


Psychopharmacology in Children & Adolescents

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The background of the slide is a solid blue color. In the lower right quadrant, there are several decorative elements consisting of concentric circles, resembling ripples in water. These circles are light blue and vary in size and opacity, creating a subtle pattern.

Treating Children and Adolescents

- Diagnostic hypothesis guides intervention
- Pay careful attention to any comorbidity and differential diagnosis
 - Especially any associated learning disorder or cognitive deficit
- Pharmacotherapy is only part of the treatment plan
 - Therapies, parental counseling and education, accommodations at school

Treating Children and Adolescents

- Family and child must be aware of risks, benefits, possible side effects or adverse events, and any alternative treatments
- Start low and go slow
- After sufficient period of stabilization (often 6-12 months) may evaluate need for continued treatment
- Still need more data on efficacy and safety of medications in children

Major Classes of Drugs Used

- Stimulants
- Antidepressants
- Antipsychotics
- Mood stabilizers
- Others

Stimulants

- Use- First class of drugs reported to be effective in treatment of behavioral disturbances in children with ADHD
- Mechanism of action-Enhance dopamine and norepinephrine by blocking reuptake and sometimes increasing release
- Medications
 - Short acting and long acting forms

Stimulants

Shorter Acting

- Methylphenidate (Ritalin, Focalin, Methylin)
 - Total daily dose ranges from 0.3-2mg/kg
 - Dose bid or tid, usually lasts 4 hours
- Detroamphetamine (Dexedrine)
 - Total daily dose ranges from 0.3-1mg/kg
 - Dose bid-tid, lasts approx. 6 hours
- Mixed amphetamine salts (Adderall)
 - Total daily dose ranges from 0.5-1mg/kg
 - Dose once daily to bid, lasts 4-6 hours

Stimulants

Longer Acting

- Methylphenidate products (Concerta, Metadate CD, Ritalin LA, Focalin XR)
 - Last 10-12 hours
- Mixed Amphetamine Salts (Adderall XR)
 - Lasts 10-12 hours

Stimulants

Side Effects

- Insomnia
- Decreased appetite
- Weight loss
- Stomachache
- “Rebound effects” (usually with short acting)
- Moodiness/ irritability/ crying
- Increased anxiety
- Increases in heart rate/blood pressure
- Increased lethargy
- Tics?

Stimulants Warnings

- Avoid in children with heart murmurs or structural cardiac abnormalities or other serious heart problems
 - www.fda.gov/cder/drug/advisory/adderall.htm

Antidepressants

➤ SSRIs

Use- Depression and Anxiety disorders

Mechanism of action- Block reuptake of serotonin

Examples- Prozac, Zoloft, Celexa, Lexapro, Paxil, Luvox

Side effects- Agitation, gastrointestinal symptoms, irritability, insomnia, sexual dysfunction. Watch for drug interactions in Prozac, Paxil, and Luvox.

Antidepressants

➤ Atypical antidepressants

- Use- anxiety, depression, ADHD
- Mechanism of action- affect the release and reuptake of brain neurotransmitters including serotonin, norepinephrine, and dopamine.
- Examples- Wellbutrin, Remeron, Effexor
- Side effects- activation, sedation, weight gain depending on medicine

Antidepressants

➤ Tricyclic antidepressants

- Use- ADHD, Enuresis, OCD
- Mechanism of action- increase serotonin and norepinephrine
- Examples- Amitriptyline (Elavil), Clomipramine, Imipramine, Nortriptyline
- Side effects- dry mouth, constipation, sedation. Must follow levels and monitor EKGs baseline and during treatment. Watch for drug interactions. Lethal in overdose.

Antidepressants

- Warnings- Risk of Suicidal Ideation
 - October 2004, FDA issued statement for antidepressants to revise their labeling to include a boxed warning and expanded warning statements about the increased risk of suicidality in children and adolescents being treated with antidepressants
 - www.parentsmedguide.org

Antipsychotics

➤ Novel Atypical Antipsychotics

- Use- Psychosis, mania, aggression, self-injurious behaviors in children with mental retardation and pervasive developmental disorders, Tourette's
- Mechanism of action- block specific dopamine and serotonin neurotransmitters (except Abilify)
- Examples- Risperdal, Seroquel, Zyprexa, Geodon, Abilify

Antipsychotics

- Novel Atypical Antipsychotics cont.
 - Side Effects- drowsiness, increased appetite, weight gain, insomnia, extrapyramidal effects- dystonias, restlessness, parkinsonism, possible increases in QTc interval on EKG.

Antipsychotics

- Typical antipsychotics
 - Uses- same as atypicals
 - Mechanism of action- Dopamine antagonists
 - Examples- Haldol, Prolixin, Orap
 - Side effects- Some more likely to cause extrapyramidal side effects

Mood Stabilizers

➤ Lithium

- Use- For bipolar disorder and can augment treatment for depression
- Exact mechanism of action unknown
- Side effects- nausea/vomiting, polyuria, polydipsia, tremor, sedation, weight gain, acne, decreased thyroid function
- Monitoring- blood levels, kidney, thyroid functions

Mood Stabilizers

➤ Lithium cont.

- Avoid giving with NSAIDs, and certain diuretics which can increase lithium levels.

Mood Stabilizers

➤ Valproic Acid (Depakote)

- Use- Bipolar disorder, aggression, anticonvulsant
- Side effects- sedation, nausea, thinning of hair, weight gain, bone marrow suppression, liver toxicity (both rare), teratogenic
- Monitor- levels, liver function tests, blood counts, renal function

Mood Stabilizers

➤ Tegretol

- Use- Bipolar disorder
- Side effects- dizziness, sedation, nausea, bone marrow suppression, liver toxicity, skin disorders (including Stevens-Johnson syndrome), teratogenic
- Monitor levels, liver function tests, blood counts, renal function

Mood Stabilizers

➤ Trileptal

- Use- Bipolar disorder but limited data
- Similar structure to tegretol, but does not require the same blood monitoring
- Side effects- Dizziness, headache, sedation, nausea, hyponatremia

Mood Stabilizers

➤ Lamictal

- Use- Bipolar disorder, need more studies
- Anticonvulsant
- Side effects- Dizziness, sedation, headache, nausea, lack of coordination, insomnia, rash (Steven's Johnson Syndrome)

Other Medications

➤ Alpha-Adrenergic Agonists

- Uses- ADHD, aggression, Tourette's
- Mechanism of action- Stimulates alpha 2-adrenoreceptors in brainstem, thus activating an inhibitory neuron, resulting in decreased sympathetic outflow
- Examples- Clonidine, Tenex
- May give once, twice, or three times/day
- Side effects- sedation, hypotension, dry mouth, depression

Other Medications

➤ Strattera

- Uses- ADHD
- Mechanism of action- Norepinephrine reuptake inhibitor
- Doses- 0.5-1.2 mg/kg/day
- Side effects- Sedation, mild appetite suppression
- Monitor for evidence of liver injury

Conclusion

- Consider pharmacotherapy as part of a broader treatment plan
- Assess potential risks, benefits, side effects, and alternatives
- Identify target symptoms and carefully monitor progress
- Have realistic expectations
- Research