**Immune System Case Study – Multiple Sclerosis**

Jacqueline Butler is a 27-year-old woman who presented at your primary care practice with tingling in her left hand that had been persistent for the past week. She has also been experiencing increasing clumsiness and weakness when using her left arm, as well as fatigue and trouble concentrating. A surface examination of her extremities showed no swelling, inflammation of joints, or noticeable cysts. Her body temperature was normal, as was a complete blood count (CBC) including a blood glucose test.

Subsequently, you order a lumbar puncture to rule out infection and an MRI with contrast dye. The lumbar puncture shows elevated levels of IgG antibodies and the MRI showed three small inflammatory lesions within the brain. Based on these results, you diagnose Jacqueline with Multiple Sclerosis (MS).

Resources for Research:

<https://www.nationalmssociety.org/>

<https://www.mayoclinic.org/symptoms/numbness-in-hands/basics/causes/sym-20050842>

<https://www.mayoclinic.org/diseases-conditions/multiple-sclerosis/diagnosis-treatment/drc-20350274>

<https://www.webmd.com/multiple-sclerosis/>

<https://www.webmd.com/multiple-sclerosis/ss/slideshow-multiple-sclerosis-overview>

<https://multiplesclerosisnewstoday.com/multiple-sclerosis-diagnosis/spinal-tap/>

<https://www.youtube.com/watch?v=5V7RZwDpmXE>

<https://www.amberpharmacy.com/9-tips-stay-healthy-taking-medications-can-affect-immune-system/>

Discussion Questions:

1. **What symptoms is Jacqueline experiencing?**
2. **What possible conditions were ruled out by the surface examination, normal body temperature and CBC?**
3. **Explain the process and purpose of a lumbar puncture or “spinal tap”.**
4. **What is the purpose of myelin within the nervous system and how is it affected by Multiple Sclerosis?**
5. **You recommend immunosuppressant medication for Jacqueline. What precautions should she take when on these medications?**