feelings caused by the end of, or change in, a familiar pattern of behavior.[15] In this definition, events that seem inherently positive (such as marriage) also include an aspect of grief since along with the joy of a positive new life event, there is also a loss in a lifestyle that was enjoyed before the marriage (see Table 1 for the list provided as grieving events according to these authors). This is not an extensive or complete list by any means as clearly many life events would fit into this definition of grief/loss. This definition can help us understand how many grief/loss experiences the average person is holding/carrying through life. This is one more reason for healthcare practitioners to truly understand these events in their patients' lives. A detailed exploration of these events through counselling or a constitutional homeopathic case-taking will likely help patients and practitioners uncover much more than what might be superficially evident.

Table 1: Grieving Events[15]

Death of spouse	Divorce
Marital separation	Imprisonment
Death of close family member	Personal injury or illness
Marriage	Dismissal from work
Marital reconciliation	Retirement
Change in health of family member	Pregnancy
Sexual difficulties	Gain a new family member
Business readjustment	Change in financial state
Death of a close friend	Change to different line of work
Change in frequency of arguments	Major Mortgage
Foreclosure of mortgage or loan	Change in responsibilities at work
Child leaving home	Trouble with in-laws
Outstanding personal achievement	Spouse starts or stops work
Begin or end school	Change in living conditions
Revision of personal habits	Trouble with boss
Change in working hours or conditions	Change in residence
Change in schools	Change in recreation
Change in church activities	Change in social activities
Minor mortgage or loan	Change in sleeping habits
Change in number of family reunions	Change in eating habits
Vacation	Christmas/holidays/special occasions
Minor violation of law	Loss of trust, approval, safety and/or control of body

*Friedman and James, adapted from Holmes-Rahe Stress Scale

Past to Present – Positive Awareness from the Research

There have been major advances in the empirical findings and theoretical conceptualisations about grief in the last few decades.[16,17] Much of what has been written about how people grieve has focused on individual survivors. The Victorian belief that grief was a sign of a 'broken heart' resulting from the loss of a love was replaced by the Freudian view that grief was painful because it involved letting go of attachment to the deceased. This 'letting go' was viewed as essential for 'moving on' with one's life, eventual recovery from depression, and a return to 'normal.'

Some prevalent assumptions about the typical responses of those experiencing grief that largely originated from the work of Freud[18,19] were empirically examined and found not to be entirely supported.[20, 21] For example, Freud suggested that at the conclusion of the mourning period, the bereaved individual is said to have "worked through" the loss and to have freed himself or herself from an intense attachment to an unavailable person. Freud maintained that when the process had been completed, the bereaved person would regain sufficient emotional energy to invest in new relationships and pursuits. It has been noted that this concept of grief work is overly broad and lacks clarity because it fails to differentiate between such processes as rumination, coping, and expression of emotion at the "conclusion" of the mourning period. This thinking has showed that the development of new relationships or pursuits is not necessarily the most useful sign indicating the conclusion of the mourning.

During the same time period, systematic investigation of the possibility that psychological growth could emerge from the struggle with major life crises and losses was also occurring.[22-24] In these studies, patients are seen as successfully overcoming grief/loss/stress when they deal with their loss, survive the distress, and return to a stage of well-being that is similar to the response of grieving individuals that Bonanno labels resilient. By resilience is meant the ability of individuals exposed to a potentially highly disruptive event to maintain both healthy psychological and physical functioning and the capacity for positive emotions (see Resilience to loss and potential trauma. Bonanno, GA, Westphal M, and Mancini AD), Annual Review of Clinical Psychology, 2011; 7:511-35 and an interesting review of different interdisciplinary perspectives on resilience here: Resilience definitions, theory, and challenges; interdisciplinary perspectives, Steven M. Southwick, George A. Bonanno, Ann S. Masten, Catherine Panter-Brick, Rachel Yehuda, European Journal of Psychotraumatology, 2014; 5:10.3402/ejpt.v5.25338. Published online 2014 Oct 1).

Alternatively, these studies also showed that those whose beliefs have been seriously challenged (for example, in areas of trust, faith and safety) could not as easily move on. The experience may have shattered previous assumptions and beliefs, and this disruption requires attention to the rebuilding effort at the same time that the distress is being experienced. The aware healthcare practitioner needs to be mindful of this extra support for helping rebuild patients in such situations. Suggestions for how to do so will follow later in this paper.

Cultural differences and unique geographical differences also drew more attention over time. Until recently no effort had been made to assess directly differences in the disruption of assumptive beliefs (shared assumptions, beliefs and/or values by a particular group) that also contribute to the individual experience of grief. Janoff-Bulman[25] developed a measure of global assumptive world beliefs called the World Assumptions Scale, and showed differences in these beliefs exist between people who had and who had not experienced stressful/traumatic grief events. However, no research had tried to directly assess the degree to which a specific event had led participants to engage in an examination of their core beliefs about the world. So do grieving/traumatic events change a person's core beliefs or assumptive beliefs? The Core Beliefs Inventory[26] was developed for this purpose. On the CBI, participants rate the degree to which a recent highly stressful event led them to re-examine a number of core assumptions about themselves and their world. Scores on the CBI have consistently been shown to be predictive of levels of posttraumatic growth; both in analyses of cross-sectional and of longitudinal data, involving a variety of stressful events, greater disruption is associated with greater growth. CBI scores also were positively related to the level of distress experienced at the time of the event and to symptoms of posttraumatic stress. However, a global measure of distress was not predictive of later posttraumatic growth when CBI scores were included in the prediction models.

Research has shown[24-26] that trauma (which is a term that many grieving patients use to describe their grief-experiences), to a great extent, is defined by the degree of challenge to the assumptive world, and that posttraumatic growth develops often, out of an attempt to come to new understandings of a world that no longer fits a person's ideas about themselves, about how others behave, what their future will be, and the like. So more growth can occur from more traumatic experiences - for example, loss from war experiences, and from unexpected tragedies (like an sudden death). Some bereavement circumstances are more likely to challenge these assumptions than others, and some assumptive worlds may be more vulnerable to these challenges than others. For example, close communities with strong shared faith/cultural values may be helpful in healing while isolated communities/individuals with less-open communication may have a longer-healing time needed and less ease in finding meaning from grief-filled experience.

Bonanno has shown that a significant proportion of people are not prone to these difficulties, i.e., they are resilient in the face of bereavement. Resilience is the ability to bounce back from a negative experience with "competent functioning" from Bonanno's perspective. The The American Psychological Association defines resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress (see: American Psychological Association. The road to resilience. Washington, DC: American Psychological Association; 2014. Retrieved from www.apa.org/helpcenter/road-resilience.aspx). Resilience is not a rare ability; in reality, it is found in the average individual and it can be learned and developed by virtually anyone. Resilience is a process, rather than a trait to be had. It is a process of

individuation through a structured system with gradual discovery of personal and unique abilities (see: Rutter, M. (2008). "Developing concepts in developmental psychopathology", pp. 3–22 in J.J. Hudziak (ed.) *Developmental psychopathology and wellness: Genetic and environmental influences*. Washington, DC: American Psychiatric Publishing). We must keep in mind of course, that some life experiences as well as some individuals, are more conducive to the development of resilience than others.

A common misconception is that resilient people are free from negative emotions or thoughts, and remain optimistic in most or all situations. To the contrary, resilient individuals have, through time, developed proper coping techniques that allow them to effectively and relatively easily navigate around or through crises. Remember that grief is more than an emotional reaction to loss. It also involves a complex pattern of cognitive, existential, and spiritual coping processes in reaction to the disintegration of existing structures of meaning. This loss of meaning with respect to relationships, life goals, and daily living creates an existential crisis. To the extent that something like the death of a significant other disrupts one's continuity with the past, grief also entails existential struggles regarding the meaning of one's own identity. From this broader perspective, grief work necessarily involves the transformation of meaning structures. It's interesting to note that people who demonstrate the most posttraumatic growth are likely to be those whose grief process includes challenges to their assumptive worlds, including their sense of meaning and purpose, or their understanding of themselves.[27] This finding indicates that it is the level of disruption of core beliefs which best predicts growth.

The cognitive work associated with attempts to rebuild challenged or shattered assumptions begins as the person is also coping with the emotional distress of an unexpected or 'unnatural' grief,[28] which includes things such as sudden, or unexpected death/loss (including relationship or job loss). Rumination plays an important part in the attempts to repair or reconstruct a workable belief system in the aftermath of a grief/loss. Earlier views of rumination associated such cognitive activities with increased distress and depression.[29,30] More recent considerations recognise the many different forms and their impacts of rumination.[31-33] Rumination can present as unconstructive rumination, which allows continued negative thoughts and emotions to repeat in almost a vicious-cycle of thoughts leading to sadness, leading to more thoughts that lead to sadness; or constructive rumination, which is directed toward purposeful problem-solving or finding meaning from experience. There is also a difference between intrusive ruminations, the types of thoughts that are less controlled by the individual and are almost always unwanted and are associated with chronic health symptoms, compared with those ruminations that are more deliberate, focused on understanding a challenge, and rebuilding a functional view of the world for the self.[34-36] Some studies have even shown that avoiding the sad feeling associated with grief may also be beneficial for some people.[37] Although it is nearly impossible for a practitioner to know which patients would best benefit from actually avoiding the sadness associated with grief, it is likely that attempts to engage these patients in any emotional discussions will be received with little affective response in general. Likely, personality differences in individuals may help explain these differences and understanding the personality style of patients can be very helpful in directing healthcare accordingly. These studies all show the need for compassionate investigation for causes of grief, understanding individual personality styles and patterns of coping, and then the application of methods to facilitate optimum healing and growth from the experience.

As we understand with various life experiences/stressors where challenges to core beliefs, high levels of distress, and rumination are associated with posttraumatic growth, the same appears to be the case with the grieving. When a threat to self and a need for self-understanding is part of the grief process, posttraumatic growth is a result.[38,39] 'Emotional intelligence', a concept forwarded by Goleman in 1995 (see Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. New York: Bantam) may play an important role in the success of patients and can be learned/improved over time; perhaps a grief event may help push some individuals to naturally do this, whereas others may be encouraged/guided by healthcare providers.

Spiritual Growth

Another area for positive movement that should not be understated is in the area of spiritual growth. Notably, spiritual coping has been among the top three predictors of posttraumatic growth suggesting that it is an important avenue towards transformative experience. Patients and practitioners alike have often discovered that what is often needed most by persons who are truly in need of assistance through a grief event is a reconstruction of their beliefs, a sense of meaning, and a life narrative which may include personal sense-making through spiritual growth.[40,41] In one study for example, spirituality (meaning in this case, finding meaning from suffering from individual perspectives on higher purpose) was found to be an important source of growth for bereaved caregivers of persons with HIV.[42] Continued connections to the deceased can, for some persons, encourage increased spirituality or a desire to maintain spiritual beliefs[43] with the deepening of spirituality representing spiritual growth.

Here is where it is very important to remember that grief is more than an emotional reaction to loss. It also involves a complex pattern of cognitive, existential, and spiritual coping processes in reaction to the existing structures of meaning. When people go through a grief experience that can include a change in personal purpose, life goals, and daily living, this can create an existential crisis (when an individual questions the very foundations of their lives). To the extent that loss disrupts one's continuity with the past, grief also entails existential struggles regarding the meaning of the patient's own identity. It is in this time that transformation can occur most profoundly as new learning can help re-direct patients to overcoming their previous limitations to personal capabilities, strengths and abilities. When

spirituality is incorporated into the healing process - results seem to be quite beneficial (note: "spirituality" is defined differently by different writers, and authors, and is worth exploring if there is a desire to help clients from this perspective).[48] Guiding patients towards that which helps them provide meaning out of grief/life experiences by narratives that best fit the their personal experiences is definitely a useful option in grief-counselling. Naturopathic medicine has always noted the importance of the spiritual component of man that is part of the 'whole' that needs to be healed for optimum health - an unbiased and open-minded exploration of what is important to the patient can help avoid personal biases in the care provided, and/or referral to trusted sources like other psychologists, counsellors, healers, pastors. may be indicated to further truly help patients address this important area for healing.

Applying Research to Practice

Some studies[44, 45] concur that posttraumatic growth can be experienced in five areas following loss: a) self-perception where bereaved individuals may come to view themselves paradoxically as "more vulnerable, yet stronger", b) changed relationships in which bereaved persons may experience negative changes but often report positive changes, c) new possibilities whereby those who are grieving may develop new roles and new relationships, d) appreciation of life where grieving individuals are able to live more fully in the present, and e) existential elements, which can include religious and spiritual transformation and renewal. Calhoun and colleagues note that these five areas are not meant to be all-inclusive but are often present in individuals who demonstrate posttraumatic growth following loss.

The most common findings in current research shows that the most helpful things that can be done with grieving patients are: listen to the grieving individual with non-judgmental ears, allow them to talk and cry, and accept the grief of the individual as it is.[46] A useful approach would include the following components according to Calhoun and colleagues:[47,48] a) humility and respect, not platitudes; b) constancy on the part of the helper who is a consistent source of support; c) tolerance of the strange, non-rational, and ambiguous; d) courage to hear difficult details, and e) appreciation of paradox (e.g., vulnerability leading to strength, doubtful questioning leading to new insights, need for support leading to greater independence). The authors point out that their model, which provides a supportive context in which posttraumatic growth may occur, is not a new form of therapy; rather, the model provides a perspective that is compatible with various approaches to therapy such as cognitive, humanistic-existential, and narrative-constructionist approaches. There are several aspects to the posttraumatic growth therapy that they call expert companionship that are especially relevant for bereaved persons.

In his book, The Other Side of Sadness,[49] Bonanno makes a strong argument for the importance of positive emotions in the grieving process and demonstrates how positive emotions are an important component of the resilience demonstrated by many bereaved individuals. Bonanno explains how positive emotions and laughter can and do help the bereaved person to feel better, if only briefly, and to reconnect with others - both of which promote healthy coping. Laughter yoga is an exercise that is available for just this process as the brain is unable to distinguish between real or fake laughter, which then provides for some useful healing in the body from endorphins released through the exercise (Laugh for No Reason, Kataria, M, 2002). Healthcare practitioners can encourage patients to participate in such exercises either in group sessions offered in various locations (health centres, community centres and even private practice) or even through various online resources or youtube videos. Patients can also be encouraged to participate in art, music or community events to encourage other positive experiences that match individual interests. "Bonanno has found in his research that resilient people who are grieving are better able to switch back and forth between negative and positive emotional states, which also enhances coping".[50]

Positive psychologists have shown a keen interest in studying the contributions of spirituality to well-being, including during times of loss and bereavement. People are constantly searching for meaning and purpose in life, and spirituality offers a pathway to a deeper understanding of our existence in relation to sacred objects and beings.[51] Some tangible items such as pictures, statues, and/or written passages, poems, quotations, mantras or affirmations can be useful tools for patients here. Grief and loss can be a catalyst for existential and spiritual doubts and suffering leading to profound healing and growth in many areas.

In the early stages, emotional distress will need to be addressed, but not completely focused on. Some degree of distress may be useful for producing posttraumatic growth. Rumination that is intrusive and unconstructive can be encouraged to become more deliberate, and focused on questions that are indicative of the development of posttraumatic growth, e.g., changes in role and identity, new ways of relating, existential or spiritual beliefs, and the purpose and meaning of life after the experience of loss. As so much research has shown that spiritually-oriented patients use more positive reappraisal, as well as more problem-focused and emotion-focused coping, this awareness can be used to guide counselling with these patients. Focus on finding meaning from the "problem" and allowing expression of emotions with a discussion of positive gains from the experience. Remember that oscillations between good days and not-so-good days that patients experience is normal and is often part of the healthy process leading to transformation. As practitioners, we too have a risk/tendency to believe that an unhappy/less-confident/purposeful patient the week after seeing them happy and confident the week before has taken a step backwards; however, in many cases they have not. We need to remind ourselves as well as our patients that this is the process and that movement can be re-directed towards healthy healing and life transformation. This may be a useful time to work with an acute homeopathic remedy; some may work with nutritional changes; others with acupuncture and/or bodywork. This is most definitely a time to utilize appropriate counselling for management of patient care. It's always useful to remember that true healing and transformation takes sincere effort and time, ideally from both the health care practitioner and the patient.

Conclusion

Grief itself is not pathological, but instead is a natural process of emotions that occurs after experiencing a loss; understanding losses as any events that create a conflict of emotion is a good starting point for work (as suggested by the Grief Recovery Method). For many years the medical and mental health profession (and even our own profession) has attempted to link this natural process with disease, to then focus work on healing disease rather than empowering and nurturing patients through this experience. It is time that we acknowledge grief itself as a natural process rather than as a pathological condition, to help our clients to find meaning, hope and strength in the midst of tragedy, promote growth after trauma, and to walk alongside our patients as they experience this inevitable experience in life. It is time to validate the pain of our patients and normalize the emotions, both negative and positive, that come naturally rather avoiding them with a focus on disease. Disease prevention, management and treatment will always be part and parcel of what we offer our patients; let us not forget psychology's original intentions of making patients' lives more productive and fulfilling, and identifying and nurturing their individual strengths and talents. As Naturopathic Doctors, this is included in our original promises too as part of our Natropathic Oath: to "Co-Operate With the Healing Powers of Nature" – in cases involving grief, the healing powers may be allowing incredibly-positive life transformations. Let's get back to our own core principles for maximum healing in our patients!

About the Author

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Motor Vehicle Accident and Whiplash: Restoring Head and Neck Function Within the First Eight Weeks

Dr. Angela Hanlon, ND

Whiplash is a condition known to perpetuate in roughly 50% of individuals[16] following a fall or motor vehicle accident (MVA), and manifesting itself into chronic whiplash associated disorders (WAD) such as migraines, slowed mental function, chronic pain, and depression.[8] Recovery tends to happen within the first three months with little improvement after this period.[11]

Research is lacking with regard to how to improve prognosis and, subsequently, outcomes.(IBID) Patient education also appears to be lacking,[2] particularly with regard to what to expect in the first eight weeks.

Naturopathic doctors commonly use manual therapies including cupping and acupuncture to mitigate both chronic and acute pain and their associated dysfunctions. However, less is known about the value of guided self-release techniques to prevent acute conditions from becoming chronic.

The Objective of writing this case report is to illustrate how guided muscle self-release can enhance the effectiveness of common naturopathic hands-on therapies such as manual stretching and cupping to the degree that they become effective in preventing the prolongation of whiplash and its associated disorders.

Overview of literature review findings

One-hundred sixty-thousand Canadians per year sustain a brain injury. Secondary to falls, motor vehicle accidents are the most common cause of traumatic brain injuries which include concussions. It is estimated that, by 2021, 640,000 Canadians will have suffered a traumatic brain injury.[17] Whiplash injuries account for over two-million insurance claims each year, costing approximately $600 million each year. (18) Clinical guidelines, systematic reviews, and the results of high-quality randomized controlled trials recommended a multi-faceted approach involving manual therapy, patient education, self-efficacy skills, and targeted exercises.[2,4,7,10,12,13,15,16,34,35] Although there were no studies found that discussed guided muscle self-release as a treatment for pain or functional impairment due to pain, this case review discusses effects observed in practice.

Summary

The chronicity of WAD can be avoided by using guided muscle self-release as part of a multi-faceted approach in the first eight weeks after a motor vehicle accident. Guided muscle self-release is a technique whereby patients are placed in a resting position and given verbal prompts by the practitioner in order to release muscle flexion in painful areas. This technique is also a skill building exercise that patients can eventually implement independently. In addition to yielding fast effective results it encourages self-reliance which has tremendous value for both patient and practice success.

Case History

AB is a 50-year-old peri-menopausal female with intermittent mild-moderate depression and weakened immunity. Before her motor vehicle accident she was working part time in an office setting.

AB sought naturopathic care three weeks after a motor vehicle accident. AB, while in the driver's seat, hit a pole head-on at a slow speed. The accident did not cause immediate discomfort but over a number of days caused severe pain and limited range of motion in the neck and shoulders. The patient had become afraid to drive, though she had been forcing herself to take short drives. She reported her head to have been "thrown a bit", but immediately after the accident her range of motion was normal and she felt no pain. Over the next three weeks her neck and head became progressively more painful, with range of motion lessening day by day. She described her head and neck as being "locked up". She reported depressive symptoms and anger because she had not been told that whiplash could worsen, she expected to be feeling better by now. Her 3 physiotherapy treatments, which were begun within one week of the MVA, were making her neck and head feel worse. In addition to neck pain and headaches, AB reported overall body aches, headache, occasional muscle spasms along her right lumbar spine, brain fog, exhaustion, and low sleep quality. She reported that all her symptoms worsened significantly every time she entered her vehicle.

At her initial visit AB had significant hypertonicity in the superior trapezius, scalene, sternocleidomastoid, masseter, and along the entire length of the erector spinae muscles bilaterally. Tenderness upon palpation of the superficial muscles impeded the ability to assess the deeper layers. AB sat rigid, trying not to move. She had dark circles under her eyes and her hands were gripping her thighs.

Two months prior to the MVA, AB's ND had ordered CBC + differential, vitamin B12, ferritin, potassium, TSH, free T4, total

T3, 25-hydroxyvitamin D. Vitamin B12 was >1476 (138-652), ferritin was 34 (5-272), vitamin D was 46 (75-250). All other lab values were within normal limits.

At the initial visit with her ND, whiplash had not officially been diagnosed but it was the working diagnosis of her physiotherapist and chiropractor [AB had had one visit with her DC prior to seeing her ND; took a three-week break after which she resumed visits with her DC. Although limited information was available, the ND was advised the DC did not perform any adjustments anywhere along AB's spine or neck]. The naturopathic doctor established AB's working diagnosis to be Post-MVA whiplash with possible PTSD. The differential diagnoses included cervical spine fracture, concussion, severe subluxation of the cervical spine, and simple hypertonicity in the musculature of the neck and shoulders.

Treatment protocol

Treatment #1 lasted 45 minutes and included physical examination and education only, no hands- on therapy.[2,14] It was recommended that AB return the next day for treatment, then have twice-weekly 45 minute treatments for two to three weeks, then weekly 45 minute treatments until she was able to use self-care to continue restoring function. It was recommended that she continue all other therapies she was using for this problem, excluding any that seemed to be aggravating her condition. AB chose to cease all other therapies for two to three weeks, then return to massage therapy and chiropractic care immediately thereafter. AB was informed that she would likely feel significant relief after her first hands-on treatment, but was warned not to expect the relief to last any longer than a day.

Supplements AB was taking prior to her initial visit with her ND included methylcobalamin sublingual 2000IU, oral ascorbic acid 1000mg, vitamin D3 1000IU, magnesium bisglycinate 200mg, and Metagenics ImmuCore two capsules per day.

Supplements recommended during the first treatment included hypericum perforatum tincture 1/4 tsp TID with a long slow breath to stabilize mood by slowing the re-uptake of neurotransmitters including serotonin;[20,21] and homeopathic aconitum napellis 200CH three pellets QHS for two weeks to mitigate symptoms of restlessness, fear, and oversensitivity to pain.[19] It was recommended that AB stop taking vitamin B12 because blood levels were elevated out of range, with a recommendation to re-test in three months.

Immediately after treatment #1 AB reported that she felt "great". She reported to have felt "locked up again" the next morning but active range of motion (aROM) had improved by approximately 50% by that afternoon.

Treatment #2, one day later, lasted 60 minutes and involved active flexion and release (also called muscle energy technique) of the posterior, lateral, and anterior neck muscles (See Appendix 1).[34,35] The treatment included a small discussion that repeated the key concepts about whiplash taught to her at Treatment #1. It also included a recommendation to move her shoulders around within her zone of comfort as often as she could, and an explanation of the importance of movement as opposed to stillness for the restoration of function.[2,4] It was recommended that she should wiggle her shoulders at least 10 times per day for 30-60 seconds at a time. To prevent further hypertonicity of the affected muscles it was suggested she avoid weight-bearing activities including carrying a large purse or groceries.

Treatment #2 produced significant improvement in the superficial muscles of the neck and shoulder. Range of motion and tenderness on palpation had both improved by about 75% including almost full ROM at C0-C1 and C1-C2. The deep muscles of the neck and the levator scapulae were assessed and found to be severely hypertonic. However, at the beginning of her next treatment pROM was at about 50%.

Treatments #3-7 were 40-minute sessions (minimum four days apart, maximum 10 days apart). Treatments included fifteen minutes of manual stretching of the superior trapezius and levator scapulae bilaterally to release tonicity, within AB's zone of comfort, along with a visualization of the neck and shoulder muscles (see Appendix 2).[33] Thirty minutes of cupping (silicone cups) at TCM points GB 20, GB 21, UB 42, SI 9 to release tonicity.[22,23] Guided self-release of the affected muscles (see Appendix 3) with gentle lateral rocking of the ribcage to produce movement in the spine and shoulder blades. Ten minutes to allow AB to talk about her experience during the treatment. The patient was sent home with a document explaining how triggers, such as driving in her car, might aggravate her current symptoms or produce a return of old symptoms. The document explained the importance of taking short drives, one to two blocks at a time, and the importance of increasing the distance gradually.[5]

The recommendations during treatment #3 included gentle anterior-posterior movement of the spine while leaning on the edge of the counter as a self-efficacy technique to release tonicity around the neck, shoulders, shoulder blades and spine. Practice the Muscle Self-Release Technique (appendix 3) at least twice a day for 10-15 minutes. The recommendation included discontinuation of the homeopathic aconitum 200CH 3 pellets nightly and starting the GABA 100mg BID and L-theanine 225mg BID to further improve cognition and mood.[24-26]

The recommendations during treatment #4 included lists of foods rich in zinc, magnesium, chromium, EPA and DHA based on suspected deficiencies in her diet.

The recommendations during treatment #7 included discontinuation of hypericum, and taking ginkgo biloba 120mg/day for 3 days then 240mg/day, EPA at least 1000mg with DHA, and zinc 30-50mg/day to enhance cognitive function[27-32] for two months, then re-assess.

At treatment #3 AB reported that the pain in her right arm was "virtually gone", her headaches waxed and waned, and she felt some relief in the head and neck region which she described as "less intense, but still intense". AB had full range of motion in the neck, shoulder girdle, and shoulder blades bilaterally. There was no sign of inflammation but all neck/shoulder muscles were hypertonic and guarded. After this treatment AB felt significant exhaustion as well as relief as a result of the treatment.

Just prior to treatment #4, AB had made her first attempt to drive to work (1.5 hours) since beginning her treatments with her ND, and described the experience as "hell"; all her symptoms had returned with the same degree of intensity that she had been experiencing before starting treatments with her ND. Symptoms lasted 24 hours. During her conversation with her ND, AB reported her head and neck to be feeling "ok" and her current chief concern to be tingling in the right hand, which resolved by the end of the treatment.

Just prior to treatment #5 AB had been placed on full disability, meaning she no longer worked from home and was spending much of her days sitting on her couch. The frequency and intensity of headaches and depressive episodes had increased, numbness in the arm had returned, and she'd begun experiencing "pain flares travelling throughout the body". Physical exam showed no signs of inflammation, normal range of motion in all joints, and significantly less guarding around the spine, neck and shoulders. AB was instructed to do two minutes of punches in the air using a sequence of twenty seconds of punching followed by a ten-second break. This produced no symptoms and caused a pleasant feeling throughout her body. The importance of moving her body for purposeful activity throughout the day for restoration of function in the neck and shoulders was explained.

Treatment #5 produced significant release in the thoracic and lumbar erector spinae and the muscles of the neck and shoulders. After the treatment AB reported to be feeling more relief as well as exhaustion than in previous visits.

By treatment #6 depressive episodes had eased significantly and she reported a longer lasting effect from the previous treatment. She was about to begin a new therapy with her chiropractor involving "deep stretching along the spine but no adjustments". After treatment #6 AB reported, for the first time since beginning her treatments, to be feeling "a lot better".

At treatment #7 AB reported to be feeling "a lot better", with her chief concerns being the lower back just lateral to the spine on the right side, and the superior and posterior regions of the of the shoulder. She reported that her treatment with the chiropractor was helpful in reducing her symptoms.

By treatment #8, AB had begun independent daily exercise and guided muscle self-release using an audio recording. Depressive symptoms, body pain, and mental clarity had improved significantly. Some neck tension remained but it was not affecting her ability to function. She reported, "it doesn't make sense logically, but when I focus on the painful areas and accept them, the pain dissipates". Treatment #8 restored lateral ROM to the right costochondral joints, right T7-12, and right lumber spine. Immediately after twitching had ceased in the spinal regions, the scalenes released bilaterally by twitching. Immediately after that the masseters released bilaterally without twitching.Throughout the eight-week protocol, AB repeatedly credited cupping and guided muscle self-release to be the primary reasons for the improvement in her symptoms and function. She credited the other therapies used as being helpful in augmenting the effects of the cupping and guided muscle self-release. The patient credited guided muscle self-release for her ability to perform effective self-care that enhanced the degree of improvement in function and pain between treatments. She credited guided muscle self-release for her ability to feel more in control of her situation and confident in her own ability to overcome her whiplash associated dysfunctions.

Literature Review

Using PubMed and the search terms whiplash; whiplash self-management; whiplash muscle release, cupping, manual stretching, whiplash guided muscle self-release, zinc cognition, EPA DHA cognition, ginkgo cognition, and hypericum serotonin, were used. Cross sectional analyses, systematic reviews, clinical practice guidelines, meta-reviews, and modified delphi studies were found. Very little conflicting evidence found and similar studies discussed similar conclusions. Several studies have been done in an attempt to identify factors that increase the likelihood of whiplash becoming chronic. It has been suggested that negative beliefs about recovery and stress at the time of injury may be key factors.[1,4,5,8,9,11] More research is needed to confirm this. Though patient education has been identified as lacking, it has also been identified as an important part of the recovery process.[2,5,14,16] General exercise is not helpful for long term whiplash associated disorders, but specific exercises combined with physiotherapy has proven helpful in many cases.[3,10,12-15] Pain avoidance and catastrophizing appear to encourage both chronicity and depressive symptoms in whiplash.[4,5] Frequent active range of motion and return to work appears to encourage recovery from whiplash and WAD.[6,10,12-14] The limitations in current evaluation and management strategies for preventing acute whiplash from transitioning to chronic whiplash and WAD have been acknowledged.[8,9,11,16] Several priorities have been identified for future research. It appears that a multifaceted approach which includes manual therapy, patient education, self-management advice, and targeted exercises yield the best results.[2,7,10,12-15,22,23,33-35] Specifically, manual stretching, cupping, and muscle energy techniques (active flexion and release of the affected muscle by the patient) have shown efficacy in the management of both acute and chronic pain in the shoulder and neck regions.[22,23,33-35]

Discussion

As whiplash and its associated disorders commonly perpetuate, it is important that naturopathic doctors use the most effective combination of therapies to prevent whiplash from becoming chronic. Though research shows that manual therapy, self-management, and targeted exercises yield the best results for whiplash and WAD, the problem of acute whiplash becoming chronic still exists to a

significant degree. AB's case was used for this review because she had no other significant health problems at the time of the injury or during the eight-week treatment period.

Patient feedback and physical assessment including muscle tonicity, pain sensitivity, active range of motion (aROM) and passive range of motion (pROM) of the shoulder blade, spine, and head were used to evaluate the results of this treatment. Physical assessment showed progressive improvement in tonicity, pain sensitivity, aROM, and pROM of all regions over the 8-week period. Feedback from the patient showed that the most effective treatment for restoring function and resolving symptoms was guided muscle self-release and cupping. In addition, she reported guided muscle self-release to be an effective self-efficacy technique, providing her with a sense of confidence in her ability to overcome her whiplash associated dysfunctions. She reported that the technique was most effective for her when cupping was used in conjunction.

Self-efficacy is a vital aspect of the recovery process, and is unfortunately difficult to measure. This case review provides a clear view of an effective self-efficacy technique in action. The guided muscle self-release technique is practiced by the patient during treatments and can also be used between treatments to augment treatment success.

A limitation of this case review is that other naturopathic therapies were used in conjunction with the therapy being examined by this review. Therefore, it is impossible to accurately conclude the degree of improvement of the guided muscle self-release technique. Patient feedback and physical assessment are the only sources of quality information that can be extrapolated from this case review, and there is potential for bias in both. Clinical experience with a treatment that achieves consistent success with patients drives a clinician to write a case review such as this. For better accuracy, future research into the guided muscle self-release technique or any related self-efficacy technique should be done in the absence of other naturopathic or manual therapies.

Relevant Literature

There have been many articles written on this topic and the theme seems to centre around the neurological and psychological contributors of the physical manifestations of whiplash. Fracture and neurological abnormalities are uncommon in whiplash and WAD.[14] Clinical guidelines, systematic reviews, and the results of high-quality randomized controlled trials identify exercise and patient education to yield the greatest outcomes.(IBID) Decreasing pain catastrophizing and focusing on patient self-efficacy show better results than using passive therapies alone.[10,12,15] Focus on control over pain or ability to decrease pain was not shown to be effective.[4] In fact, psychological factors, specifically pain avoidance and anxiety, appears to increase the severity of disability and depressive symptoms and prolong the effects of whiplash.[5,8,9,11] Patient education seems to be very important in resolving whiplash associated disorders.[2,14] According to the literature, it appears that a multi-faceted approach involving manual therapy, self-management advice, and exercise yields the best results for both the acute and chronic stages of whiplash.[7] Cupping and manual stretching have been shown to be effective in improving muscle pain.[22,23,33] There were no studies found that discussed guided muscle self-release as a preventative for prolonged whiplash and WAD.

Outcomes

The patient did not start ND treatments until three weeks after the motor vehicle accident. Eight weeks after starting ND treatments whiplash had not yet resolved but had improved to the point where the patient was able to return to work with modified hours and tasks. WAD continued to improve over the following four weeks, at which time treatments were ceased because AB's symptoms had resolved and her function had normalized. There were no known interactions between naturopathic therapies. There was most likely an additive effect between the naturopathic treatments and care her chiropractor provided. The only adverse effect noted was exhaustion after each treatment.

Conclusions and Recommendations

Manual therapy alone is often inadequate to resolve whiplash. Patients must be taught how to be significantly involved in their own recovery using education about WAD and self-efficacy skills such as the guided muscle self-release technique. The guided muscle self-release technique has been shown to enhance symptomatic and functional improvement both during and between treatments. In addition, it can dramatically improve patient self-efficacy. This technique has the potential to prevent whiplash and its associated disorders from becoming chronic. The technique should be implemented by the patient daily as well as during manual therapy until all symptoms have resolved.

About the Author

Blending traditional and modern medicine for sustainable health care, **Dr. Angela Hanlon, ND** works hard to discover the root cause of health conditions and recommend individualized treatments. Her objective is to educate her patients so that they are empowered to manage their own health. She is a passionate teacher who provides detailed explanations and recommendations in an easy to read format. She takes careful account of all medications prescribed and all conditions diagnosed to ensure nothing has been missed. In addition to "general naturopathic medicine", Dr. Hanlon has a talent for pain management and digestive concerns.

Notes and Appendices

Ingredients of Metagenics Immucore

Decoction of Ganoderma lucidum 43.4mg, Lentinus edodes 43.4mg, Poria cocos 32.6mg Coriolus versicolor 32.6mg, Pleurotus ostreatus 32.6mg, Paecilomyces hepiali 21.7mg, Grifola frondosa 10.9mg, niacinamide ascorbate 25.8mg, zinc citrate 5mg, cholecalciferol 8.3mcg, selenomethionine 67 mcg, Ultra C providing ascorbic acid, ascorbyl palmitate, niacinamide ascorbate, calcium ascorbate, sodium ascorbate, magnesium ascorbate and potassium ascorbate (333mg total), l-lysine HCl 12mg, citrus bioflavonoids 11.6mg, d-ribose 4.7mg, xylitol 58.6mg, l-cysteine HCl 3.3mg, glutathione 1.7mg.

APPENDIX 1

Active Flexion and Release of the Posterior, Lateral, and Anterior neck muscles

Step 1: Place the palm of one hand around the occiput and the palm of the other around the forehead. Do not cover the eyes. Instruct the patient to press downward into your hand, then release. Press upward into your hand, then release. Apply gentle resistance as the patient presses into your hands. Repeat this sequence for one to three minutes.

Step 2: Place the palm of your hands on the temples. Do not cover the ears. Instruct the patient to press left into your hand, then release. Press right into your hand, then release. Apply gentle resistance as the patient presses into your hands. Repeat this sequence for one to three minutes.

Repeat Steps one and two at least three times, allowing the patient to stop and rest if needed.

APPENDIX 2

Visualization of the Neck and Shoulder Muscles

Instruct the patient to picture the shoulder blades, attached at the top of the shoulder girdle, able to float surrounded by muscles above the ribcage. Picture the muscles that pull the shoulder blade toward the arm, toward the spine, and toward the head. Imagine these muscles heavy and dense, then picture them softening to become the consistency of a gel pack.

Picture the bones of the spine pieced together like puzzle pieces and knitted together with small yarn-like muscles. The bones are able to pivot around each other freely. With each inhalation picture the spine bones stretching apart from one another as the ribcage expands. With each exhalation picture them settling around each other in a softer way. Picture the rib bones in a similar manner.

Picture the neck muscles, heavy and dense, gripping the skull tightly. Picture the muscles releasing their grip and softening to become the consistency of a gel pack.

Repeat these visuals as needed throughout the treatment.

APPENDIX 3

Guided Self-Release of the Affected Muscles

IInstruct the patient to imagine the muscles and bones of the hands softening, then visualize the two bones in the forearm spreading apart slightly as the muscles between them soften and widen. Picture the humerus, surrounded by muscle, beginning to vibrate like a tuning fork. Imagine this vibration spreading into the shoulder blades, encouraging the muscles around the shoulder blades to tremble. The trembling spreads to the muscles that knit the spine bones together. Imagine the spine beginning to vibrate, creating a deep trembling sensation.

Instruct the patient to breathe deeply but gently, stretching the sides of the ribcage, hold the breath as long as they can, then on the exhalation allow the breath to simply float out. Repeat three times.

Have the patient visualize the muscles superior to the shoulder blade trembling and vibrating, explaining that if the muscles twitch it is a good thing. Instruct the patient to soften the body to allow twitching and visualize heaviness and density evaporating from the body as heat. Instruct the patient to encourage heat release by stretching the ribcage on the inhalation and softening the body on the exhalation.

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Post Concussive Syndrome Following a Motor Vehicle Accident: A Case Report

Dr. Sarah Tanner, BSc, ND

There has been an increase in diagnosis and treatment of concussions in the past 10 years. The Centre for Disease Control found that 1.7 million Americans experience a concussion or mild Traumatic Brain Injury (mTBI) annually. Whether they are occurring more often or are being diagnosed more effectively is unknown. It is thought that a concussion should be resolved in under three months but recent studies are showing that this may not be the case.

Diagnoses such as Post Trauma Vision Syndrome (PTVS) and Post Traumatic Stress Disorder (PTSD) can occur with Post Concussive Syndrome (PCS). Current conventional treatments are based on the patient resting but this can be frustrating for those suffering for an extended period of time.

This case report explores the treatment of KS, a 37-year-old female who sought naturopathic treatment 18 months after suffering a concussion. Supplements such as methylcobalamin and *Hericium erianceus*, along with vision retraining have improved her symptoms of daily headaches, poor balance, fatigue and poor eye tracking, which has improved her quality of life. More case reports and further studies are needed to expand on these findings.

Introduction

There has been an increase in diagnosis and treatment of concussions in the past ten years.[4] The Centre for Disease Control found that 1.7-3.6 million Americans experience a concussion or Traumatic Brain Injury (TBI) annually.[6,10] It is thought that a concussion should be resolved in three months but recent studies have shown that in 10-30% of those who suffered a concussion this was not the case.[9] Those who have non-resolving symptoms of concussions, including dizziness, visual disturbances, headaches, fatigue, mood changes and poor concentration; are considered to have Post Concussive Syndrome (PCS).[9] Current conventional treatment for an initial concussion is rest, but what do you do if the patient is then diagnosed with PCS and needs to return to regular life events?[11] There is currently no one size fits all approach to treating PCS with research showing that each patient requires a combination of treatments that are unique to them.[2] A combination of physical therapy, rest, change in lifestyle habits and nutraceuticals can be beneficial for treatment of PCS but there are no drugs that are specific for PCS.[6] This approach opens the door for naturopathic medicine to step in and offer an individualized treatment.

An offshoot diagnosis of PCS is Post Trauma Vision Syndrome (PTVS). This is characterized by poor concentration and focus, double vision, low blink rate, visual field loss, balance and posture difficulties, inability to distinguish items, difficulty with binocular vision function and decreased ability to perceive spatial relationships between objects.[12] PTVS is less often diagnosed but is becoming more prevalent. If diagnosed with PTVS, the patient may be referred to a behavioural neuro-optometrist for eye retraining which includes Head-Eye Vestibular Motion Therapy (HEVM). HEVM therapy has been shown to benefit PCS and PTVS patients physically and mentally.[3]

If the concussion occurred after a traumatic event the patient could also be diagnosed with Post Traumatic Stress Disorder.[18] PTSD can cause an individual to have flashbacks or nightmares, trouble sleeping, depressed or anxious moods, lack of concentration, difficulty sleeping, strain on the adrenal glands and fatigue. [18] A number of these symptoms overlap PCS and can make the treatment of both more challenging. Counselling, including Cognitive Behavioural Therapy (CBT), is a common treatment.[14] In someone who has been concussed, this could be frustrating if they are unable to process what is being asked of them by a healthcare professional.

Naturopathic medicine treats the whole person and looks at their symptoms and susceptibilities. Naturopathic medicine offers a number of treatment modalities that could be beneficial in treatment of PCS, PTVS and PTSD and that are supported by research.[5,7,8,17] This case report was written to show the effect that naturopathic medicine had on one patient in overcoming their PCS, PTVS and PTSD after suffering for almost two years post-concussion.

Presenting Concerns

KS is a 37-year-old female who suffered a motor vehicle accident (MVA) in December 2015. Before the MVA, she had no significant health concerns. Post-MVA she developed daily headaches, decreased balance, extreme light sensitivity, poor eye tracking, decreased ability to focus and concentrate, acid reflux and poor appetite. She started lactating in March 2016 after not lactating for 10 years previously. Driving was difficult as she was unable to process the stimuli around her quick enough to react and she continued reliving the crash which was a head on collision while her children were in the car. Initially

she was more concerned about the children and did not focus on, her own symptoms, not resting enough to facilitate her recovery.

In January of 2016 she had to leave work because of her symptoms and completed seven weeks of physiotherapy. In April 2016 she returned to work but her symptoms worsened and she could not continue. Her job entailed stocking shelves at a local craft store for 4 hours before the store opened. She was homeschooling her children, but her poor concentration prevented her from continuing. In August of 2016 her symptoms worsened, the headaches occurred daily and she spent most of the time in bed. She reported low mood.

KS was last seen as a patient in 2012 for hormonal imbalances and kidney stones, neither of which had been an issue for years after naturopathic treatment.

On February 6th, 2017, she returned to the clinic for treatment of symptoms resulting from her December 2015 MVA. At this time she had been seeing a behavioural neuro-optometrist and her progress was slow to non-existent. Her MVA symptoms were as described above.

Prior to seeing the ND, she had self-prescribed *Arnica montana* 200ch (tid for four months) and *Rhodiola rosea* (300mg qd for one month) with no change. She also self-prescribed Magnesium glycinate (150mg qd at night) along with melatonin (3mg qd at night) to help with sleep. She was prescribed nortriptyline (30mg bid-tid, but typically only took it qd) by her GP to help with headaches. It provided some relief but did not prevent them from occurring. She would take Advil migraine (200mg) as prn, often qid. She had undergone counselling followed by vision retraining sessions and found the vision retraining more helpful in regard to balance and blurry vision but it stopped improving her symptoms in January 2017. She denied any other medications or supplements. She had a decreased appetite, but ate well (a lot of fruits and vegetables along with clean sources of protein). She did not consume dairy, refined sugar or alcohol.

Reported Clinical Findings

All clinical findings were gathered from her neurologist, family doctor, behavioural neuro-optometrist and blood work. In August 2016 she was diagnosed with Post Concussion Syndrome (PCS) by her neurologist. At the same time her family doctor diagnosed PTSD. In October of 2016 she went to a clinic with a behavioural neuro-optometrist specializing in PCS where she was diagnosed with Post Trauma Vision Syndrome (PTVS) in addition to difficulty with eye tracking, intermittent fusion and poor steroacuity. Her reading and comprehensive abilities were significantly compromised.

In September 2016 her Prolactin levels were high normal, 26.1 ug/L (range 5.2-27 ug/L). At this time TSH was 2.50 mlU/L (0.35-4.30mlU/L), T4 free was 13.9 pmol/L (9.0-19.0 pmol/L) and a complete blood count (CBC) was within normal limits (WNL). An MRI in January 2017 showed a 1 cm pineal cyst that was initially assumed to cause the lactation. Her neurologist believes the lactation is due to stress and that the cyst is not impacting it. A follow up MRI was scheduled for early 2018.

Therapeutic Focus and Follow-up

During the first naturopathic visit, KS was prescribed methylcobalamin for focus and concentration,[8] *Hericium erinaceus*[17] for the PCS and GI Formula 2 (from Signature Supplements containing DGL and demulcent herbs) for the acid reflux.[15] The ND referred her for acupuncture.

She returned on March 6, 2017 reporting that within two days of the February appointment she noticed a difference in light sensitivity and did not need to wear sunglasses in the house. She reported little to no acid reflux by February 20. She noticed memory improvement by Feb. 27 and two days after reported decreased milk production. She had two acupuncture treatments the week of February 20th and 27th and felt well mentally afterwards but it brought up a lot of body pain. Her acupuncturist used the points

The ND decreased the dose of GI formula because the acid reflux had improved. KS was asked to continue the methylcobalamin and *Hericium erinaceus* for two months.

By her appointment on May 15, 2017 she reported that her lactation had ceased. She was now able to read 20 minutes and do puzzles without symptoms. She had progressed with the eye exercises, was on to the next stage of prescription glasses, was able to open the curtains at home, had periods of no headaches (up to one week) unless under extreme mental strain, her energy was improved and she needed fewer naps. The acupuncturist treated liver stagnation using the needled points 4 Gates, SP6, SP9, ST36, ST40, Du 20-24 and acupressure points UB12-18, Ren15, GB8, 9, 20. She reported occasional anxiety that was becoming more frequent.

The ND prescribed GABA 100mg prn for the anxiety[1], *Ocimum sanctum* 300mg before bed for adrenal support[7] and *Silybum marianum* 400mg bid for liver stagnation[5].

On September 5, 2017 KS described herself as feeling "normal" and "back to her old self"; the light sensitivity was only present if she was extremely fatigued in the evening. She only needed normal concentration to perform everyday tasks like going down stairs, she was able to speak and walk at the same time and her memory tests at the neuro-optometrist improved. She had "graduated" from vision retraining (although she still does eye exercises to avoid blurry vision) and was referred by her neuro-optometrist to a practitioner of Anat Baniel Method of Feldenkrais Therapy. This therapy tries to create new connections in the brain and reorganizes the neuromuscular structure of the brain. This therapy helped her to process her surroundings and has further decreased her headaches to once a week. She no longer takes nortriptyline and occasionally took Advil migraine (200mg). Her patience and processing has improved, she was able to drive 18 hours and work through a stressful vacation with her family, while keeping calm. Her mood had improved, she was hopeful and happy and excited with her progress. She felt GABA was helpful in managing her anxiety, especially while driving. The episodes of anxiety are fewer, however, she noticed an increase in frequency when she missed a dose of the *Ocimum sanctum*. Her balance has improved but was aggravated while on a train trip. She

felt that she was not mentally prepared for the initial train ride, but once prepared, the return journey went much smoother. The regular bouts of acid reflux were gone but when they occurred they were severe and about every two weeks.

It was recommended she continue *Hericium erinaceus, Ocimum sanctum, Silybum marianum* and GI Formula 2 as previously prescribed. She was also prescribed D-limonene, 1000mg qd for one month to improve peristalsis and eliminate the acid reflux episodes,[13] and was instructed to follow up in January with new blood work (B12, ALP, TSH, T4, T3, Vitamin D), and before that if any symptoms return.

As of September 5, 2017 a return to work date had not been set but all practitioners agreed she was not ready for normal work. She would follow up with an occupational therapist to establish a back to work plan. She did not plan to return to her old job but rather pursue a new career that is yet to be determined.

Her progress has been gathered from her medical doctors, behavioural neuro-optometrist and Feldenkrais therapist. She also kept a detailed journal from the time of the accident through her multiple therapies. All of the naturopathic appointments are described above.

Discussion

KS came to see me when her treatment stalled. No other treatments were started during the first two weeks of naturopathic treatment. Acupuncture was started the week of February 21st. She was undergoing vision retraining, which progressed after she began the *Hericium erinaceus* and methylcobalamin. She responded quickly to the supplements prescribed in February, with improvement in light sensitivity, memory, lactation and acid reflux. After the first two weeks of naturopathic treatment, acupuncture and Feldenkrais happened concurrently. This could be seen as a limitation to the case report and a confounding factor. Using her own reports regarding how she felt with and without the supplements, the supplements prescribed seem to have reduced her symptoms. A strength of this case report is her meticulous journal keeping.

While there has been limited research on a whole-body treatment for PCS, and the treatments chosen for this patient she did experience improvement. *Hericium erinaceus* has been used to treat nerve injuries as well as gastric ulcers.[16,17] Methylcobalamin has long been used for neurological concerns as well as elevating mood and increasing energy even if there is no confirmed B12 deficiency (her MD did not test).[8] Several studies have shown that DGL can heal the gastric mucosa and resolve the symptoms of acid reflux.[15] During and after such a traumatic MVA the ND assumed the patient's adrenal glands were working overtime and then became fatigued. Although cortisol levels were not tested, the chronic stress caused by the MVA would have contributed to the fatigue, decreased focus and concentration. GABA can be used to treat anxiety, by decreased β-wave activity.[1] *Ocimum sanctum* was chosen as an adaptogenic herb to support adrenal healing.[7] If it had not helped, a saliva cortisol curve could be used to determine the state of her adrenal gland function under stress.

Although the confounding nature of multiple therapies could be seen as a limitation, it is probably the strength of her therapeutic process. Each person needs to be treated as an individual. The correct diagnosis is important, but her symptoms and their severity are also important for guiding treatment. Flexibility in a treatment is critical when treating such patients and complex cases. As is seen in this case, the right types of treatments in the correct order can improve quality of life in someone suffering with Post Concussive Syndrome (PCS). More case reports can help us refine our treatments.

About the Author

Dr. Sarah Tanner, ND is a licensed naturopathic doctor who owns and operates Natural Choices Health Care, located in Bedford. She graduated from The Canadian College of Naturopathic Medicine (CCNM) in Toronto, Ontario and holds a Bachelor of Science degree from Dalhousie University in Halifax, Nova Scotia. Dr. Tanner is a member of the Nova Scotia Association of Naturopathic Doctors as well as the Canadian Association of Naturopathic Doctors.

Dr. Tanner is a licensed Bowen Therapist. She uses Bowen mainly to treat musculoskeletal conditions and promote detoxification. Dr. Sarah Tanner has a diverse practice with clients of all ages but specializes in digestion, food intolerances, autoimmune conditions, pediatrics and women's health.

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