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Multiple Sclerosis and the Implications of Anesthesia

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Introduction

Multiple Sclerosis (MS) is an autoimmune process characterized by inflammation and demyelination of axons in the brain and spinal cord (Schneider, 2005). According to Maclean (2010), MS is one of the most common debilitating neurological disorders in young adults. My intent of this research project is to explain the pathophysiological process and become familiar with the implications of anesthesia related to MS. This research will enable me to prepare a safe, individualized anesthetic plan, taking all essential precautions when caring for a patient with multiple sclerosis.

Symptomology

Symptoms associated with MS are expressed with varying degrees of severity and can occur at different times and locations throughout the disease process. The variability and ambiguous nature of the symptoms pose a challenge to physicians when attempting to diagnose an individual with MS. The symptomatology of MS can be categorized as subjective or objective.

Subjective symptoms:
- Pain
- Fatigue
- Trigeminal Neuralgia
- Muscle Soreness
- Weakness
- Paraplegia
- Cerebellar Deficits
- Sensory Disturbances
- Mood Instability

Objective symptoms:
- Ataxia
- Dyssomnia

Maclean (2010)

Pathophysiological Process

Symptoms appear and get worse (progression) from the start. Relapses are rare. For those who experience relapses as well as progressive from the start, the term ‘progressive’ relapsing MS is used. Symptoms appear (relapse) then resolve, partially or fully (remission). Relapses last for at least 24 hours, but not commonly last for weeks or months. Remissions can last at least 24 hours and not caused by infection or any other known cause (McDonald et al, 2001). Symptoms appear with varying degrees, yet the complications of surgery, such as infection and hypothermia have the potential to trigger a relapse. The anesthesia provider must educate our patients to ensure they have the information necessary to make informed decisions about their health. It is our duty as healthcare providers to educate our patients so they have the information necessary to make informed decisions about their health. Postoperative complications and decreased risk of exacerbation of symptoms related to MS.

Significance of pathophysiology related to anesthesia:

The pathophysiological significance of MS is individuality. The severity of one individual’s symptoms ranges from very disabling to disease without symptoms, leading health care providers in their plan of treatment. The four conceptions that are thought to provoke a relapse of MS symptoms are, infection, the post partum period, high stress environments, and hypothermia (Ward-Abel et al, 2014). It is paramount that anesthesia providers conduct an extensive review of one’s surgical, medical and family history in order to create a safe plan for anesthesia. In combination with a detailed history, the nurse anesthetist (NA) must also conduct a thorough head to toe assessment. The physical assessment provides insight regarding physical functions, such as respiratory, cardiovascular, neurological or bowel complications that the individual may experience, which further guides the nurse anesthetist’s plan for anesthesia. Patient education is also vital to the prevention of MS relapse during the pre and postoperative phases.

Significance of pathophysiology related to anesthesia:

Types of MS

Primary progressive
- Relapsing-remitting
- Secondary progressive

Percentage of people
15%
85%
N/A

Types of Multiple Sclerosis

Primary progressive
- Relapsing-remitting
- Secondary progressive

Implications for Anesthesia

According to Schneider (2005), the stress of surgery and use of anesthetic agents will lead to an exacerbation of MS symptoms, yet the complications of surgery, such as infection and hypothermia have the potential to trig another relapse. The anesthesia provider must educate our patients to ensure they have the information necessary to make informed decisions about their health. It is our duty as healthcare providers to educate our patients so they have the information necessary to make informed decisions about their health. Postoperative complications and decreased risk of exacerbation of symptoms related to MS.

Nondepleting neuromuscular blocking agents have been proven to be safe for administration, but the effects can be prolonged or resistant depending upon age, the individual's degree of neuromuscular involvement (Schneider, 2005). Important considerations when discussing regional anesthesia, often used during labor and delivery, cesarean sections, and orthopedic cases is the use of epidural versus spinal approaches to anesthesia. Studies have shown that the use of spinal anaesthesia has led to exacerbations in MS symptoms along with having a higher risk of nerve damage (Schneider, 2005). Epidural anaesthesia and peripheral nerve blocks are safe, effective and are the preferred routes of regional anaesthesia, when caring for a patient with MS (Schneider, 2005). Lastly, bowel dysfunction is a major problem for some individuals with MS. It is well known that general anesthesia often creates a detrimental effect on bowel function. Consequently, it is important for the NA to ensure the patient is on a bowel regimen including antidiarrheals, stool softeners, and probiotics medications if needed.

In conclusion, Multiple Sclerosis is an autoimmune process leading to the demyelination of axons, which slows the conduction and transmission of nerve impulses throughout the body. A wide array of neuromuscular complications can occur secondary to neuronal damage. An anesthetic plan for each MS patient he or she encounters individually, depending on the patient's symptoms and degree of disease progression.

References


Additional Sources