CLINICAL SPECIFICATIONS

MYELIN BASIC PROTEIN (saliva)

Function:

Myelin is the protective sheath surrounding nerves. Myelin basic protein (MBP) is believed to be important in the process of myelination, the building of myelin sheaths. Thus, MBP is often a target in the demyelination process in various neuroimmune disorders.

Serum Antibodies Appear:

Multiple sclerosis[2, 5]
Autism[1]
PANDAS / ANDAS / OCD[6]
Lupus
Toxin exposure

Known Cross-Reactions: *Chlamydia pneumonia*, herpes – 6;[5] streptococcal protein;[5, 6] gliadin[7]

Clinical Significance:

The detection of salivary antibodies against MBP indicates possible immune reactivity against the enteric nervous system or cross-reaction with different environmental triggers including *Chlamydia pneumonia*, herpes – 6, streptococcal protein infection. MBP also cross-reacts to alpha-gliadin-33-mer, so it could be an indication of gluten-reactivity. If the cross-reactive antigen pass through the intestinal barrier, they may initiate a systemic cross-reactivity and result in destruction of the myelin sheath. Serum antibodies to MBP are accepted markers of inflammation in various neuroimmune disorders. The similarities of peptide sequences between infections agents/dietary proteins and MBP result in cross-reactivity. This autoimmune response triggers inflammation via myelin basic protein-specific T-cells, thus compromising the blood-brain barrier.[3, 5] A point of interest is that the administration of myelin basic protein artificially increases blood-brain barrier permeability and is under research as a possible treatment for rabies virus, which enters the brain to replicate itself.[4]

Suggested Reading:

1. Ashwood and Van de Water. Is autism an autoimmune disease? Autoimmunity Rev, 2004; 3:557-562.
2. Berger, et al. Antimyelin antibodies as a predictor of clinically definite Multiple Sclerosis after a first demyelinating event. Engl Med, 2003; 349(2):139-145.
3. Gorgan, et al. Cross-reactivity of myelin basic protein-specific T cells with multiple microbial peptides: experimental autoimmune encephalomyelitis induction in TCR transgenic mice. Immunol, 1999; 163:3764-3770.
4. Roy and Hooper. Lethal silver-haired bat rabies virus infection can be prevented by opening the blood-brain barrier. Virol, 2007; 81(15):7993-7998.
5. Vojdani, et al. Antibodies to myelin basic protein, myelin oligodendrocytes peptides, α-B-crystallin, lymphocyte activation and cytokine production in patients with multiple sclerosis. Internal Med, 2003; 254363-374.
6. Vojdani. Obsessive compulsive disorder and differentiation between non-autoimmune OCD and the autoimmune version of the disease called PANDAS. Latitudes, 6(2):1-6.
7. Vojdani and Tarash. Cross-reaction between gliadin and different food and tissue antigens, Food Nutri Sci, 2013; 4:20-32.