Stimulant Comparisons

Methylphenidate
- T1/2 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

- Tmax oral: 3 hours
- Tmax oral, extended release: 7 hours
- T1/2, adults: 10-13 hours
- T1/2 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

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