dexmedetomidine (dex-me-de-to-mi-deen)

Precedex

Classification
Therapeutic: sedative/hypnotics
Pregnancy Category C

Indications
Sedation of intubated and mechanically ventilated patients during treatment in an intensive care setting; should not be used for 24 hr. Sedation of non-intubated patients before and/or during surgical and other procedures.

Action
Acts as a relatively selective alpha adrenergic agonist with sedative properties. Therapeutic Effects: Sedation.

Pharmacokinetics
Absorption: IV administration results in complete bioavailability.
Distribution: Unknown.
Protein Binding: 94%.
Metabolism and Excretion: Mostly metabolized by the liver, some metabolism by P450 enzyme system. Metabolites are mostly excreted in urine.
Half-life: 2 hr.

TIME/ACTION PROFILE (sedation)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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<tbody>
<tr>
<td>IV</td>
<td>rapid</td>
<td>unknown</td>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity. Use Cautiously in: Hepatic impairment (lower doses may be required); Advanced heart block; Severe left ventricular dysfunction; Geri: q risk of bradycardia and hypotension (consider dose); OB, Lactation, Pedi: Safety not established.

Adverse Reactions/Side Effects
Other: • Cardiac drug interaction (see warning). • Cautious use in hepatic impairment; consider dose reduction.

Interactions
Drug-Drug: Sedation is enhanced by anesthetics, other sedative/hypnotics, and opioid analgesics.
Drug-Natural Products: Concomitant use of kava-kava, valerian, skullcap, chamomile, or hops can ↑ CNS depression.

Route/Dosage
ICU Sedation
IV (Adults): Loading infusion—1 mcg/kg over 10 min followed by maintenance infusion of 0.2–0.7 mcg/kg/hr for maximum of 24 hr; rate is adjusted to achieve desired level of sedation.
IV (Children): Loading infusion 0.5–1 mcg/kg followed by maintenance infusion (1–2 mcg/kg/hr). Children <1 yr may require higher end of infusion rate.

Procedural Sedation
IV (Adults): Loading infusion—1 mcg/kg (0.5 mcg/kg for ophthalmic surgery or patients ≥65 yr) over 10 min followed by maintenance infusion of 0.6 mcg/kg/hr; rate is adjusted to achieve desired level of sedation (usual range 0.2–1 mcg/kg/hr) (maintenance infusion of 0.7 mcg/kg/hr recommended for laryngeal mask intubation until endotracheal tube secured).

NURSING IMPLICATIONS
Assessment
● Monitor level of sedation throughout therapy. Dose is adjusted based on level of sedation.
● Monitor ECG and BP continuously throughout therapy. May cause hypotension, bradycardia, and sinus arrest.

Potential Nursing Diagnoses
Anxiety (Indications)

Implementation
● Dexmedetomidine should be administered only in intensive care settings with continuous monitoring.

NURSING CONSIDERATIONS

- Cardiac drug interaction (see warning).
- A loading dose may not be required when converting patient from another sedative.

Discontinued.
Continuous Infusion: Diluent: To prepare infusion, withdraw 2 mL of dexmedetomidine and add to 48 mL of 0.9% NaCl for a total of 50 mL. Concentration: 4 mcg/mL. Shake gently. Solution should be clear; do not administer solutions that are discolorred or contain particulate matter. Ampules and vials are for single use only.

Rate: Administer loading infusion over 10 minutes, followed by maintenance of 0.2–0.7 mcg/kg/hr for ICU sedation and 0.2–1.0 mcg/kg/hr for procedural sedation. Adjust dose to achieve desired level of sedation. Administer via infusion pump to ensure accurate rate.

Y-Site Compatibility:
- 0.9% NaCl
- 20% mannitol
- acetylsalicylic acid
- allopurinol
- amifostine
- amiodarone
- amikacin
- aminophylline
- amphotericin B liposome
- ampicillin
- ampicillin/sulbactam
- anidulafungin
- argatroban
- atracurium
- atropine
- azithromycin
- aztreonam
- bivalirudin
- bleomycin
- bumetanide
- buprenorphine
- busulfan
- butorphanol
- calcium chloride
- calcium gluconate
- carboplatin
- carmustine
- caspofungin
- cefazolin
- cefepime
- cefoperazone
- cefotaxime
- cefoxitin
- ceftazidime
- chlorpromazine
- ciprofloxacin
- cisatracurium
- cisplatin
- clindamycin
- cyclophosphamide
- cyclosporine
- cytarabine
- dacarbazine
- dactinomycin
- daptomycin
- daunorubicin hydrochloride
- D5W
- dexamethasone
- dexrazoxane
- digoxin
- diltiazem
- diphenhydramine
- diphtheria toxoid
- dobutamine
- doxetaxel
- doxapram
- doxacurium
- dopamine
- doxorubicin hydrochloride
- doxycycline
- droperidol
- enalaprilat
- ephedrine
- epinephrine
- ertapenem
- erythromycin
- esmolol
- etomidate
- etoposide
- etoposide phosphate
- famotidine
- fenoldopam
- fentanyl
- fluconazole
- fludarabine
- fluorouracil
- foscarnet
- fosphenytoin
- furosemide
- gancyclovir
- gemcitabine
- gentamicin
- glycopyrrolate
- granisetron
- haloperidol
- heparin
- hydrocortisone
- hydromorphone
- idarubicin
- ifosfamide
- imipenem/cilastatin
- insulin
- isoproterenol
- isoflurane
- ivabradine
- lidoceain
- lidocaine
- linezolid
- lorazepam
- magnesium sulfate
- mannitol
- methylprednisolone
- mesna
- methotrexate
- methylprednisolone
- metoclopramide
- metoprolol
- metronidazole
- midazolam
- milrinone
- mitomycin
- mitoxantrone
- morphine
- mycophenolate
- nalbuphine
- naloxone
- nafarelin
- nandrolone
- nesiritide
- nicardipine
- nitroglycerin
- nitroprusside
- norepinephrine
- octreotide
- ondansetron
- oxaliplatin
- oxacillin
- oxaprazin
- oxytocin
- paclitaxel
- palonosetron
- pancuronium
- pemetrexed
- pentamidine
- pentobarbital
- phenobarbital
- phenylephrine
- piperacillin/tazobactam
- plasma substitute
- potassium acetate
- potassium chloride
- potassium phosphate
- prochlorperazine
- promethazine
- propofol
- propranolol
- quinupristin/dalfopristin
- ranitidine
- remifentanil
- rocuronium
- sodium acetate
- sodium bicarbonate
- sodium phosphates
- vincristine
- vinorelbine
- voriconazole
- zidovudine
- zoledronic acid.

Y-Site Incompatibility:
- amphotericin B colloidal
- amphotericin B lipid complex
- blood
- diazepam
- irinotecan
- pantoprazole
- plasma
- phenytoin.

Patient/Family Teaching
- Explain to patient and family the purpose of the medication.

Evaluation/Desired Outcomes
- Isolation for 48–72 hr.
- Why was this drug prescribed for your patient?