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Innovative Treatments of Multiple Sclerosis and other Neurodegenerative Diseases

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Multiple sclerosis (MS) is an autoimmune disease of unknown etiology characterized by the inflammatory demyelination of the central nervous system and breakdown of the blood-brain barrier. As with all autoimmune illness, there is a genetic component, but 85% of multiple sclerosis patients do not have an affected relative and only 30% of identical twins develop multiple sclerosis if the other twin already has it. There is controversy regarding an infectious etiology of multiple sclerosis and other neurodegenerative illness due to the fact that there is unlikely a single cause in such conditions and also due to that fact that the diagnosis of active infections can be difficult or unclear. There is, however, clear evidence that there is an infectious component, etiology or contribution in the majority of cases. Infections that have a possible role in the pathogenesis multiple sclerosis and other neurodegenerative diseases include HHV6, EBV, Lyme disease, mycoplasma and Chlamydia pneumonia.

In addition to appropriate antivirals and antibiotics, hormonal modulation is also a potentially very promising therapy. Both can be used as sole therapies or along with standard immune modulating therapies such as Copaxone, Rebif, Avonex, Betaseron and Tysabri for improved outcome with treatment resistant cases.

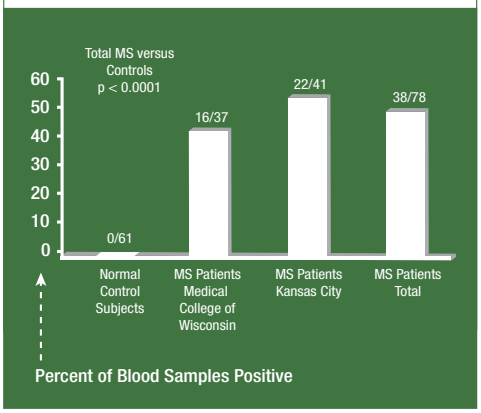
HHV6/EBV

Numerous studies have shown that multiple infections have a potential role in the initiation and progression of multiple sclerosis, with the strongest evidence being for HHV6. A number of infections have been shown to have a strong association with the illness, but due to the limitations of testing, a direct causative infectious role remained elusive. Recent advances in testing, however, have demonstrated a direct role of active HHV6 in the initiation, progression and exacerbation of the disease.

In a study sponsored by the National MS Society and presented at the 54th Annual Meeting of the American Academy of Neurology, active HHV6 infection was found in the nervous system tissue in 73% of multiple sclerosis patients and in none of the healthy control patients. Blood samples were positive in 54% of multiple sclerosis patients and 0% of normals. The authors conclude, "In summary, most if not all patients with MS have active HHV-6 infections in their central nervous system tissues, lymphoid tissues, and peripheral blood. Such infections are not seen in normal controls. Controlling active HHV-6 infection could alter the course of the disease and give us important insights into the role of this virus in initiating and perpetuating the disease process."

Similarly, researchers at the Medical College of Wisconsin and the Institute for Viral Pathogenesis have demonstrated that the presence of active HHV6, measured by viral culture, in approximately half of patients at the time of relapse while no virus was detected in any normal control subjects.

Cross Sectional Study of the Incidence of Active HHV-6 Viremia in Symptomatic Patients with Multiple Sclerosis.



A direct link between HHV-6 and multiple sclerosis was demonstrated by a study presented at American Neurology Association Annual Meeting in which monkeys injected with HHV-6 (variant A) developed a chronic autoimmune demyelination of the central nervous system that was indistinguishable from multiple sclerosis.

Lyme disease

There is no diagnostic biological marker in multiple sclerosis. Thus, its diagnosis is based on clinical criteria. These criteria can also be found in other conditions, including Lyme disease. Demyelinating involvement of central nervous system can develop in chronic Lyme disease, and multiple sclerosis can be erroneously diagnosed. The brain lesions and symptoms are indistinguishable from multiple sclerosis lesions. Studies have also shown that Chlamydia pneumonia and mycoplasma may also have a role in the progression of multiple sclerosis in some patients. Doxycycline has been shown to prevent disease progression.

One study found that 38% of multiple sclerosis patients had evidence of a Borrelia infection (Lyme disease) while another review found 20% had evidence of a Borrelia infection. The incidence of Borellia associated multiple sclerosis is certainly much higher than those found in such studies as the commonly used tests in these studies are shown to miss the majority of cases. Due to this lack of sensitivity of standard testing, such cases only rarely receive the correct diagnosis and thus appropriate treatment. This is especially true of Lyme associated Amyotrophic lateral sclerosis (ALS).

Hormonal Therapies

Studies have clearly shown hormonal therapies have clear disease modifying properties. Estriol, progesterone, DHEA and testosterone reduced disease active and prevent disease progression while estradiol and synthetic estrogens activate disease activity.

Low vitamin D is shown to be a risk factor for multiple sclerosis and replacement can positively affect disease activity. As with other autoimmune diseases, the majority of multiple sclerosis patients have low tissue thyroid activity and supplementation can result in significant symptomatic improvement.

(over)

Recommended testing and treatment considerations for MS

- Consider antiviral treatment if HHV6 IgM positive or IgG is greater than 320 (consider if >160) or EBV early antigen positive or IgG VCA is greater than four times normal (see handout Infectious Causes of CFS/FM for diagnosis)
- Test for Lyme disease and coinfections with appropriate testing (standard testing not sensitive enough)
- Test and replace vitamin D3 to maintain 25-OH vitamin D levels greater than 125
- Treat women with estriol, progesterone and testosterone
- Treat men with testosterone and progesterone
- Treat men and women with high dose DHEA
- Consider Kutapressin (liver extract) and other antiviral therapies (Virunex)
- Consider low dose naltrexone (LDN)
- Doxycycline for immune modulation or potential CP/mycoplasma/Lyme
- Consider IM or IV gamma globulin
- Consider Valtrex or Valcyte for EBV and HHV6
- Consider intravenous therapies
- Consider amantadine for fatigue and antiviral
- Consider pyridostigmine for weakness
- Consider testing and treatment for heavy metal as contributing cause
- Replace with time-released T3 if suboptimal T3/reverse T3 ratio
- Supplement with intramuscular or subcutaneous methyl and hydroxyl B12, B1 and glutathione
- Consider I-3-C/DIM and zinc