[NM-261] The Use of Dexmedetomidine in a Patient With Mastocytosis

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Purpose: Mastocytosis is a rare disorder characterized by mast cell proliferation, and is most common in children. 75% of cases occur during infancy or early childhood and usually resolve by puberty. While most cases involve cutaneous manifestations only, systemic mastocytosis can involve the bone marrow and any of the internal organs1. Clinical manifestations are believed to reflect the release of mast cell-derived mediators such as histamine, prostaglandins, heparin, neutral proteases, and acid hydrolases. Serious problems such as cardiovascular collapse, bronchospasm, and death have been reported during general anesthesia2, with many common anesthetic agents being reported as triggers.
Clinical features: A 3 year old, 16.4 kg child presented for right orchiopexy and bilateral myringotomy tube placement. During the post-operative period following right inguinal hernia repair at age 6 months, the patient was noted to develop a dark brown lesion on the skin. The lesion was biopsied and diagnosed as mastocytosis (urticaria pigmentosa), thought to be related to exposure to morphine. Anesthesia for this case consisted of pre-medication with oral midazolam (10mg), mask induction with a mixture of oxygen and nitrous oxide, IV placement, insertion of a laryngeal mask airway (LMA) for airway control, and maintenance with dexmedetomidine and propofol infusions. A caudal block was performed with 0.2% ropivacaine (20mg). The patient also received 30mg of intravenous hydrocortisone to reduce inflammation associated with mast cell release. For additional analgesic control, the patient was given intravenous acetaminophen 220mg and fentanyl 20mcg. The case proceeded uneventfully and the patient was transferred to the post-anesthesia care unit where his caudal block receded and was discharged home.
Discussion: Management of patients with mastocytosis may prove challenging for the anesthesiologist. Theoretically, routinely used anesthetic agents may be directly or indirectly associated with mast cell degranulation. Some of these agents include: lidocaine, morphine, oxymorphone, codeine, d-tubocurarine, etomidate, thiopental, succinylcholine, sevoflurane, and isoflurane2. Our literature search proved no existing documentation of the use of dexmedetomidine in such cases. This selective alpha-2-adrenergic agonist has little to no interaction with receptors involved with mast cell degranulation. Other benefits of dexmedetomidine include a safe cardiorespiratory profile, reduced intra-operative anesthetic requirements, and decreased post-operative analgesic needs3,4. We believe dexmedetomidine can be used safely in this population and is a superior agent due to its other benefits.

References:

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