**Multiple Sclerosis Case Study**

Multiple sclerosis is a condition that is characterized by autoimmune demyelinating of the central nervous system. There are four types of Multiple Sclerosis; Relapse remitting MS is the most common type, which accounts for about 85 percent of the cases (Rossi et al.,2017). It is characterized by discrete attack over days and weeks then followed by decree recovery after some months and the person have no worsening of neurological function between the attacks. Secondary progressive MS is characterized by relapse then gradual deterioration of neurological functioning. Primary progressive MS is characterized by a steady functional decline after the disease onset and no relapse. A steady functional decline characterizes progressive relapsing MS; it is differentiated from Primary progressive MS after the onset of relapse.

**Evaluation of patient’s symptoms**

The patient experienced a visual problem, ad stabbing pain in her lower and upper teeth because the body's immune system attacked the central nervous system, causing damage to the myelin that insulate and protect the cranial nerves affecting the nerve impulse signaling. Improper signaling caused her numbness of the chin and lower limbs. Impaired nerve impulse causes decreased normal sensation such as temperature and touch; this made her be diagnosed with hypoesthesia.

**Prevalence**

According to (Ozakbas et al.,2018), the relapse remitting multiple sclerosis was 8.5% in 2016. The highest age group was between 0 -19 years of the age group of more than 50 years had the lowest incident of RRMS.

**Prognosis**

Physical disabilities can result if the disorder is left untreated; more than 30 of the patients with Multiple sclerosis develop disabilities within 20 -25 years after the disease's onset. Several modifying agents have been used to slow down the disability’s progressions.

Less than 5-10 percent of patients have a milder Multiple Sclerosis phenotype, which prevents the physical disability, but multiple sclerosis lesion is normally seen in magnetic resonance imaging. The life expectancy of people with multiple sclerosis continues to increase due to advanced diagnosis, treatment, and a better understanding of lifestyle on human health.

**Risk factors**

Autoimmune disorders such as thyroid disease, pernicious anemia, and type 1 diabetes predispose one to Multiple sclerosis. Smoking can initial symptoms that can signal Multiple sclerosis. A low level of vitamin D can increase the risk of MS due to low exposure to sunlight. Climate and race are risk factors of the disorder. Most people in a temperate climate such as Canada and northern countries have a high prevalence of the disorder because cold weather can worsen the disease symptoms. Most of the northern Europeans have a higher risk of developing the disease than African Americans.

Family history can expose one to the disorder because of inherited genes that are susceptible to the condition. Most women have two to three times the risk of the disorder than men; research shows that most females produce a high level of blood vessel receptor protein that triggers the onset of Multiple sclerosis ( Briggs et al.,2019). Age can also be the risk factor; the age group of 20-40 years has a higher prevalence risk than adults of 50 years and above. Research has also shown that environmental factors such as viruses and toxins can also trigger the disorder.

**Short questions: Episode 1**

hypoesthesia is a reduced sensation of touch or a partial loss of sensory sensitivity. Which is termed as numbness, but paresthesia is a tingling and tickling sensation. It is termed as pins and needles. The peripheral nervous system is the human nervous system containing the nerve that carries the signals to the central nervous system. It is associated with hypoesthesia and paresthesia. cranial nerve III-X originate from the brain stem

Mary’s Alveolar nerves are affected in episode 1, causing a decreased sensation. In contrast, the Trigeminal (V) nerve was affected in episode 2 because it is the sensory nerve root that mainly detects the face's sensation, including the oral and nasal cavities stimuli.

**Episode 3**

Cranial nerve III, IV, VI are involved in eye movement. Cranial nerve III, IV, and VI are cranial nerve in the eye that controls the pupil's size. Cranial III position of the eyelids. The sixth cranial nerve is responsible for double vision (Koetting & Mangan,2017).

Cranial nerve II, the optic nerve, is responsible for Mary's blurred vision.

**Related finale: 1**

the white spot appeared in MRI because the MRI monitors the blood flow in the brain. The neuron firing caused the myelin sheath breakdown resulting in a white lesion appearance.

2. the white lesion appeared smaller after three months because there are other components of the neurons that can cause myelin sheath repair.

Mary’s XI (accessory) nerve was evaluated when the physician pressed Mary's shoulders while asking her to shrug. This is due to spinal components exit the cranial cavity to innervate the trapezius. The autonomic nervous system within the motor division does not appear to show any effect in Mary’s case because it is a division of the nervous system that only affects the body's internal organs.

**Treatment**

multiple sclerosis can be treated using corticosteroids such as prednisone to reduce nerve inflammation. The doctor prescribed Mary some of the steroids, but it has some side effects include insomnia, increased blood pressure, and glucose. Plasma exchange (plasmapheresis) is the process where the plasma is removed from the blood then mixed with albumin then taken back to the body.

Injectable treatment for relapse remitting multiple sclerosis is interferon beta. The drug is injected intramuscularly; then, a blood test is done to monitor the liver enzymes due to interferon effects on the liver. Glatiramer is injected beneath the skin to block the immune system from attacking the myelin sheath (Kalincik et al.,2017). Other oral medication includes dimethyl fumarate that reduces the relapse, but it requires a blood test. Infusion treatment includes natalizumab, which is the first line medication that blocks the attacking immune cells' movement from the bloodstream into the brain and spinal cord.

In conclusion, Mary should take the prescribed drugs and engage in physical therapy to build muscle strength and reduce the symptoms of multiple sclerosis. Mary should also engage in psychological therapy to reduce emotional disorders, which significantly affects the work, family, and social life.

**Reference**

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