

Options for Spine Treatments

Intraoperative Monitoring

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During spine surgery the attending surgeon may have to perform procedures that could potentially compromise neighboring nerves. This may involve removing pressure on the spinal cord or one or more spinal nerves. Surgical incisions may be required to separate abnormal tissues from adjacent nerve tissue. The spinal cord and/or spinal nerves may have to be physically manipulated and stretched maneuver and stretch neurological structures. In summary, spine surgery poses unique risks for injuring nerve tissues, even those procedures which are performed to treat nerve compromise.

There are various procedures which can be used to help guide the specialist during spine surgery. One of these procedures is referred to as intraoperative monitoring (IOM). IOM of nerve function can be performed during spine surgery to help reduce the risk of neurological compromise during surgery. Advanced technology is used to measure and record the speed, strength and quality of nerve signal transmission. Adverse changes in nerve function during surgery provide an effective warning signal to the surgeon and the surgical team. It provides the spine surgeon with an opportunity to adapt or modify the surgical procedure in an attempt to avoid nerve compromise and to maximize the potential for a good surgical outcome.

IOM has been shown to be particularly helpful during select spinal surgeries such as spinal lumbar fusion, scoliosis and spinal cord tumor resection. It is also very helpful during spinal fusion or stabilization procedures requiring the placement of one or more screws into bone near the spinal nerves. IOM can be used to help determine when a stabilization screw placed into the spine touches a nerve. In summary, IOM simply serves as an extra precaution to guide the surgeon and to help ensure the safety of the patient.

The most common methods of intraoperative monitoring performed during spine surgery include somatosensory evoked potential studies (SEP) and needle electromyographic studies (EMG). SEP studies are used to measure the function of nerves which carry sensory information whereas the needle EMG study is used to record motor nerve activity in muscles. The type of surgery will dictate the type of monitoring which should be considered.

Not all facilities have the capability to monitor of nerve function during spine surgery. This may be due to poor reimbursement or a lack of equipment and trained staffed. The use of IOM is more common within larger academic medical centers. Private hospitals tend to use IOM more selectively. Facilities with advanced spine surgery programs will use a neurologist/neurophysiologist to perform the procedure and to help identify problems during surgery.