HOW THE EPSTEIN-BARR VIRUS (EBV) TURNS A SPINE INJURY INTO ADHESIVE ARACHNOIDITIS (AA)

There has been natural shock and skepticism with the discovery that EBV reactivation, autoimmunity, and tissue invasion is associated with systemic lupus, multiple sclerosis, and AA. The pathologic medhanism of how EBV can turn a spinal canal injury into chronic, severe AA has been clarified.

THE INJURY: Any trauma to the arachnoid membrane, cauda equina nerve roots, intervertebral discs, or dural lining of the spinal canal in the lumbar-sacral spine is at risk to develop AA. The trauma may be an epicural injection, surgery, spinal tap, or accident.

THE PATHOLOGIC STEPS TO CHRONIC AA:

1. Trauma causes acute inflammation, pain, and the initiation of AA.

2. Acute inflammaiton and damaged spine tissues allows EBV to invade and infect the injured tissue.

3. EBV chronic, asymptomatic infection in the damaged tissue prevents normal healing.

4. EBV instigates an ongoing chronic autoimmune/inflammation process prpogates AA.

5. Constant pain may ensue if the virus invades glial cells (gastritis) in the spinal cord and/or brain and produces neuroinflammation with receptor dysfunction.

WEAK TISSUE IS A FACTOR: Persons with a genetic connective tissue disease, metabolic disease (especially diabetes), or hormonal/nutritional deficiency may have weakened tissue due to a collagen defect or other factor. This allows for easy invasion and chronic infection by EBV.

OTHER VIRUSES: Once EBV invades and infects damaged tissues, other viruses such as cytomegalovirus and herpes 6 may invade.

SUPPORTING BLOOD TESTS: EBV blood panels have been developed that help confirm autoimmunity and chronic asymptomatic infection in a person with AA. The two major antibodies will be at least two times normal (VCA and EBNA). If the virus is currently replicating, the early EBNA or polymer chain reaction-DNA (PCR-DNA) tests may be positive. Cytokines and other inflammatory markers, white bloood cell counts, and antinuclear autoantibody (ANA) may be elevated.

MAJOR MESSAGE: A spinal canal injury may cause AA to develop and give EBV an opportunity to invade and chronically infect spinal tissues and initiate an autoimmune-inflammatory process that produces multiple neurologic impairments and intractable pain.

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