The Use of Dexmedetomidine for Sedation and Biopsy in a Pediatric Patient with a Symptomatic Anterior Mediastinal Mass

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Discussion:
The use of dexmedetomidine for IV MAC sedation provides significant analgesia and sedation without the respiratory depressant effects associated with propofol (Candiotti). Given the risks of general anesthesia in patients with anterior mediastinal masses, “deep” sedation in a patient who is breathing spontaneously – supplemented by “local” anesthesia - is the safest anesthetic plan for this type of diagnostic procedures. Keeping the pediatric patient comfortable without compromising ventilation remains a clinical challenge, but we believe DEX offers significant advantages for this procedure.


Case Report: A 15-year old, 65-kg male with an anterior mediastinal mass scheduled for a cervical lymph node biopsy and Broviac catheter insertion. The patient had limited exercise tolerance and increasing stridor with activity. The patient was able to lie flat in bed without coughing but preferred an elevated position for his head. Echocardiogram and pulmonary function tests were normal. The CT scan of the thorax revealed a trachea that was >90% stenosed at the level of the thoracic inlet with disease involvement down to 2 cm above the carina. Radiologic interpretation of the chest CT confirmed “a large middle and superior mediastinal soft-tissue mass representing a conglomerate of lymph nodes and causing severe effacement of the trachea.” In developing an anesthetic plan we decided to try to avoid general anesthesia because of the risk of airway collapse. The patient and family were involved in this discussion and consented to sedation with local anesthesia while maintaining spontaneous respiration. In view of the severe airway compression ECMO standby was available. After standard ASA monitors were applied, nasal cannula O2 at 3 liters/min was administered and the patient positioned with the back of the table elevated 15 degrees. The patient received midazolam 2mg IV and fentanyl 25 g IV. The main anesthetic was a dexmedetomidine (DEX) infusion dosed at 0.5 g/kg over 10 minutes and then 0.5 g/kg/h. Ketamine 25 mg IV and an additional fentanyl 25 g IV were used for supplementation. The surgeon infiltrated the field with “local.” During the more stimulating portion of the procedure, the DEX infusion was increased to 0.7 g/kg/h without causing respiratory compromise.

The patient was comfortable throughout the procedure and maintained a respiratory rate of 14-18 breaths/min and an O2 sat > 98%. The patient was monitored in the PACU and discharged to the floor without complication. The biopsy confirmed a diagnosis of Hodgkin’s lymphoma.