

POLICY

BACKGROUND

Dexmedetomidine (Precedex[®], Hospira Healthcare) is a highly selective alpha-2 adrenergic agonist with sedative, anxiolytic and analgesic effects. It has the unique advantage of producing sedation with minimal respiratory compromise even at higher doses. It is opioid and anesthetic sparing, reduces the stress response to intubation and provides smoother extubation conditions. It can also be used to prevent and treat emergence delirium and post-operative shivering. It has wide ranging clinical applications [1, 2] and its use is likely to increase owing to its favorable side effect profile. The most common side effects observed are hypertension, hypotension and bradycardia [3], although these are usually transient and rarely require intervention.

INDICATIONS IN PACU

- Sedation post cardiac catheterization.
- Sedation following any surgery where dexmedetomidine has been infused intra-operatively.
- Emergence delirium or postoperative shivering.
- Any other indication as per anesthesiologist's request.

PROCEDURE

PREPARATION AND ADMINISTRATION

- **CHECK** chart for physician's pre-printed order for dexmedetomidine Infusion.
 - The order must specify the patient's weight, infusion dosage in micrograms/kilogram/hour and a range, special monitoring requirements and parameters for instituting emergency procedures.
1. Standard concentration: 4 mcg/mL.
 2. Standard patient specific labeling: Patient name, MRN number or birthdate; drug name; drug concentration; physician's name; date and time.
 3. PACU staff will use syringe prepared by pharmacy and stocked in Pyxis or syringe prepared by anesthesia, providing it is a standard concentration of 4 mcg/mL, and the syringe is labeled properly (as above).
 4. Recommended dose range is 0.2 - 0.7 mcg/kg/hr. In some clinical situations, doses other than these may be appropriate. (eg. Patient was stabilized on a higher dose).
 5. Follow BCCH nursing policy re: Medication Administration – General (NM-001-3) and Medication Administration: Syringe delivery (PT 006).
 6. Any other medication boluses must take be administered at the patient connection to avoid inadvertent dexmedetomidine bolus.

WARNING: Simultaneous administration of opioids, tranquilizers, hypnotics or sedatives via IV or other routes may have a synergistic effect causing increased sedation, respiratory depression or hemodynamic compromise.

MONITORING GUIDELINES

1. Only staff anesthesiologists may order dexmedetomidine infusions, using pre-printed orders. PACU staff cannot accept the patient if the orders are not given, or if the syringe is not labeled properly.
2. No rescue intermittent boluses are allowed with dexmedetomidine infusions unless administered by an anesthesiologist, who must remain in attendance for 10 minutes after the bolus.
3. 1:1 nursing only while on the dexmedetomidine infusion.

4. Vital signs (HR, RR, BP) as per PACU policy plus continuous ECG, oximetry, and capnography via nasal prongs (if tolerated).
5. The anesthesiologist is responsible for managing the efficacy and adverse effects of the prescription. Notify anesthesia if concerns re: changes in sedation level or vital signs (see below for parameters)
6. Parental presence is permitted during dexmedetomidine infusion.
7. Patient must remain in PACU for 15 min post discontinuation of infusion, with a final set of vital signs (HR, RR, BP, T) prior to discharge. Pt must meet PACU discharge criteria as per PACU policy.

Recommended parameters for prompting review by staff anesthesiologist:

- HR less than 50 bpm or greater than 30% change from initial HR on admission to PACU
- MAP increase /decrease by greater than 30% from initial MAP on admission to PACU
- SpO₂ less than 92% in room air, or less than 95% in O₂
- ETCO_2 trace absent, abnormal, signs of airway obstruction or RR less than 8 breaths/min

Recommended parameters for instituting emergency procedures:

- HR decreases by greater than 50% from initial HR on admission to PACU
- MAP decreases / increases greater than 50% from initial MAP on admission to PACU
- Unable to rouse patient

EMERGENCY PROCEDURES

STOP DEXMEDETOMIDINE INFUSION, CALL CODE BLUE, BEGIN RESUSCITATION PROCEDURES.

REFERENCES

1. Yuen, V.M., *Dexmedetomidine: perioperative applications in children*. Paediatr Anaesth, 2010. **20**(3): p. 256-64.
2. Mason, K.P. and J. Lerman, *Review article: dexmedetomidine in children: current knowledge and future applications*. Anesth Analg, 2011. **113**(5): p. 1129-42.
3. Available from: <http://www.precedex.com/dosing/dosing-basics/>.