

REVIEW ARTICLE

Primary Care for the Multiple Sclerosis Patient

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Abstract

Multiple sclerosis is the commonest non-traumatic disabling disease that affects young adults. The presenting signs and symptoms include several common symptoms seen in primary care. It therefore behooves primary care practitioners to recognize the disease's presentation, mimicking diagnoses and initial workup. Management of many of the symptoms of disease exacerbations are within the purview of the primary care provider. Co-management of the patient with multiple sclerosis with a neurologist improves patient care and provides a context for management of co-morbidities. The patient-centered medical home provides many services and resources that can be of use to a multiple sclerosis patient. Vaccinations and other preventative care are important in the care of the multiple sclerosis patient, particularly those on immunosuppression therapy for their disease.

1. Why Primary Care Physicians should know about MS

Multiple Sclerosis (MS) is the commonest non-traumatic disabling disease to affect your adults.¹ A number of the symptoms seen in its initial presentation and in relapses of the disease are common symptoms seen and treated in the primary care setting.

1.1. Epidemiology of Multiple Sclerosis

Its incident and prevalence are increasing in both developing and developed countries². Among factors that play important roles in MS development are Epstein - Barr virus, ultraviolet B light exposure, smoking, vitamin D levels and the patient's genetic background¹. The prevalence of MS varies with geographic region and latitude: 110 cases per 100,000 persons in the northern United States versus 47 per 100,000 in the southern US³. MS is more common in females and is close to 3:1 (F:M) in most developed countries⁴. Smoking increases MS risk by approximately 50%⁵. MS is usually diagnosed between the ages of 20 and 50 and has a current prevalence of nearly 1 million in the US⁶. While historically thought to

affect Caucasians more, it occurs with a high incidence in African Americans⁶. Because of these epidemiologic factors, it is important to consider MS in the presentation of neurological symptoms in a primary care setting.

1.2. Identifying MS and its mimics in Primary Care

MS include many signs and symptoms that primary care providers see in their daily practice. So when does one consider MS in the differential diagnosis? MS is a clinical diagnosis. It is typically suspected when one presents with a clinically isolated syndrome (CIS). This can either be monofocal (single neurological symptom) or multifocal (two or more symptoms simultaneously). The most common symptoms are optic neuritis, brainstem and spinal cord symptoms. Two neurologic deficits (e.g. focal weakness, sensory disturbances, tremors or ataxia) separated in time and space without an infection, fever or other more compelling diagnosis may suggest MS. Attacks must last for 24 h. Table 1 lists common signs and symptoms associated with MS⁷.

Table 1: Common Signs and Symptoms of MS

Visual symptoms	blurred vision unilateral vision loss oscillopsia diplobia nystagmus
Motor	Weakness spasticity hyperreflexia gait disturbance imbalance
sensory	numbness

	parasthesias
	dysethesias
	Lhermitte's sign
	squeezing around torso
	trigeminal neuralgia
Elimination	urinary frequency
	urinary retention
	incontinence
	constipation
Psychiatric	depression
	anxiety
	memory impairment
	change in concentration or processing.

MRI can corroborate symptoms in the diagnosis of MS⁸. White matter lesions on MRI while not pathognomonic, may suggest the diagnosis. The differential diagnoses for

MS is large and based on the constellation of symptoms on presentation. Some of the more common ones are presented in Table 2⁹.

Table 2: Differential Diagnoses for MS

Infections	HIV
	Lyme disease
	Mycoplasma
	Syphilis
Inflammatory	Behcet syndrome
	Sarcoidosis
	Sjogrens syndrome
	SLE
Structural	AVM
	herniated disk
	Neoplasm
Vascular	CVA
	DM
	Migraine
	Vasculitis
Genetic	Leukodystrophy
	mitochondrial disease
Nutritional	folate deficiency

	vitamin B12 deficiency
	Vitamin E deficiency
Medications	alcohol
	cocaine
	lithium
	penicillin
	phenytoin
Mental Illness	anxiety
	conversion disorder
	somatization

It is appropriate to refer a patient with multiple neurological symptoms that suggest MS to a neurologist for further workup. The specialist may often order the MRI and perhaps perform a lumbar puncture to look for oligoclonal bands and elevated immunoglobulin G levels.

1.3. So you have a patient with MS...

Patients with MS may have been diagnosed within the practice with specialty help, or may come to establish primary care, having had the diagnosis made elsewhere. Classically, MS is thought of as either relapsing remitting, secondary progressive or primary progressive and progressive relapsing. However, in keeping with the 2013 revisions to the clinical course, the disease is increasingly being thought as a single disease within a spectrum extending from relapsing (inflammation dominant) to progressive (neurodegenerative dominant)¹⁰. In 10% of cases, patients display a steady, progressive decline in function (the primary progressive and progressive relapsing forms of MS). In 90% of cases, patients present with discrete attacks or relapses with no worsening of neurologic function (the relapsing remitting form). It would be helpful to go over with the patient the pathway to diagnosis their disease

took. Identifying the symptoms they presented with at the time of their clinically isolated syndrome and any symptoms that were identified with their relapses would be helpful in monitoring their disease.

1.4. Accessing resources to learn about MS

There are a number of resources for the primary care practitioner to access in co-managing MS with a neurologist. The Multiple Sclerosis Society¹¹ has several resources at all levels for clinicians and patients. Several excellent reviews and articles are also available^{12, 13, 19,14}.

2. Co-managing MS with your neurologist

Primary care practitioners should carefully identify the neurologist an MS patient sees primarily and familiarize him or herself with the MS team at the neurologist's practice. Monitoring compliance with medications and appointments kept can help identify whether the MS is being adequately treated. To this end, signing release of information to allow cross-communication and sharing of medical notes would enhance care. In their 2020 study of visits for neurologic complaints to primary care, Lin et al¹⁵ performed a retrospective, cross-sectional analysis using a 20% national

sample claims database that contains information on medical care utilizations from adult Fee-for-Service Medicare beneficiaries in 2015. They found that multiple sclerosis patients visited neurologists (63.9%) more than primary care providers (26.2%) of the time. However, since access to primary care is often easier, overall, patients with neurologic complaints tend to seek help first from their primary care provider (40.5% of the time) versus from a neurologist (17.5%).

2.1. Case management and the PCMH

Many primary care providers function in a patient centered medical home model. This team-based care model provides access to case management, a patient portal for messaging, an RN to triage and a number of supportive services. Kalb et al ¹⁶ make several recommendations for exercise, encouraging ≥ 150 min/week of exercise or lifestyle physical activity. Primary care providers who are used to recommending physical activity, exercise and lifestyle changes to improve health can reinforce the message to MS patients. With the team-based care approach, it may be possible to provide the MS patient with more support for their activities of daily living and facilitate the provision of home physical therapy, nursing, home aide assistance and other forms of support as the disease progresses.

2.2. Is their symptom MS related?

MS can present with a wide variety of symptoms, most neurologic but several that are not: elimination problems such as constipation, urinary retention and urinary hesitancy, mental health problems such as depression, anxiety, memory concerns, visual disturbances and balance problems (see Table 1). Many of the symptomatic treatments are not MS-specific. Hence,

anticholinergics may be used for bladder dysfunction, stool softeners or laxatives may be used for constipation and neuropathic pain may be treated with gabapentin, or tricyclic antidepressants. Depression and anxiety may be treated with SSRIs.

3. Preventative Care: screening, social habits: exercise, diet, smoking

Patients with MS can benefit from aggressive management of co-morbidities. Smoking and vascular disease leads to poorer outcomes and a more rapidly progressive disease ¹⁷. While MS may limit life expectancy, primary screening for cardiovascular disease, breast and colon cancers should be carried out per USPSTF guidelines unless contraindicated (by poor tolerance to anesthesia for procedures involving sedation, for example).

3.1. Vaccinations and MS

The National Multiple Sclerosis Society website as an excellent section on vaccinations and MS (<https://www.nationalmssociety.org/Living-Well-With-MS/Diet-Exercise-Healthy-Behaviors/Vaccinations>). The general principle is that live or live-attenuated vaccinations may have some qualifying factors in their use, such as avoiding them within periods of certain MS medications. By contrast, inactivated vaccines are safe for most MS patients. The American Academy of Neurology recently published an updated guideline on vaccines in MS ¹⁸. They recommended:

1. Discuss the evidence regarding immunizations in MS with their patients (Level B) and explore patients' opinions, preferences, and questions. (Level B)

2. Recommend that patients with MS follow all local vaccine standards unless there are specific contraindications (Level B)
3. Weigh local vaccine-preventable disease risks when counseling patients. (Level B)
4. Recommend that patients with MS receive the influenza vaccination annually. (Level B)
5. Clinicians should counsel patients with MS about infection risks associated with specific immunosuppressive/immunomodulating (ISIM) medications and treatment-specific vaccination guidance according to prescribing information (PI) and vaccinate patients with MS as needed at least 4–6 weeks before initiating patients' ISIM therapy. (Level B)
6. Clinicians must screen for infections according to PI before initiating ISIM medications (Level A) and should treat patients testing positive for latent infections. In high-risk populations, clinicians must screen for latent infections before starting ISIM therapy even when not specifically mentioned in PI (Level A) and should consult specialists regarding treating patients who screen positive for latent infection.
7. Clinicians should recommend against using live-attenuated vaccines in people with MS receiving ISIM therapies. (Level B).

8. Clinicians should delay vaccinating people with MS who are experiencing a relapse (Level B).
Infection Risk in MAS

3.2. Infections and MS

MS, like other autoimmune diseases, may be triggered by microbial infections. While no single pathogen has been accepted as a casual agent for MS, several viruses and bacteria can cause development or exacerbation of the disease. Bacteria that can do this include *Chlamydia pneumoniae*, and *Staphylococcus aureus*-produced enterotoxins that function as superantigens. Herpesviridae viruses (Epstein-Barr virus and human herpes virus 6) and human endogenous retrovirus families have also been associated with exacerbations. Since common upper respiratory, gastrointestinal, and urogenital tract infections have also been associated with MS exacerbations, these should be aggressively treated by the primary care practitioner when encountered¹⁹.

Conclusions

There is a significant role for the primary care practitioner in the co-management of MS and more importantly in caring for the patient with MS²⁰. While all that happens to our MS patients medically may not be MS-related, due consideration to the role of the disease in the health and treatment of our patients would benefit their overall health.

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