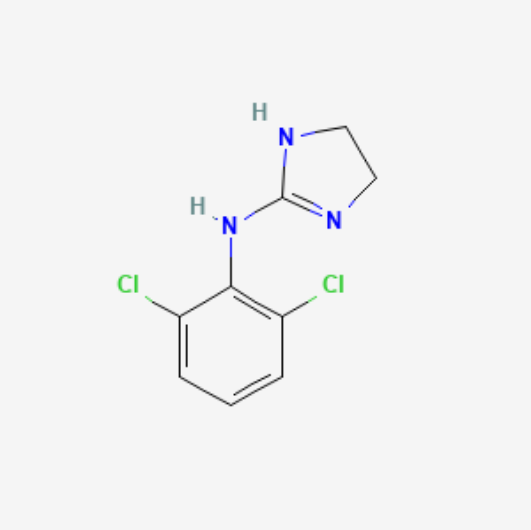
Clonidine



Brand Names:

- Catapres (IR and transdermal patch)
- Kapvay (XR)

Mechanism of action:

- Central alpha-2 agonist → may lead to reduced sympathetic outflow due to action on alpha-2 receptors in locus coeruleus (site of NE production)
- May help regulate pre-frontal cortex = effect on attention, impulsivity, emotion regulation

Uses:

- ADHD (FDA-approved for use in children and adolescents ages 6 and above)
- Hypertension (FDA-approved, ER version)
- ICU sedation
- Anxiety
- Insomnia
- Tics
- Aggression/impulsivity
- Opioid, cocaine, and nicotine withdrawal

Dosing:

- Clonidine IR: 3-10 micrograms/kg daily, in 3-4 divided doses
- Clonidine XR: start with 0.1 mg per day
    - Can increase by 0.1 mg/day weekly to maximum 0.4 mg/day
- Dosing pearls:

    - Transdermal patch also available → start with oral formulation to establish tolerability
        - Dosing is per day, and one patch per week – for example, transdermal patch 0.1 mg/24 hours, one patch per week
        - If some minor skin sensitivity or families struggling to keep the patch on for a week, will recommend changing patch every 4-5 days
    - In young children, patients with neurodevelopmental disabilities, and patients with tic disorders, small doses are often effective. Generally, these patient populations are more sensitive to dosing changes.
        - Clonidine can be formulated into liquid by pharmacy – often will do much smaller dosing changes such as 25 micrograms at a time

Onset and Duration:

- Onset within 30-60 minutes for ADHD
- Peak plasma time: 1-3 hours for IR, 7-8 hours for XR
- Duration of action: typically 6-10 hours
- Transdermal patch: therapeutic plasma concentration within 2-3 days → if switching from oral clonidine to patch, may give 100% oral dose together with patch on day 1, 50% oral dose on day 2, then discontinue oral dose
- Half-life: 12-16 hours
- For ADHD, may take 1-2 weeks for notable effect

Metabolism/Elimination:

- 40-60% excreted unchanged by kidneys
    - Use caution in renal impairment

Adverse Effects:

- Sedation, dizziness
- bradycardia, and hypotension → monitor BP and HR when initiating; effect is dose-related
- Dermatologic reactions in up to 50% of patients using the patch (most often a transient rash)
- Headache, dry mouth, stomach pain
- Withdrawal syndrome: with abrupt discontinuation, can have rebound hypertension with diaphoresis, headache, insomnia

Special Considerations:

- Overdose can be potentially fatal – seizures, respiratory depression, cardiac conduction issues, coma
    - Overdose can occur intentionally or by other means – watch for kids who may try ingesting/chewing the patch. Also, dosage errors have a high potential due to inadvertent decimal misplacement when converting dose from micrograms to milligrams
- Use in pregnancy/lactation: animal studies show teratogenic effects; crosses placenta and distributed into breast milk

- Patients should not chew, break, or crush XR tablets.
- May be helpful in patients with sleep difficulties due to sedating effects

References:

Catapres, Catapres-TTS (clonidine) dosing, indications, interactions, adverse effects, and more. (2021, April 28). Medscape. https://reference.medscape.com/drug/catapres-tts-clonidine-342382#0

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