vasopressin

**Dosing**

**Route**

**Adults**

**IM, Subcut**

- 5–10 units 2–4 times daily.

**IV**

- 0.0005 units/kg/hr, double dosage q 30 min as needed to a maximum of 0.01 units/kg/hr.

**Children**

- 2.5–10 units 2–4 times daily.

**Pulseless VT/VF, Asystole, or PEA (ACLS guidelines)**

- 40 units as a single dose (unlabeled).

**Vasodilatory shock**

- 0.01–0.1 units/min, titrate to effect.

**GI Hemorrhage**

- 0.2–0.4 units/min then titrate to maximum dose of 0.9 units/min; if bleeding stops continue same dose for 12 hr then taper off over 24–48 hr.

**Children**

- 0.002–0.005 units/kg/min then titrate to maximum dose of 0.01 units/kg/min, if bleeding stops continue same dose for 12 hr then taper off over 24–48 hr.

**Diabetes insipidus**

- 1 unit/kg/day divided twice daily.

**Precautions**

- Use cautiously in: Perioperative polyuria (increased sensitivity to vasopressin); Renal failure; Interstitial cystitis; Malignancy; Malignant hypertension; Hypertension; History of cardiac arrhythmia; Cardiac disease; Portal hypertension; Peptic ulcer disease; Seizures; Migraine headaches; Asthma; Heart failure; Cardiovascular disease; Renal impairment; Pulmonary edema; Shock; Alcohol withdrawal; Cerebrovascular accident; Pregnancy (Category C).

**Contraindications**

- Hypersensitivity to desmopressin or to the vehicle; Pregnancy (Category C).

**Adverse Reactions/Side Effects**

**CNS:** Headache, dizziness, “pounding” sensation in head.

**CV:** MI, angina, chest pain, palpitation, ECG changes.

**GI:** Diarrhea, abdominal cramps, belching, nausea.

**Derm:** Paleness, perioral blanching, sweating.

**Respiratory:** Tachypnea, respiration distress.

**Other:** Allergic reactions, fever, water intoxication (higher doses).

**Interactions**

- **Drug-Drug:** Antidiuretic effect may be increased by concurrent administration of alcohol, lithium, methyldopa, or norepinephrine. Antidiuretic effect may be decreased by concurrent administration of dimenhydrinate, chlorpropamide, clofibrate, clonidine, or fludrocortisone. Vasopressor effect may be increased by concurrent administration of ganglionic blocking agents.

**DOSAGE AND ADMINISTRATION**

- **Diabetes insipidus**
  - **IM, Subcut**(Adults): 5–10 units 2–4 times daily.
  - **IV**(Adults and Children): 0.0005 units/kg/hr, double dosage q 30 min as needed to a maximum of 0.01 units/kg/hr.
  - **Children**: 2.5–10 units 2–4 times daily.

- **Pulseless VT/VF, Asystole, or PEA (ACLS guidelines)**
  - **IV**(Adults): 40 units as a single dose (unlabeled).
  - **Children**: 0.002–0.005 units/kg/min then titrate to maximum dose of 0.01 units/kg/min, if bleeding stops continue same dose for 12 hr then taper off over 24–48 hr.

- **Vasodilatory shock**
  - **IV**(Adults): 0.01–0.1 units/min, titrate to effect.
  - **Children**: 0.0005–0.001 units/kg/min, titrate to effect.

- **GI Hemorrhage**
  - **IV**(Adults): 0.2–0.4 units/min then titrate to maximum dose of 0.9 units/min; if bleeding stops continue same dose for 12 hr then taper off over 24–48 hr.
  - **Children**: 0.002–0.005 units/kg/min then titrate to maximum dose of 0.01 units/kg/min, if bleeding stops continue same dose for 12 hr then taper off over 24–48 hr.

- **Hypertensive crisis**
  - **IV**(Adults): 1 unit/kg/hr then titrate to maximum dose of 12 units/kg/hr, if hypertension continues same dose for 12 hr then taper off over 24–48 hr.

**Pharmacokinetics**

**Absorption:** Absorption may be unpredictable.

**Distribution:** Widely distributed throughout extracellular fluid.

**Metabolism and Excretion:** Rapidly degraded by the liver and kidneys; 5% excreted unchanged by the kidneys.

**Half-life:** 10–20 min.

**TIME/ACTION PROFILE (antidiuretic effect)**

- **ROUTE**
  - **ONSET**
  - **PEAK**
  - **DURATION**
  - **IV**
    - unknown
    - unknown
    - 2–8 hr

**Indications**

- Central diabetes insipidus due to deficient antidiuretic hormone.

**Unlabeled Use:**

- Management of pulseless VT/VF unresponsive to initial shocks, asystole, or pulseless electrical activity (PEA) (ACLS guidelines).
- Vasodilatory shock.
- Gastrointestinal hemorrhage.

**Action**

- Alters the permeability of the renal collecting ducts, allowing reabsorption of water.

**Directly stimulates musculature of GI tract. In high doses acts as a nonadrenergic peripheral vasoconstrictor.**

**Therapeutic Effects:**

- Decreased urine output and increased urine osmolality in diabetes insipidus.

**Genetic Implication.**

- STR indicates life-threatening, underlines indicate most frequent, strikethrough indicates discontinued.

**Pregnancy Category C.**

**Classification**

- **Therapeutic:** hormones
  - **Pharmacologic:** antidiuretic hormones

**Class/Category:** Genetically engineered human hormone

**Canadian drug name:**

- Desmopressin acetate (nasal solution)
NURSING IMPLICATIONS

Assessment
- Monitor BP, HR, and ECG periodically throughout therapy and continuously during cardiopulmonary resuscitation.

Diabetes Insipidus:
- Monitor urine osmolality and urine volume frequently to determine effects of medication.
- Assess patient for symptoms of dehydration (excessive thirst, dry skin and mucous membranes, tachycardia, poor skin turgor).
- Weigh patient daily, monitor intake and output, and assess for edema.

Lab Test Considerations:
- Monitor urine specific gravity throughout therapy.

Toxicity and Overdose:
- Signs and symptoms of water intoxication include confusion, drowsiness, headache, weight gain, difficulty urinating, seizures, and coma.
- Treatment of overdose includes water restriction and temporary discontinuation of vasopressin until polyuria occurs. If symptoms are severe, administration of mannitol, hypertonic dextrose, furosemide may be used.

Potential Nursing Diagnoses
Deficient fluid volume (Indications)
Excess fluid volume (Adverse Reactions)

Implementation
- Aqueous vasopressin injection may be administered subcut or IM for diabetes insipidus.
- Administer 1–2 glasses of water at the time of administration to minimize side effects (blanching of skin, abdominal cramps, nausea).

IV Administration
- pH: 2.5–4.5.
- Direct IV Administration: Concentration: 20 units/mL.
- Continuous Infusion: Concentration: 0.4 units/mL.
- Y-Site Compatibility:
- Y-Site Incompatibility:
- Patient/Family Teaching
- Instruct patient to take medication as directed. Consult patient not to use more than prescribed amount. Take missed doses as soon as remembered, unless almost time for next dose.
CONTINUED

vasopressin

- Advise patient to drink 1–2 glasses of water at time of administration to minimize side effects (blanching of skin, abdominal cramps, nausea). Inform patient that these side effects are not serious and usually disappear in a few minutes.
- Caution patient to avoid concurrent use of alcohol while taking vasopressin.
- Patients with diabetes insipidus should carry identification at all times describing disease process and medication regimen.

Evaluation/Desired Outcomes

- Decrease in urine volume.
- Relief of polydipsia.
- Increased urine output in patients with central diabetes insipidus.
- Resolution of VT/VF.
- Improvement in signs of septic shock.

Why was this drug prescribed for your patient?