

Selma H. Calmes, MD, Chairman and Professor
Department of Anesthesiology
Olive View - UCLA Medical Center
14445 Olive View Drive, 3A-113
Sylmar, California 91342-1495
Ph: (818) 364-4350 Fax: (818) 364-4775

University of California, Los Angeles

SUMMARY OF ANESTHESIA ISSUES FOR POST-POLIO PATIENTS:

Polio results in wide-spread neural changes, not just destruction of the spinal cord anterior horn (motor nerve) cells, and these changes get worse as patients age. These anatomic changes affect many aspects of anesthesia care. No study of polio patients having anesthesia has been done. These recommendations are based on extensive review of the current literature and clinical experience with these patients.

1. Post-polio patients are nearly always very sensitive to sedative meds, and emergence can be prolonged. This is due to central neuronal changes especially in the Reticular Activating System, from the original disease.

2. Non-depolarizing muscle relaxants cause a greater degree of block for a longer period of time in post-polio patients. The current recommendation is to start with half the usual dose of whatever you're using, adding more as needed. This is because the polio virus actually lived at the neuromuscular junctions during the original disease, and there are extensive anatomic changes there, even in seemingly normal muscles, which make for greater sensitivity to relaxants. Also, many patients have a significant decrease in total muscle mass. Neuromuscular monitoring intraop helps prevent overdose of muscle relaxants. Overdose has been a frequent problem.

3. Succinylcholine often causes severe, generalized muscle pain postop. It's useful if this can be avoided, if possible. There is no experience with Raplon yet.

4. Pain is often a significant issue. The anatomic changes from the original disease can affect pain pathways due to "spill-over" of the inflammatory response. Spinal cord "wind-up" of pain signals seems to occur. Proactive, multimodal postop pain control (local anesthesia at the incision plus PCA, etc) helps.

5. The autonomic nervous system is often dysfunctional, again due to anatomic changes from the original disease (the inflammation and scarring in the anterior horn "spills over" to the intermediolateral column, where sympathetic nerves travel). This can cause gastro-esophageal reflux, tach-yarrhythmias and, sometimes, difficulty maintaining BP when anesthetics are given.

6. Patients who use ventilators often have worsening of ventilatory function postop, and some patients who have not needed ventilation preop have had to go onto a ventilator (including long-term use) postop. The marker for real difficulty is thought to be a VC<1.0 liter. Such a patient needs good pulmonary preparation preop. Another ventilation risk relates to obstructive sleep apnea in the postop period. Many post-polios are turning out to have significant sleep apnea due to new weakness in their upper airway muscles as they age.

7. Positioning can be difficult due to body asymmetry. Affected limbs are osteopenic and can be easily fractured during positioning. There seems to be greater risk for peripheral nerve damage (includes a brachial plexus) during long cases, probably because nerves are not normal and also because peripheral nerves may be unprotected by the usual muscle mass or tendons.

Please feel free to call me (pager 818-529-0325, office 818-364-4350, email scalmes@dhs.co.la.ca.us) if you have any questions. This brief summary may not cover everything you want to know.

Selma Calmes, MD