Quick Guide to ADHD Medications

What Medications are Used for ADHD?

- ADHD medications are important intervention for ADHD and are well studied in research. Approximately 75% of children and adolescents will have noticeable improvement on one or more of the medications used for ADHD.
- These medications reduce ADHD symptoms by affecting the availability of **neurotransmitters**, which are chemical messengers that brain cells use to communicate with each other, resulting in better communication within and between different areas of the brain. The common neurotransmitters that are targeted by ADHD medications include **dopamine** and **norepinephrine**.
- The two main categories of medications that have US Food and Drug Administration (FDA) approvals are **stimulants** and **nonstimulants**.
- **Stimulants** are first-line medications for ADHD because of their effectiveness.
    - Stimulants can be divided into two types, **amphetamine** (examples: Adderall, Vyvanse) and **methylphenidate** (examples: Ritalin, Concerta). The two types of stimulants work in slightly different ways, and one may work better for your child than the other in terms of symptom reduction and side effects.
    - **Short-acting** (immediate-release) and **long-acting** (extended-release) formulations of stimulant medications differ in the duration of their effects.
        - **Short-acting** formulations usually have effects for about 2-4 hours after the medication is taken and therefore require 2-3 doses per day.
        - **Long-acting** formulations have effects that may last up to 8-12 hours and so are taken once a day (generally in the morning).
        - Individuals have different rates of metabolizing medications; therefore, the length of time for which a stimulant works for each child can be different.
        - With the effective dose of stimulant, your child will typically show improvement in attention and behavior within 30-60 minutes of taking the medication.
- **Nonstimulants** are second-line medications for ADHD and may be considered if your child does not respond sufficiently to stimulants. They may also be considered if your child has medical conditions that contraindicate the use of stimulants or have intolerable side effects with them. A nonstimulant may be used together with stimulant medications to improve the management of ADHD symptoms.

    - Examples of nonstimulants for ADHD are **atomoxetine** (Strattera), **viloxazine** (Qelbree), **clonidine** (Kapvay, Catapres), and **guanfacine** (Intuniv, Tenex). Clonidine and guanfacine belong to a class of medications called alpha-2 adrenergic agonists, which may also help with sleep, aggression, behavioral dysregulation, and tics.
    - These medications may take several weeks before a full effect is achieved.

What Happens when My Child is Started on ADHD Medications?

- Your child's psychiatrist will start your child with a low dose of the medication and gradually increase the dosage until sufficient improvement in your child's ADHD symptoms is achieved or until intolerable side effects prevent the dosage from being increased.
- You and your child's teachers will be given a daily log and will be asked to record the times of **medication administration** and observations of your child's **attention** and **behavior** at different times of the day. You will also be asked to make note of any **side effects** that your child may experience on medications. The purpose of these logs is to find out the presence and duration of the medication effects so that your child's psychiatrist has the information needed to determine any necessary adjustments of the medication. Be sure to bring these logs to your child's next visit.
- When the medications are working well for your child, you will notice improvements in your child's attention, concentration, and self-control.
- **Rebound symptoms** (return of ADHD symptoms, irritability, or moodiness) occur then the medication is wearing off. Your child's psychiatrist may adjust the dosage, frequency, and/or timing of the medications to ensure that the symptoms are well managed throughout the day. Your psychiatrist may also use a combination of stimulants and nonstimulants to best manage your child's symptoms.

What are Common Side Effects of the Medications?

Common side effects of **stimulant** medications (amphetamine, methylphenidate):

- Decreased appetite, weight loss
- Difficulty falling asleep (insomnia)
- Stomachaches, nausea/vomiting
- Headaches, dizziness

Common side effects of **nonstimulant** medications for ADHD:

- Atomoxetine and viloxazine: excessive tiredness, insomnia, nausea, stomachaches, decreased appetite
- Clonidine and guanfacine: drowsiness, slowing of heart rate, dizziness

Most side effects resolve within a few weeks as the body adjusts to the medication. If your child experience any concerning side effects, record the time, duration, and nature of the side effects and bring the record with you when you talk to your child's psychiatrist.

References

Attention-Deficit/Hyperactivity Disorder: Parents' Medication Guide Work Group. ADHD Parents' Medication Guide. American Academy of Child & Adolescent Psychiatry. 2020.

Krull, K.R. & Chan, E. Patient education: Treatment of attention deficit hyperactivity disorder in children (Beyond the Basics). UpToDate. March 2023.

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