IntraNASAL Dexmedetomidine (Precedex) 100mcg/ml

About:

- MOA: Selective alpha$_2$-adrenoceptor agonist with anesthetic and sedative properties
- Induces a state mimicking natural sleep. While sedated, respiration is minimally affected and patients remain rousable
- Side effects are mainly hemodynamic: hypotension, and bradycardia due to activity on alpha-2 adrenergic receptors causing vasoconstriction (alpha 2B), vasoldilation (alpha 2A), bradycardia. Additionally, can decrease sinus and atrioventricular nodal function in pediatric patients.
- Provides both sedative, anxiolytic, and analgesic sparing properties
- Dexmedetomidine is tasteless, odorless, and painless, not noxious to the nasal mucosa

Uses:

- Excellent drug for non-painful procedures such as imaging (MRI/CT)
- Less ideal for painful procedures since it induces a “natural sleeplike state”

Contraindications:

- The following medical conditions are contraindications for the use of dexmedetomidine as moderate procedural sedation. Presence of these conditions indicates the need for an anesthesiology consult prior to sedation.
    - active, uncontrolled gastroesophageal reflux or vomiting - an aspiration risk
    - current (or within past 3 months) history of apnea requiring an apnea monitor
    - active current respiratory issues that are different from the patient's baseline status (e.g. pneumonia, asthma exacerbation, bronchitis, respiratory syncytial virus)
    - unstable cardiac status (life threatening arrhythmias, abnormal cardiac anatomy, significant cardiac dysfunction) - exceptions can be made on a case by case review for children undergoing cardiac heart catheterizations or echocardiograms
    - craniofacial anomaly which could hinder effectively establishing a mask airway for positive pressure ventilation if needed
    - current use of digoxin
    - Moya Moya disease
    - r/o or new onset stroke (< 6 months prior to sedation)
    - impaired cerebral vasculature regulation and intracranial vascular malformations
    - uncontrolled hypertension
    - patients < 3months of age

Dosing: 3 mcg/kg

- Consider supplementing with IN Midazolam if needed after 30 mins

Administration:

- At least 30 minutes prior to anxiety provoking procedure
- Longer onset time but longer duration overall
- Onset: 35-45 minutes
- Duration of action: Dose dependent; 1mcg/kg dose 45 minutes (Range 40-100 minutes) and 2mcg/kg dose 95 minutes (range 45-135 minutes)

Side effects:

- Bradycardia
- Hypotension
- Prolonged sleeping/wake time

Monitoring:

- Assessment
    - Assess the following prior to administration, every 5 minutes throughout the procedure, then every 15 minutes until patient returns to pre-sedation level of consciousness:
        - vital signs, including heart rate, blood pressure, respiratory rate
        - oxygen saturation
        - end tidal CO_2 ($ETCO_2$)

KEY POINT:	If necessary, monitors may be sequentially applied as the patient becomes more sedated. Pulse oximeter should be the first monitor applied. Blood pressure must be measured and recorded every 5 minutes throughout the sedation.

    a. Assess arousal score

- Notify physician or licensed practitioner
    - immediately if the patient develops hemodynamic instability at anytime during the sedation.
    - non-sinus bradycardia or sinus bradycardia associated with significant hypotension

WARNING:	Sinus bradycardia is a common side effect, but non-sinus bradycardia or sinus bradycardia associated with significant hypotension requires immediate physician or licensed practitioner evaluation and discontinuation of the bolus or infusion.

    - RR 30% < baseline
    - systolic BP 20% change from baseline
    - diastolic BP 20% change from baseline

Safety:

- Ensure the following resuscitative equipment is available in the sedation room prior to administration:
    - suction source and Yankauer suction catheter
    - appropriate size face mask and manual ventilation bag (MVB)
    - oxygen source (capable of delivering 15L/min for a minimum of 60 minutes)
- Ensure an emergency code cart is easily accessible in the procedure suite.