[NM-208] Dexmedetomidine for Post-anesthesia Delirium in Children with Frequent Procedures

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It is not uncommon in pediatric anesthesia practice to see patients who need frequent procedures for certain chronic conditions. These children likely develop anxiety with inhalational induction and severe post-anesthesia delirium. We report three out of many cases at our institution that received dexmedetomidine with general anesthesia to prevent post-anesthesia delirium.

Case 1:

5-year-old female with esophageal stricture after chemical ingestion at 4 years old, scheduled for upper endoscopy and esophageal dilation every 3 weeks. She received general anesthesia with inhalational induction (nitrous oxide + sevoflurane), endotracheal intubation and maintenance with sevoflurane. Intra-operative analgesics included fentanyl and IV Ofirmev. After 3 months of therapy, she was still cooperative with inhalational induction but experienced severe post-anesthesia delirium for at least 3 hours despite pre-operative midazolam. Dexmedetomidine was applied to her subsequent visits. After inhalational induction and IV placement, a bolus of 1 mcg/kg over 20 minutes followed by infusion of 0.2 mcg/kg/h was administered until the procedure concluded. Patient rested peacefully in PACU then woke up calmly and was discharged home when criteria were met.

Case2:

A female with conduction hearing loss underwent cochlear implant at 3 years old. She had a bad experience with mask induction and became terrified of face mask. She returned for cochlear implant revision at 4 years old. At this time she refused face mask and volunteered for awake IV placement. IV induction with midazolam, fentanyl and propofol was administered uneventfully. Despite a large dose of fentanyl 10 mcg/kg intra-operatively and deep extubation, she had severe post-anesthesia delirium which lasted 1 hour. She happened to return to the OR 4 more times in the following 2 years for tympanomastoidectomy and tympanoplasty in the other ear. Each time she received IV induction with midazolam and propofol then large dose of narcotics intra-operatively. The first 2 times she experienced severe post-anesthesia delirium for at least an hour. Dexmedetomidine was added to her intra-operative regimen for the last 2 procedures with a bolus of 1 mcg/kg over 20 minutes then infusion of 0.2 mcg/kg/h. She experienced smooth emergence both times and did not require opioids for analgesia in PACU.

Case 3:

7-year-old male born at 24 weeks post-conception, was intubated in NICU for 3 months and had tracheostomy for subglottic stenosis. He had direct laryngoscopy and bronchoscopy multiple times with airway procedures such as balloon dilatation, airway stenting, laryngotracheal reconstruction. He received inhalational induction with sevoflurane through tracheostomy tube then general anesthesia with sevoflurane and additive propofol infusion for airway procedures. Despite premedication with midazolam, he always had severe post-anesthesia delirium which lasted at least 2 hours. Dexmedetomidine was added with bolus of 1 mcg/kg over 20 minutes and infusion of 0.2 mcg/kg/h intraoperatively, providing smooth emergence and peaceful recovery in the last 4 procedures.
