

Stimulant Comparisons

Methylphenidate

- T_{1/2} 4.5 hours
- Duration of effect, adults, or IR form: 3-6 hours

Methylphenidate Formulations

Methylphenidate LA

- 50% release immediately
- 50% release 4 hours later
- Exactly mimics 2 doses of methylphenidate IR
- “Shortest-acting of longest-acting agents”

Methylphenidate CD

- 30% immediate release
- 70% release 4 hours later
- Good for kids who become more distractible later in the day

Methylphenidate Transdermal system (Daytrana)

- Patch, approved for age 6-12
- More potent, as it bypasses gut and first pass metabolism
- You CAN cut patches to adjust dose
- Apply hip, below underwear, rotate location to prevent local irritation
 - Fair-skinned kids get more irritation
 - Rotate patch around body “girdle” e.g. Hips/pelvis
- Placement on other parts of the body (arm, leg) leads to absorption variability
- Optimal absorption depends on hygiene, skin integrity
- Approximate equivalence:
 - 10 mg patch = 15 mg IR
 - 15 mg patch = 22.5 mg IR
 - 20 mg patch = 30 mg IR
 - 30 mg patch = 45 mg IR
- remove after 9 hours
- Action stops 2 hours after removal

Dexmethylphenidate (Focalin)

- IR and XR versions
- Isolated d-enantiomer of racemic d, l-MPH
- Using only d-enantiomer allows doses to be halved but still be equally effective; they claim increased tolerability
- XR: 50% of beads released at time 0, 50% released 4 hours later

Dextroamphetamine/amphetamine

- T_{max} oral: 3 hours
- T_{max} oral, extended release: 7 hours
- T_{1/2}, adults: 10-13 hours
- T_{1/2} adolescents: 11-14 hours

Amphetamine Preparations

Mixed amphetamine salts (Adderall, Adderall XR)

- MAS ER comparable to MAS IR bid
- 2-pulsed, micro-bead delivery system
- 50:50 ratio of IR and ER beads (0 hr, 4 hr)
- Duration 10-12 hours
- Max concentration 7 hr (4 hour longer than IR)
- Longer half-life than methylphenidate
- XR is 2nd longest-acting long-acting
 - Longer appetite suppression, more likely to cause insomnia

Lisdexamfetamine (Vyvanse)

- Pharmacologically inactive
- Pro-drug = l-lysine + dextroAMP
- After ingestion, hydrolysis to d-AMP
- Takes 2 hours before becoming active via metabolism
- Half life 10 hr->once daily, efficacy persists to early pm
- Decreases risk of toxicity, abuse, diversion
- Approved ADHD ages 6-12
- Dose equivalents:
 - 30 mg = 10 mg mixed AMP
 - 50 mg = 20 mg mixed AMP
 - 70 mg = 30 mg mixed AMP