

Addressing Comorbidities and Carving a Path Toward Wellness in Multiple Sclerosis Care

A Q&A With Patricia K. Coyle, MD



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AJMC®: Can you talk about the broader importance of lifestyle and general health as they relate to patients with multiple sclerosis (MS)?

COYLE: We recognize MS as a neurologic disease in which there is ongoing accumulating, permanent damage to the central nervous system [CNS]: the brain, spinal cord, and optic nerve. The nature of MS, if it's untreated or not successfully treated or optimally treated, is to have this ongoing damage to the CNS. We are increasingly appreciating that lifestyle and general health affect the CNS, and if there are poor lifestyle choices and not good general health, that is contributing to ongoing damage to the CNS. So, in combination with a disease like MS, that's a bad picture. The implications are that it becomes extraordinarily important for somebody with MS to pay attention to their lifestyle choices and their general health to minimize injury to this most important body organ, the CNS.

AJMC®: Can you discuss the concept of brain preservation and to what extent it may influence approaches to treatment and overall wellness?

COYLE: There is an appreciation that no 2 individuals are alike and some people may be born with better brains, to put it bluntly. So, there will be a little bit of difference in [brain] size, neuron density, and the number of synapses. Some brains may work better than others, quite frankly. Some folks may have more in the way of [neurological] reserve than others. But lifestyle and general health choices give us the opportunity to optimize brain and CNS health and really do better with a neurological disease by the appropriate choices than if we do not appreciate that.

AJMC®: Can you discuss the relationship of MS and comorbid conditions, specifically what it may teach us about this disease?

COYLE: MS is never in isolation. It occurs in a setting, and there has been an increasing realization and emphasis recently that comorbid conditions greatly influence what happens to an individual with MS. We now know that comorbid conditions are more common than expected in individuals with MS, such as depression, anxiety, and vascular disorders like hypertension, diabetes, hyperlipidemia, etc. The accumulating literature and data [are] really suggesting that comorbid conditions can have a very negative effect on multiple aspects of MS: they can delay the diagnosis of MS and therefore delay appropriate treatment; they can negatively impact quality of life for MS patients; they can increase disease manifestations and disability; they can increase the clinical attack rate and development of disability; they actually influence disease mortality, not just morbidity, to shorten the lifespan in MS; they increase hospitalizations. It is clear that optimum recognition and optimum treatment of comorbid conditions become very important to optimally manage an individual with MS.

It should not be surprising, because we are recognizing key links between the CNS and the gut microbiome, for example. We are increasingly recognizing how the gut affects whole-body inflammation and the systemic immune system, and there is a very close tie between the CNS and the gut. We know that the CNS is not really an isolated body organ, but there is routine cross-talk between the systemic

systems and the CNS. We have an increasing appreciation of the importance of recognizing comorbid conditions in our [patients with MS], and making sure that they are optimally managed in order to get the best outcomes for MS.

AJMC®: When counseling patients with MS or when treating patients with MS, how important is it for clinicians to discuss these comorbidities and the potential positive impact of lifestyle interventions on their MS?

COYLE: I believe its critically important to talk about comorbidities and healthy lifestyle. This is acknowledged in the 2018 American Academy of Neurology practice guidelines in which special recommendations are made to make sure to discuss these topics with patients. There is not a complete awareness of this yet by the general population, but I think you hear this being discussed at all the current meetings with regards to MS, and the growing data and literature to support it [are] really important. I believe that you cannot get optimal treatment of MS if the wellness and the comorbid issues are not addressed. It should really be considered a key component of approaching therapy of MS, and should almost be considered a distinct disease-modifying therapy for MS. If you aren't instituting lifestyle and wellness interventions, you are really not appropriately treating the MS individual.

AJMC®: Which interventions, specifically, would you recommend for patients with MS, and what has been your experience when recommending these interventions to patients?

COYLE: Let's start with tobacco use. No individual should be smoking. Smoking increases risk of development of MS, and if you have MS and are smoking, it will increase the likelihood that you will develop progressive disease with inevitable disability. Secondly, weight loss: obesity is an inflammatory state, which is bad for MS. As much as possible, you really want to be at the optimum body weight. We know that vitamin D deficiency increases risk for development of MS, at least in the Caucasian population for sure, and it has become a standard to check 25-hydroxy vitamin D levels and replace it to normal range. I personally also check B12 levels, and I will not allow an MS patient to run a low normal level below 400. I will supplement them above that.

Regular exercise is also important. Often patients with MS may have the old-fashioned concept that if they have a lot of fatigue, exercise is bad for them. Just the opposite is true, however. You encourage exercise for every single individual with MS, particularly aerobic exercise. It is very helpful in reducing fatigue, but there are also increasing data that exercise has a positive benefit on brain health and CNS health in general.

You also want to make sure that somebody has good sleep. Sleep represents a time in which the CNS is being washed out to get rid of a lot of waste products, and that is extremely important to general CNS health. You want to make sure that someone is eating healthy, as increasing data suggest that diet can have a strong influence. There is no endorse MS diet at this point in time, but we recommend a general anti-inflammatory diet that is low in salt, saturated fats, and processed foods. Individuals with MS should be getting mental stimulation and social stimulation, so that they are not isolated and they are using their intellectual abilities; they need to manage stress. We cannot get rid of stress, but to be able to handle stress better with meditation, for example, can be extremely helpful. Yoga is something that seems to be very beneficial. These are all maneuvers that an individual can do to help protect themselves, to help protect their CNS, and promote CNS health, which is extraordinarily important in MS.

AJMC®: Could you talk about neurological reserve and the overall significance of brain volume in the broader scope of MS treatment?

COYLE: There are different degrees of brain size. People are born with different degrees of brain size, but it is clear that brain volume loss is a measure of global injury to the CNS. It measures not just macroscopic injury, but microscopic injury as well. The normal standard is that brain shrinking occurs as we age. We know that it is accelerated in individuals with MS, and we can see a positive impact with appropriate use of disease-modifying therapies. But we are also beginning to see an impact with regard to instituting a healthy lifestyle and making sure that comorbid conditions are controlled. On an individual basis, we are not yet ready to make decisions based strictly on brain volume loss or atrophy, but that could be coming in the future because we are able to measure these things. We just need to make sure that you control for factors that can influence the results very dramatically over a short period of time. Brain volume loss has been associated with cognitive loss, which is not surprising because it is an effective, global measure of injury to the brain. It is something that we are capable of measuring, improving, and perfecting our techniques in its understanding. We may [in the future] be able to routinely measure it in the MS individual, and even [have] actions taken on it. We are not there yet, however.

AJMC®: To what extent do you think that comorbidities and lifestyle interventions will figure into the broader evolving model of care in MS, particularly from a managed care perspective?

COYLE: The bottom line is that focusing on wellness and prevention may lower the risk that MS will have devastating attacks that disrupt their lifestyle, requiring hospitalizations and visits to the doctor. You do not want the [individual with

MS] becoming disabled and having to leave the workforce and the negative impact that can have on the whole family. You do not want disabled individuals. You want people with MS to be able to live a normal life, have a healthy lifestyle, and remain productive for their entire lives. I am viewing the emphasis on health, identification of comorbid conditions, and control of comorbid conditions as something that is not terribly expensive, but actually preserves the health of the individual with a neurological disease. It keeps them in very good shape, emphasizes remaining healthy, and avoids disability from their disease. You can imagine the extraordinary cost savings to society that could potentially cause.

AJMC®: How do you expect scientific inquiry into comorbidities, lifestyle, brain preservation to take shape over the next couple of years, and to what extent do you think this research will shape how MS is understood and treated?

COYLE: I think we are going to see more studies that

continue to document the biologic evidence that healthy lifestyle choices and control of comorbid conditions actually positively influence and benefit patients with MS, and can actually maintain them in a normal state. I believe that as evidence-based data are established, it is going to be clear how important these programs are, and they will be instituted routinely, and everybody will buy in and be aware of them. I think it will be basically an extraordinarily positive thing for MS to improve outcomes and the partnership with disease-modifying therapies. This is what I see happening in the future for MS.

Also, with advanced monitoring, there are more things that can be done in the home and through a computer. I think we will continue to see studies and evidence that are documenting that, and that will be opening up new avenues and possibilities. It is not necessarily that the patient will have to come to the office, visit the doctor, etc, but that optimum use of programs in the home will make it even easier to track MS and optimally manage patients.