Anesthetic Management of Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIDP) in a Pediatric Patient for Laparoscopic Appendectomy

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Case Description: A 15yo male with a PMHx of CIDP presented with acute appendicitis and was posted for a laparoscopic appendectomy. CIDP is characterized by symmetrical proximal and distal weakness with large fiber sensory loss, impaired balance, and areflexia [1]. It is rare in adults at 1-1.9 per 100,000 and more so in children at 0.48 per 100,000 [2]. There is scant literature of anesthetic management of CIDP in adults and none in pediatrics. Due to this gap in knowledge we offer this abstract.

Our patient’s initial symptoms of CIDP began 8 months prior to surgery when his football coach mentioned a decrease in his weight lifting ability. He was diagnosed 3 months later based on criteria of clinical presentation, electrodiagnostic testing, elevated CSF protein, and MRI [3]. Home meds are Prednisone 60mg PO q day. Physical exam revealed a 72kg 15yo male with stable VS. Neurologic exam showed paresthesias in both feet, grip strength 4/5 L hand and 5/5 R hand, dorsiflexion and plantar flexion 3/5 bilaterally, 1+ DTRs bilateral brachioradialis and absent DTRs bilateral achilles. Otherwise unremarkable physical exam.

Hours prior to surgery the pt. received Hydrocortisone 160mg IV and antibiotics. Before induction the patient gave vital capacity breaths with volumes of 2.6L using the ventilator. Induction was IV lidocaine 100mg, propofol 300mg, and fentanyl 250mcg, intubated in one attempt. Based on CIDP literature, no paralytic was given [4]. An infusion of remifentanil 0.3mcg/kg/min and isoflurane 1.6% was used for maintenance. Decadron 4mg IV was given. Surgery was laparoscopic with adequate muscle relaxation for facile removal of the appendix in 32 minutes. He remained hemodynamically stable and easy to ventilate throughout.

Pt. was extubated upon following commands and demonstrating tidal volumes >400mL. Neurological exam in the PACU was identical to the pre-op exam. The pt. was given IVIg X 3 and discharged home in stable condition with follow up by pediatric neurology.

Discussion: The main anesthetic consideration in a pediatric patient with CIDP is preservation of muscle strength. Paralytics should be avoided and regional anesthesia considered. Autonomic dysfunction is seen, but is mainly sudomotor and cardiovagal with adrenergic sparing, thus hemodynamic instability is not an increased concern [5]. Children have more frequent relapses compared to adults but respond better to therapy. Optimization with pre-op steroids and post-op IVIg is important [6]. Lastly, chronic steroids is the treatment of choice for CIDP. Patients should receive steroids pre or intra-op to avoid adrenal insufficiency. Side effects of weight gain and edema may impact airway management. Risk of osteoporosis warrants limitation of c-spine manipulation during intubation. Poor wound healing should prompt increased vigilance in sterile technique and appropriate dosing/scheduling of antibiotics.

Sources: