**A Mother Learning About Multiple Sclerosis**

Tonya L. Buchanan

King University

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Dr. Andrea Robertson

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**A Mother Learning About Multiple Sclerosis**

Autoimmune diseases are not known to be hereditary. That does not mean genes do not play a part in how likely a person is to develop a Type III Hypersensitivity reaction to their own cells (McCance & Huether, 2019). My 32-year-old daughter was just recently diagnosed with multiple sclerosis and to a mother it is devastating news to hear. Education is always the best weapon to combat fears of the unknown.

**Risk Factors**

Risk factors for multiple sclerosis include Epstein Barr virus infection, smoking, obesity, and vitamin D deficiency (McCance & Huether, 2019). There are no true confirmed causes of multiple sclerosis and there are no tests that are known to be definitive in diagnosing the disease. Yet there are many studies to try to provide as much information as possible.

The top risk factor of multiple sclerosis is thought to be vitamin D deficiency (Nielsen & Stenager, 2016). It has been shown in studies that people with higher levels of vitamin D are less likely to have disease reoccurrence, progression of the disease, and are thought to have reduction in brain lesions (Tarasiuk et al., 2019). The low level of vitamin D is thought to be the reason multiple sclerosis is not diagnosed until people past their teen years (Nielsen & Stenager, 2016). Children spend more time in the sun than adults which may explain the delay in the manifestation of symptoms.

 In most textbooks and articles concerning environmental risk factors, smoking is on every list and should be avoided (McCance & Huether, 2019). Smoking is thought to cause “epigenetic modifications” which change how genes are expressed from the DNA (Nielsen & Stenager, 2016). Smoking can of course lead to multiple disease processes and should always be discouraged from a medical standpoint. The National Multiple Sclerosis Society lists smoking as something that is to be avoided as a trigger to flare ups with the disease process (WebMD, 2019).

 I feel, after speaking to my daughter to discuss her treatments and reading multitudes of articles, vitamin D deficiency is the one thing that may increase the risk of multiple sclerosis agreed upon by many. Looking at the Mayo Clinic website, the CDC website and the information from scholarly articles the common risk factor is the lack of vitamin D. The experts are non-specific as to how exactly the immune system is affected. There is an increased risk for multiple sclerosis in populations not known for their sun exposure, so this seems to speak much louder than any other risk factor.

 Multiple sclerosis is thought to be born from lesions that have become inflamed by the triggering of the CD 8 T cells and CD4 T cells (Huang, Chen, & Zhang, 2017). More heat is developed at sites related to the activity of the HLA and CD 8 T cells and this may help determine if the patient has a possible diagnosis as there are no specific tests for multiple sclerosis to date (Melis et al., 2019). Autoimmune diseases, including multiple sclerosis, are thought to involve genetics and environmental components and both are factored into learning more about the causes and treatment (Goverman, 2021). Per McCance and Huether, autoimmune diseases have multifactorial traits and are not caused by genetics or epigenetics alone (2019).

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