

Pediatric IntraNASAL Medications

Dexmedetomidine (Precedex): - MOA: Selective alpha-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), vasodilation (alpha 2a), bradycardia. Additionally, can decrease sinus and atrioventricular nodal function in pediatric patients.
- Can be used in patients \geq 6 months of age
- Provides, sedative, anxiolytic, and analgesic sparing properties

FentaNYL: - Synthetic opioid that can provide rapid analgesia for patients with acute pain.

- Safe and efficacious in managing orthopedic injuries, burn wounds, post op pain, dental pain, and I&Ds.
- Adverse effect profile similar to oral and IV opioids
- Show to be equally effective as IV morphine in pediatric patients presenting with long-bone fractures
- Faster time to administration

Ketamine: - is a phencyclidine (PCP) derivative that antagonizes the N-methyl-D-aspartate receptor (NMDA-r) to provide sedative and analgesic effects.

- Rarely causes respiratory depression
- Utilized intranasal route to achieve a lighter, sub-dissociative sedation.
- Ketamine has been shown to be as effective as fentanyl when administered intranasally, although with greater rates of mild and well-tolerated side effects
- Ideal management of patients who are opioid tolerant or who are at higher risk of hypotension (e.g. trauma patients)

Midazolam: - is a benzodiazepine with anxiolytic and amnestic properties.

- Does not have analgesic properties
- Midazolam may cause nasal burning and mucosal irritation

	Dexmedetomidine (Precedex)	FentaNYL	Ketamine	Midazolam (Versed)
Dose	1-3 mcg/kg, titrate by 0.5mcg/kg to effect	1 – 2 mcg/kg (Max dose: 100mcg)	2-4 mg/kg <i>(*Note concentration: 100mg/ml)</i>	0.2-0.5 mg/kg Max dose: 10 mg)
Properties	Sedative, Anxiolytic, Analgesic	Analgesic	Analgesic, Amnesic	Anxiolytic, Amnesic *NOT analgesic
Uses	Laceration repair, lumbar puncture, Intravenous Insertion, venipuncture, Imaging: CT or MRI, procedures of anticipated duration < 45 mins	Pain control, orthopedic trauma, burn wounds, post operative pain, dental extractions, I&Ds	Minor procedures, pain control, laceration repairs, imaging studies	Laceration repairs, foreign body removal, minor procedures, imaging studies
Onset/Peak	35-45 minutes	10-15 minutes	5-10 minutes	5-10 minutes
Duration of Action:	Dose dependent (45-95 minutes)	< 50 minutes	40 minutes	Dose dependent 21 to 60 minutes
Side Effects	Bradycardia, hypotension, prolonged sleeping/wake time	Nausea, vomiting, pruritus, respiratory depression	Nausea, dizziness, unpleasant taste, sub-dissociation	Mucosal irritation, Drowsiness
Contraindications	Cardiac anomalies, bradycardia at baseline, hypotension at baseline, concomitant use of sympatholytic agents	Presence of choanal atresia, nasal mucosal erosion, epistaxis, hypersensitivity to opioids	Infants < 12 months. Current significant respiratory illness, known difficult airway, cardiac anomalies, psychosis/schizophrenia	Epistaxis or bilateral blocked nares, known hypersensitivity to midazolam, unstable hemodynamics or altered LOC