[Name of the Writer]

[Name of Instructor]

[Subject]

[Date]

**Multiple Sclerosis**

 Multiple Sclerosis is basically a neurodegenerative disease that is also chronic nature. The nature of this disease is such that it attacks the central nervous system and it is a general perception that this particular disorder is autoimmune. This disorder is intervened by self-reactive lymphatic cells that cross the barrier that is generally present between the blood and the brain, and once it crosses that barrier, it enters the central nervous system where local inflammation is caused that further results in the axonal loss and gliotic scarring. The people who are between the age of 20-40 are most vulnerable to this disease, and the ratio to female to male is around 2:1. This disease is a sudden onset of focal sensory interventions that are then accompanied by painless impairment of vision, weakness in the limb or even bladder symptoms. Having said that the exact cause of symptoms of this particular disorder still not known, certain genetic and environmental factors play a significant role in the onset of this disease. Although at first there were not the proper treatment for this disease but with the advancement in technology when the pathology of this disease was fully known then at that time the early diagnosis of the disorder became quite easy. For the constant detection of abnormal white manner, the magnetic resonance imaging is considered to be the basic adjunctive model. In order to differentiate other affections like infection or vasculitis, the analysis of cerebral fluid contents were also used. Such advancements helped to design an effective treatment for this disease and even for the prohibition of this disease in the future generation was taken into consideration. The MS is likely to be affected by the B cells of the immune cells in a variety of ways including by the antigen representation, the production of cytokines and also the antibody production. So the patient first presents a relapsing-remitting disease course which is further followed by the progressive phase. Some of the exact clinical symptoms of the disease are the result of plaques of demyelination within the central nervous system with some slight preservation of axons (Huang et al., 2017).

 The symptoms of this particular disorder vary from patient to patient and these symptoms can either take place collectively or alone. Although the symptoms are different in different patients some of the prominent ones are bladder dysfunction, cognitive deficits and also fatigue and anxiety. The symptoms of this disease can start, and they can be worse at the same time. Therefore the smooth development of the symptoms that are associated with the development of MS leads to the disability from the start.

 The pathology of the MS is quite complicated, but it starts with a plaque in the central nervous system that is followed by inflammation. These plaques develop in the brain and also in the spinal cord. The main type of immune cells that are affected in this disease is the CD8 cells as compared to other types of the T cells. It is a general perception about this disorder that it starts in the inflammatory-induced lesions comprising CD 8 T cells and once they affect such cells, then they activate the macrophages.

 Diagnosis of this disease is not easy, but it is depended on the showing up of the neurologic signs that are subsequent to white matter lesions. Different strategies are used to differentiate between MS and other neurological conditions, and one of them is the MacDonald criteria. But right now the diagnosis of MS solely depends on the MRI examination. In order to highlight active plaques gadolinium is used as contrast agents. MRI helps in the detection of the plaques that are not linked with the neurological symptoms at the evaluation time.

 The treatment of this disease are not fully developed, and they are quite challenging, and also different medications are used to regulate different mechanisms. An indication of this disease depends on the type and clinical course of the disease. It is a fact that for the treatment of primary progress from there are not specific medications, but for the treatment of secondary progressive form, there are available drugs. There are almost ten different medications that are used for the treatment depending upon the symptoms of the disease and more are in the clinical trial. Vitamin D are also some of the drugs that are used for the treatment (Huang et al., 2017).

 It is a reality that MS is not a curable disease due to the fact that it is an autoimmune disease, but the treatment of the relapsing-remitting phase is the only effective treatment choices that are present with the physicians and the doctors. The new therapies that are proposed such as the fingolimod and dimethyl fumarate are some of the effective treatments, but they are also accompanied by greater risks (Huang et al., 2017).

 Although this paper presented a complete guide and full detail about the medical condition Multiple Sclerosis but it did not tell the full mechanism of the development of this disease. How the immune cells cause this disease and what changes occur in the immune cells and the entire system is not fully mentioned in this paper. The T cells play an important role in defending the body against the foreign particles so if any of the subtypes of the T cells are involved in the development of this disease then a complete research must be done in that area to fully understand the pathway and mechanism of this disease, only then a full and effective treatment can be developed for this medical condition. Till then the present treatment will reduce the outcome of the disorder, but they will not solve the root cause of this disease.

**Work Cited**

 Huang, Wen‑Juan, Wei‑Wei Chen, and Xia Zhang. "Multiple sclerosis: pathology, diagnosis and treatments." *Experimental and therapeutic medicine* 13.6 (2017): 3163-3166.