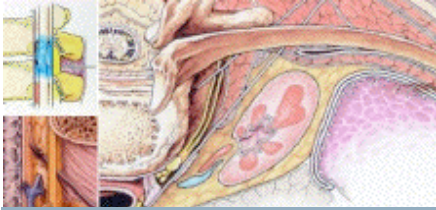


# AnesthesiaDotCalm



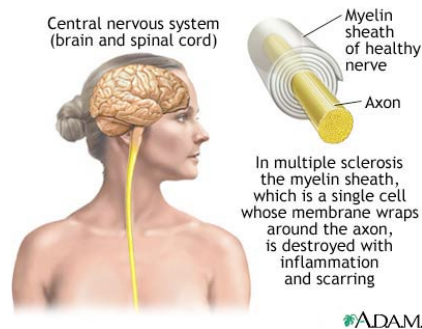
News You Can Use

## Insights Into Clinical Practice

### Regional Anesthesia and the Patient with Multiple Sclerosis

#### PATHOPHYSIOLOGY

Multiple Sclerosis is characterized by inflammation, demyelination, and axonal damage in the brain and spinal cord. As a consequence myelin is replaced by scar tissue or plaques. The disease begins when immune-mediated inflammation activates T cells and other immune mediators immune mediators, t cross the blood-brain barrier into the CNS and attack the oligodendrocytes. These cells produce myelin, the insulation surrounding the axons, which protects the axons and nerve fibers and enables nerve impulse transmission in the CNS. When oligodendrocytes are attacked, demyelination results and myelin is replaced by scar tissue, forming plaques throughout the CNS. With this damage to the myelin sheath, the ability to transmit and conduct nerve impulses along the spinal cord to the brain is disrupted. Nerve impulse transmissions become slowed, producing diminished function of the CNS, including muscle weakness, loss of coordination and balance, fatigue, cognitive impairments, and other symptoms characteristic of MS.



#### *Disagreement exists regarding the use of regional anesthesia.*

The National Multiple Sclerosis Society (NMSS) asserts that there is no reason for patients with MS to avoid the use of local anesthetics. In a study reported by the NMSS, of 98 patients with MS who received a total of more than 1,000 doses of local anesthetics, only 4 cases of exacerbations of MS were found following the administration of local anesthetics. <sup>1</sup>

With the young age and female predominance for MS, concerns about the use of regional anesthesia for labor and

delivery arise. Again, MS is most prevalent in women of childbearing age compared with any other group. In a study reported by the NMSS comparing pregnant women with MS who received or did not receive an epidural for labor and delivery, there were no differences in the number of relapses of MS following anesthesia between the 2 groups.

A case study described the successful use of epidural anesthesia for a cesarean section in a patient with [von Hippel-Lindau disease](#) and MS. The patient did not experience any neurological complications or exacerbations of MS following the use of epidural anesthesia. The authors of the case study concluded that the choice of anesthetic technique must be made on an individualized basis, including an evaluation of the extent of the disease proc-

ess and consideration as to the surgical procedure, circumstances surrounding the surgery, and desires of the patient.

It has been reported that the use of spinal anesthesia has resulted in exacerbations of MS, whereas epidural anesthesia and peripheral nerve blocks have not been implicated in postoperative exacerbations of MS. The explanation for this is unknown, but the demyelination that occurs with MS and the resulting lack of a protective nerve sheath around the spinal cord may increase the risk of neurotoxic effects from local anesthetics.

Epidural anesthesia results in a lower concentration of local anesthetic in the white matter compared with spinal anesthesia, thus decreasing this risk. This advantage of epidural anesthesia may decrease with repeated and continuous epidural administrations that may be required for the management of labor and delivery in a pregnant patient with MS. Overall, epidural anesthesia seems to be well tolerated in patients with MS, but spinal anesthesia is not always recommended due to concerns by some neurologists of a

greater risk of postoperative complications. Despite the differences of opinion about the safety and use of regional anesthesia in patients with MS, it is important to inform patients about the possibility of exacerbations of symptoms resulting from regional anesthesia and obtain informed consent before administration of regional anesthesia.

*The preceding was extracted from the article, "An overview of multiple sclerosis and implications for anesthesia" appearing in the June 2005 edition of the AANA Journal. A special thanks to its author Kristina M. Schneider, RN, MSN*

MS is most prevalent in women of childbearing age. Therefore, anesthesiologists may encounter patients with MS who require surgery and anesthesia related to pregnancy and childbirth. A prospective study of 254 women with MS during 269 pregnancies found that the frequency of relapses decreased during pregnancy, especially during the third trimester, and relapses increased during the first 3 months of the postpartum period compared with the year preceding pregnancy. One possible explanation for these findings is that MS is a [T cell-mediated](#) autoimmune disease, and a normal pregnancy is associated with a shift toward humoral immunity ([B-cell](#)) and away from cellular-mediated ([T cell](#)) immunity