

Considering multiple sclerosis, psychoneuroimmunology, and mind-body medicine

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MS represents chronic pain and anxiety for some, poor digestion to many, frequent and urgent bladder commonly, chronic sleep deprivation almost always, deep sensations of cold, weakness and depressed affect to others. Tremendous feelings of fear and anxiety accompanying a diagnosis, uncertainty of exacerbation and a hopelessness associated with the possibility of disability further complicate the patient picture. People feel they have no control and often put off normal life decisions for fear of what the future may bring.

Both conventional neurology and naturopathic medicine have come to understand a number of critical pathophysiological activities that are hallmarks of MS. Functional neurologists like Jay Lombard and David Pearlmuter have clearly outlined the roles of: neuroinflammation, the result of a misdirected immune response; oxidative stress causing neurodegeneration by such aggressive reactive oxygen species (ROS) as hydrogen peroxide, superoxide, nitric oxide, and peroxynitrite¹ as well as direct neuronal damage from excitotoxicity caused by an imbalance of excitatory neurotransmitter activity.²

Despite this knowledge, there can still be great disparity between the histopathological changes of MS and the neurological deficits from person to person. The acute onset and remission of symptoms is often difficult to comprehend based only on the concept of demyelination. It is often observed that severe neurological deficits may be associated with minor pathological changes in some while, despite extensive demyelination, neurological function is normal in others.

Having worked with people with MS for about twenty years the benefits of a fundamental holistic treatment plan are clear. Beyond that, the reach of therapy, depending on the patient and the breadth and depth of our own therapeutic style and experience, can be vast. Guyton once described the body as "a social order of about 75 trillion cells organized into different functional structures...each cell benefits from homeostasis and in turn each cell contributes its share towards the maintenance of homeostasis."¹² This being said, there are many components to building a successful treatment plan.

There are number of effective therapeutic approaches which have been exhaustively researched. They include but are not limited to:

Basic support in the form of fish oil for its anti-inflammatory, neuroprotective and neurorestorative properties; methylcobalamin supporting neuronal detoxification and protection; antioxidants and nutrients that cross the blood-brain-barrier and quench excessive ROS activity; and Vitamin D and probiotics for immune regulation.

Nutrition has become a non-negotiable factor of comprehensive MS treatment plans. We now understand the threats of excitotoxicity and how excessive activation of glutamate receptors leads to neuron death.² Gluten sensitivity has been shown to induce a state of heightened immunological responsiveness (which frequently occurs with no bowel involvement and is at times exclusively a neurological disease).³ The work of Dr. Roy Swank MD has shown the inflammatory effects of saturated fats. The autoaggression caused by molecular mimics in dairy, gluten and legumes is evidenced in the detailed research of Dr. Ashton Embry PhD. Most recently the widely publicized work of Dr. T. Colin Campbell PhD (*The China Study*) demonstrated the detrimental impact of animal proteins on chronic disease including multiple sclerosis. The basics of good nutrition are essential in the management of inflammation, the promotion of healthy detoxification and the maximization of normal metabolic function. Diet alone can have a tremendous impact on the state of health of many MS patients.

Self care becomes important in removing the focus from solely the brain and the immune system, normalizing the organism as a whole. Circadian rhythm, lymphatic, metabolic and immune regulation and support, can be greatly improved through the use of traditional naturopathic practices like sleep hygiene, castor oil packs, dry skin brushing and hydrotherapy.

Lifestyle modification. As early as 1868 Charcot connected psychological stress to the pathogenesis of MS. There is a consistent association between stressful life events and subsequent onset or exacerbation of multiple sclerosis. While many triggers

have been proposed (including bacterial/viral infection that cause T cells to “mistake” myelin proteins for these antigens, bacterial “super antigens,” physical injury or stressful life events), Charcot speculated that grief, vexation, and adverse changes in social circumstance were related to the onset and exacerbation of MS.⁴ Since stress is unavoidable in modern life, stress management has become a valuable therapeutic tactic.

An individual’s mental/emotional states including physical and mental stressors play an extremely important role in recovery from multiple sclerosis. *Mens sana in corpore sano* – a healthy mind in a healthy body – the concept has been around for centuries with little understanding of the mechanisms. In fact, historically Greek and Cartesian dualism held that a man’s soul was of an entirely different essence than his body and that these dual entities had no interaction with one another - there existed a dichotomy of soul and body, an absolute split.⁵ Both of these concepts cast away any responsibility on the part of the mind for the circumstances of the body. Until very recently this school of thought was deeply entrenched in modern medicine.

While mind-body medicine is not a new concept to naturopathic doctors, it has not been accepted until recently. In the past 30 years, the development of psychoneuroimmunology (PNI) has put a mechanism behind the union of the mind and the body, and indirectly validated the mind-body approach to healing.

Why does the disparity in people with MS exist? Is it possible that this precious tool, the mind-body, is underutilized in our healing plans? Is it possible that even as naturopathic doctors the dogma of the current medical paradigm has influenced our thinking on this essential link in the healing chain? Understanding the mind-body connection in auto-immune is vital.

Discussing and teaching activities such as diaphragmatic breathing, visualization, and guided meditation or encouraging self development thorough resources like Louise Hay’s *You can heal your life* (for other titles patients may find helpful visit www.soundstrue.com) are all valuable therapeutic tools. Recommending lifestyle balancing practices like yoga, qi-gong, tai-chi; providing support in often overwhelming lifestyle change; or simply lending a supportive ear if the “treatment” of the day is simply to listen.

Employing such practices combined with decreasing inflammation, removing immune irritants, reducing oxidative damage, encouraging lifestyle and nutritional change will absolutely change the trajectory of the course of disease for people with MS. Remember, “each cell benefits from homeostasis and in turn each cell contributes its share towards the maintenance of homeostasis,”¹² or homeostasis comes one cell at a time, and every step in that direction is part of a greater outcome.

Understanding Psychoneuroimmunology

In multiple sclerosis an excessive inflammatory process is believed to disrupt normal CNS and immune system cross-talk. The theory of HPA axis disruption is supported by patients, who take basic supportive measures mentioned above, but otherwise show the most dramatic improvement with therapeutic interventions specific to the HPA axis and the endocrine system. This area of MS is as fascinating as it is complex. Although much research has been completed in this area a significant amount remains still to be undertaken.

PNI and MS

It is a challenge to simplify the highlights of PNI as it relates to MS. However, the following should be considered:

- ANS dependent neurotransmitters such as norepinephrine, epinephrine as well as glucocorticoids exert suppressive *as well as* enhancing effects on the immune system⁶
- ANS neuropeptides, next to catecholamines also seem to play a complex role in neuro-immune regulation and while acute exposure to elevated levels of catecholamines seems to be adaptive, chronically elevated levels seem to have the opposite effect.⁶
- Blood born cytokines influence central sites such as the hypothalamus where the incidence of patients with lesions is 95% of which the majority (60%) were active.
- The more active lesions in the hypothalamus, the shorter the life expectancy. Data show suppression of the CRH neurons by active hypothalamic lesions, which causes an unfavourable disease course via inadequate cortisol response during relapses of MS.
- Both HPA axis hypo *and* hyperresponsiveness are noted in MS.

- In one study the extent of activation or the HPA axis in MS patients is up to 2.5 fold greater than in normal controls.¹⁶
- Recent data indicate a decreased GC receptor sensitivity in MS patients and a trend toward clinical worsening in association with increasing GC resistance.⁷
- Anatomical findings indicate dense sympathetic nerve endings within various lymphoid organs⁹⁻¹¹
- Strong support for the association between stressful life events and disease progression comes from a meta-analysis, indicating an increased risk for MS exacerbation after stressful life events.⁸
- The state of sympathetic dominance is status quo.

The central message from this is *dysregulation*. The multifaceted nature of the neuro-immune interaction, consistent with the resulting complexities of the MS patient presentation, leave abundant room for the incorporation of practices that will support and regulate the body in its adaptation and coping mechanisms.

Mind-Body Medicine

The mind-body connection occupies a powerful role in the history of many healing traditions, naturopathic medicine being no exception. Many studies now support the fact that emotions affect health. Despite historical resistance, today the science of mind-body medicine is entrenched in some of the most esteemed medical colleges, most notably, Herbert Benson's research on the *relaxation response* and Candice Pert's work confirming the presence of neuropeptides and neurotransmitters on immune cells.¹³ Thankfully time and science have marched on in sound validation of mind-body medicine as quite possibly the therapeutic flipside of the psychoneuroimmunology coin.

As a forefather to mind-body medicine, the placebo effect has proven the impact of psychology on physiology. Herbert Benson, the Harvard father of mind-body medicine reminds us that placebo effect (which he feels should be renamed "remembered wellness") yields clinical benefit in 60–90% of diseases. This must have been high-octane fuel for the advancement of mind-body medicine. Though the placebo effect was often viewed negatively, the question becomes how do we harness the power of the placebo effect and translate it into a therapeutic mind-body effect?

Mind-body medicine is an umbrella term that includes healing traditions that capture the essence of the powerful placebo effect and build on it to provide practices that have been scientifically proven to improve health. These practices include but are not limited to: mindfulness meditation, yoga, qi-gong, tai-chi, breathwork, creative arts, prayer, visualization, guided imagery and cognitive behavioural therapy. While each of these modalities work with our bodies to enhance the vital force, strengthen the flow of qi and regulate physiological systems, we will look, by way of example, at the most popular.

Meditation

With a history of thousands of years, a good body of study now exists supportive of the use of mindful based stress reduction through mindfulness meditation. This is one of the most common mind-body interventions and is a conscious mental process that induces a set of physiological changes known as the *relaxation response*. Research has connected the relaxation response to concentration and control of the ANS to improve mood, clear depression, reduce anxiety and improve overall well being. Physiological responses by way of an improved immune system have also been demonstrated.¹⁴ Meditation is a state of 'bare-attention', focusing on being present in the here and now by managing external distraction. The benefits of meditation have been demonstrated to bring about dramatic effects in as little as 10 minutes of practice, but also to reach far beyond the period of practice with improving coping mechanisms in general.¹⁵ While formalized training is considered most effective, benefit can still be gained from books and CDs.

It is understood that the HPA axis/ANS response are dysfunctional in MS and that the modern lifestyle often includes a state of chronic stress, which aggravates that dysfunction. If we consider the HPA axis as the fulcrum of homeostasis, then even as the exact role of the mind in the body of an MS patient still eludes many medical professions, this too will be validated by science in time. What we do know is that the progress or state of MS is dependant on HPA axis and autonomic regulation. It can, therefore, be speculated that promoting regulation both through traditional practices and the science of mind-body medicine can help ANS balance, and via the vagus nerve, potentially calm the many connected physiological processes that challenge the average MS patient.

Using mind-body techniques for overcoming the fear, teaching trust in the body's innate ability to heal, and continuing to plan, aspire and live despite the diagnosis are all essential psychological parts of the healing journey.

The more naturopathic medicine advances as a science, the more it is called back to its roots. Homeostasis, while at times a lofty goal, hinges on the ability to balance the mechanistic part of our therapeutic approach, for example: nutritional modifications, botanicals, supplements or parenteral therapies with the vitalistic part of a person's healing experience, such as: drainage, self-care, homeopathy or mind-body. The ability of an individual to heal is fascinating. Equally awe inspiring is how the ability to create ownership of the healing process is often directly augmented or reduced by the state of an individual's mind-body, and their desire and ability to make changes.

About the Author

Dr. Teri Jaklin ND is a 2002 graduate of CCNM with a passionate commitment to the foundational principles of naturopathic medicine. She co-founded the Waterdown Clinic of Naturopathic Medicine in 2002 where she holds a private practice. She is Director, Organizational Wellness for an organizational development firm and lectures extensively within the profession, and in many venues for the general public.

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