CLOVIDINE (klo-ve-dye)
Category: Antihypertensive
Therapeutic: Antihypertensive
Pharmacologic: Central alpha-adrenergic receptor agonist
Pregnancy Category C

Indications
PO, Transdermal: Mild to moderate hypertension. PO: Dilation of dilated hyperactive vessels in disorders such as diabetic retinopathy or as an additive in sinuses (Kapvay only).

Action
Stimulates alpha adrenergic receptors in the CNS, which results in decreased sympathetic outflow inhibiting cardiac stimulation and vasoconstriction centers. Prevents pain signal transmission to the CNS by stimulating alpha-adrenergic receptors in the spinal cord.

Pharmacokinetics
Absorption: Well absorbed from the GI tract and skin. Enters systemic circulation following sublingual administration. Some absorption follows sublingual administration.
Distribution: Widely distributed. Enters CNS readily, enters breast milk in high concentrations.
Metabolism and Excretion: Mostly metabolized by the liver; 40–60% eliminated unchanged in urine.
Half-life: Neonates—44–72 hr; Children—12–18 hr; Adults—12–16 hr [in renal impairment]. CNS—5.1 hr.

Drug-Drug Interactions
Additive sedation with CNS depressants, including alcohol, antihistamines, opioid analgesics, and sedative-hypnotics. Additive hypotension with other antihypertensives and nitrates. Additive blockade with beta blockers, diluents, vasoconstrictors, or digoxin. MAO inhibitors, amphetamines, cyclosporine, and tricyclic antidepressants may increase antihypertensive effect. Withdrawal phenomenon may be by discontinuation of beta blockers. Epidural clonidine prolongs the effects of epidurally administered local anesthetics. May antagonize effects of benzodiazepines.

Contraindications/Precautions
Contraindicated in: Hypersensitivity. Epidural—intracranial injection, infection, antiretroviral therapy, or blocking problems.
Use Cautiously in: Severe cardiac or cerebrovascular disease. Renal insufficiency. Safety and efficacy not established for ADHD in children. Use with caution in patients with severe hepatic impairment.

Adverse Reactions/Side Effects
CNS: Drowsiness, depression, dizziness, hallucinations, nervousness, nightmares.
CV: Bradycardia, hypotension (when epidural), palpitations, tachycardia, NVH (with epidural), syncope, syncope.
GU: Dry mouth, constipation, nausea, vomiting, uterine dyskinesia.
Derm: rash, sweating.
EENT: Dry eyes.
Neuromuscular &pray
P: Paralysis.
GI: Diarrhea.
Misc: Weight gain.

Monitoring Parameters: Weight, blood pressure, pulse, heart rate, urine output, symptoms of pheochromocytoma (diaphoresis, tachycardia, hypertension).

Route/Dosage
PO (Adults and Adolescents 12 yr+): Hypertension (immediate-release) 100 mg (1 mg) BID: 350 mg (3.5 mg) total has been administered, follow with maintenance drug. Epidural administration (immediate-release) 200–200 mg (2 mg) loading dose, then 100 mg (1 mg) q 4 hr until BP is controlled or 600 mg (6 mg) total has been administered; follow with maintenance drug. Epidural administration (immediate-release) 300–300 mg (3 mg)– 2–4 mg/day may be by 50%/day for 3 days, then discontinued or by 350–200 mg (3.5–2 mg) q 4 hr. PO (Geriatric Patients): Hypertension (immediate-release) — 200 mg (1 mg) at bedtime initially, then increased.

Discontinued.
PO (Children): Hypertension (immediate-release)—Initial 5–10 mcg/kg/day divided BID-TID; then 7.5–15 mcg/kg/day divided BID-TID in divided doses q 8 hr; maximum dose 0.9 mg/day. ADHD (extended-release) (children 6 yr) — 0.1 mg once daily at bedtime; after 1 wk, 0.15 mg once daily; after 1 wk, 0.2 mg once daily; after 1 wk, 0.3 mg once daily; after 1 wk, 0.4 mg once daily; after 1 wk, 0.5 mg once daily; after 1 wk, 0.6 mg once daily; after 1 wk, 0.7 mg once daily; after 1 wk, 0.8 mg once daily; after 1 wk, 0.9 mg once daily; after 1 wk, 1.0 mg once daily; after 1 wk, 1.1 mg once daily; after 1 wk, 1.2 mg once daily; after 1 wk, 1.3 mg once daily; after 1 wk, 1.4 mg once daily; after 1 wk, 1.5 mg once daily; after 1 wk, 1.6 mg once daily; after 1 wk, 1.7 mg once daily; after 1 wk, 1.8 mg once daily; after 1 wk, 1.9 mg once daily; after 1 wk, 2.0 mg once daily. Maximum dose 0.9 mg/day. ADHD (extended-release) (children 6 yr) — 0.1 mg once daily at bedtime; after 1 wk, 0.15 mg once daily; after 1 wk, 0.2 mg once daily; after 1 wk, 0.3 mg once daily; after 1 wk, 0.4 mg once daily; after 1 wk, 0.5 mg once daily; after 1 wk, 0.6 mg once daily; after 1 wk, 0.7 mg once daily; after 1 wk, 0.8 mg once daily; after 1 wk, 0.9 mg once daily; after 1 wk, 1.0 mg once daily; after 1 wk, 1.1 mg once daily; after 1 wk, 1.2 mg once daily; after 1 wk, 1.3 mg once daily; after 1 wk, 1.4 mg once daily; after 1 wk, 1.5 mg once daily; after 1 wk, 1.6 mg once daily; after 1 wk, 1.7 mg once daily; after 1 wk, 1.8 mg once daily; after 1 wk, 1.9 mg once daily; after 1 wk, 2.0 mg once daily. Maximum dose 0.9 mg/day. ADHD (extended-release) (children 6 yr, 45 kg) — 0.05 mg once daily at bedtime; then 0.05 mg BID; then 0.05 mg TID; then 0.05 mg QID; then 0.1 mg/day. Maximum dose 0.9 mg/day.

Neuropathic pain (immediate-release)—2 mcg/kg/dose q 4–6 hr then gradually over days up to 4 mcg/kg/dose q 4–6 hr.

PO (Neonates): Neonatal abstinence syndrome—0.5–1 mcg/kg/dose q 4–6 hr. Once stabilized taper by 0.25 mcg/kg/dose q 6 hr.

Transdermal (Adults): Hypertension—Transdermal system delivering 100–300 mcg (0.1–0.3 mg)/24 hr applied every 7 days. Initiate with 100 mcg (0.1 mg)/24 hr system; dosage increments may be made q 1–2 wk when system is changed.

Transdermal (Children): Once stable oral dose is reached, children may be switched to a transdermal system equivalent closest to the total daily oral dose.

Epidural (Adults): 30 mcg/hr initially; titrated according to need.

Epidural (Children): 0.5 mcg/kg/hr initially; titrated according to need up to 2 mcg/kg/hr.

NURSING IMPLICATIONS
Assessment
- Hypertension: Monitor intake and output ratios and daily weight, and assess for edema daily, especially at beginning of therapy.
- Monitor BP and pulse prior to starting, frequently during initial dose adjustment and dose increases and periodically throughout therapy. Titrate slowly in patients with cardiac conditions or those taking other sympatholytic drugs. Report significant changes.
- Pain: Assess location, character, and intensity of pain prior to, frequently during first few days, and routinely throughout administration.
- Monitor for fever as potential sign of catheter infection.
- Opioid Withdrawal: Monitor patient for signs and symptoms of opioid withdrawal (diaphoresis, fever, diarrhea, chills, craving, nausea, vomiting, tremors, delirium, sweating, paleness, difficulty sleeping, mood swings).

ADHD: Assess attention span, impulse control, and interactions with others.

Lab Test Considerations: May cause transient T in blood glucose levels.

Maternal: Carboxyhemoglobin and vanillylmandelic acid (VMA) concentrations; these may on abrupt withdrawal.

Maternal: Weakly positive Coombs’ test result.

Potential Nursing Diagnoses
Chronic pain (Indications)
Impaired oral intake (Indications)
Risk for injury (Side Effects)

Implementation
- Do not confuse Catapres (clonidine) with Cataflam (diclofenac).
- Do not confuse clonidine with clonazepam (Klonopin).
- Do not confuse clonidine with clozapine.
- Do not substitute between clonidine products on a mg-per-mg basis, because of differing pharmacokinetic profiles.
- Since postoperative setting, continue clonidine up to 4 hr prior to surgery and resume as soon as possible thereafter. Do not interrupt transdermal clonidine during surgery. Monitor BP carefully.
- PO: Administer last dose of the day at bedtime. May be taken without regard for food.
- Transdermal extended-release tablets whole; do not crush, break, or chew.
- Transdermal: Transdermal system should be applied once every 7 days. May be applied to any hairless site, avoid cuts or calluses. Absorption is greater when placed on chest or upper arm and decreased when placed on thigh. Remove with alcohol-impregnated wipes or soap and water, dry thoroughly before application. Apply firm pressure over patch to ensure contact with skin, especially around edges. Remove old system and discard. System includes a protective adhesive overlay to be applied over medication patch to ensure adhesion, should medication patch loosen.
- Epidural: Dilute 500 mcg/mL with 0.9% NaCl for a concentration of 100 mcg/mL. Do not administer solutions that are discolored or contain a precipitate. Discard unused portion.

Patient/Family Teaching
- Instruct patient to take clonidine at the same time each day, even if feeling well. Take missed dose as soon as remembered. Follow extended-release product as missed, omit dose and take next dose as scheduled. Do not take more than the
clonidine

Prescribed daily dose is any 24 hr. If more than 1 oral dose in a row is missed or if transdermal system is late in being changed by 3 or more days, consult health care professional. All routes of clonidine should be gradually discontinued over 2–4 days to prevent rebound hypertension.

● Advise patient to make sure enough medication is available for weekends, holidays, and vacations. A written prescription may be kept in wallet in case of emergency.
● May cause drowsiness, which usually diminishes with continued use. Advise patient to avoid driving or other activities requiring alertness until response to medication is known.
● Caution patient to avoid sudden changes in position to decrease orthostatic hypotension. Use of alcohol, smoking for long periods, exercising, and hot weather may increase orthostatic hypotension.
● If dry mouth occurs, frequent mouth rinses, good oral hygiene, and sugarless gum or candy may decrease effect. If dry mouth continues for more than 2 wk, consult health care professional.
● Caution patients with contact lenses that clonidine may cause dryness of eyes.
● Caution patient to avoid concurrent use of alcohol or other CNS depressants with this medication.
● Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult health care professional before taking any other Rx, OTC, or herbal products, especially cough, cold, or allergy remedies.
● Advise patient to notify health care professional of medication regimen prior to treatment or surgery.
● Advise patient to consult health care professional if itching or redness of skin (with transdermal patch), mental depression, swelling of feet and lower legs, paleness or cold feeling in fingertips or toes, or vivid dreams or nightmares occur. May require discontinuation of therapy, especially with depression.

Evaluation/Desired Outcomes

● Decrease in BP.
● Decrease in severity of pain.
● Decrease in the signs and symptoms of opioid withdrawal.
● Improved attention span and social interactions in ADHD.

Why was this drug prescribed for your patient?