

Ask the Expert



The Choice is in the Details: Medication Options for ADHD

Max Wiznitzer, M.D.

The National Resource Center on ADHD: A Program of CHADD is the nation's clearinghouse for evidence-based information on ADHD. This *Ask the Expert* webcast is supported by Cooperative Agreement Number NU38DD005376 from the Centers for Disease Control and Prevention (CDC) and does not necessarily represent the official views of the CDC. The National Resource Center on ADHD, CHADD and the CDC do not endorse, support, represent or guarantee the accuracy of any content presented or endorse any opinions expressed in this webcast.

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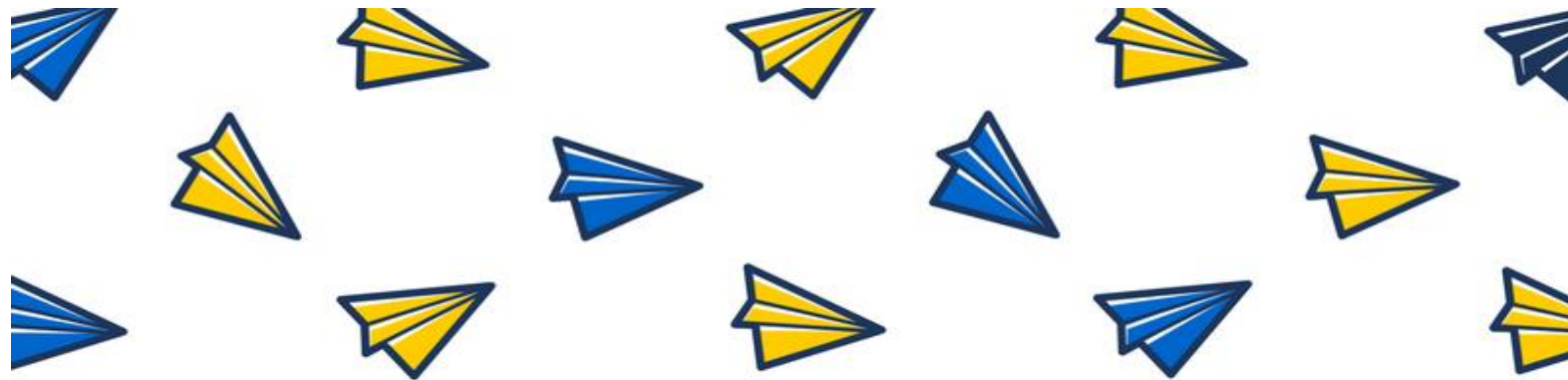
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ADHD Information and Resources?

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1-800-233-4050
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What are the Components of an ADHD Intervention Plan?






ADHD-Treatment

- Participation of:
 - Patient
 - Family
 - School/Work
 - Clinician
 - Components
 - Behavioral
 - Educational
 - Medical
- 




**Is there evidence
for efficacy
of “24/7” medication
therapy?**






Multimodal Treatment Study of Children with ADHD (MTA)

- 579 children at 6 sites
 - Age 7-9.9 years
 - Treatment arms
 - Medication management (Med)
 - Intensive behavioral treatment (Beh)
 - Combined medication and behavioral intervention (Comb)
 - Standard community care (CC)
- 




MTA Results

- **14 months**
 - All 4 groups showed sizable symptom reduction over time
 - ◆ Medication management and combined intervention nearly equally effective and superior to other treatments
 - **24 month**
 - Diminution in Tx benefits
 - **3 and 8 years**
 - No difference between groups
 - **Other studies have shown positive effects**
- 



Preschool ADHD Treatment Study (PATS)

- Investigation into the treatment of ADHD in 3-5 ½ year old children
 - 165 of 303 original enrollees in medication phase
 - Improvement in function with daily dose of 14 ± 8 mg/day
 - Only 21% had “remission” compared to 13% in placebo group
 - Effect size smaller (0.4-0.8) and more side effects
- 




Medication treatment options and Management issues in ADHD





ADHD - Medications

- **Stimulants**
 - **Antidepressants**
 - **Adrenergic agonists**
- 



ADHD – Medications Stimulants

■ Types

■ Methylphenidate

- ◆ Racemic methylphenidate
- ◆ Dextromethylphenidate

■ Amphetamine

- ◆ Dextroamphetamine
- ◆ Mixed amphetamine salts
- ◆ Lisamfetamine

■ Delivery

- Immediate release (IR)
 - Sustained/extended release
- 

ADHD - Stimulants

■ Treatment options

■ Immediate release

- ◆ Methylphenidate*
(chewable/regular tablet, solution)
- ◆ Focalin (D-methylphenidate)*
- ◆ Adderall (Mixed amphetamine salts)*
- ◆ Evekeo (Mixed amphetamine sulfate)
- ◆ Dexedrine (Dextroamphetamine)*
- ◆ Zenedi (Dextroamphetamine)
- ◆ Procentra

■ Sustained/Extended release


- ◆ Metadate CD*
- ◆ Ritalin LA*
- ◆ Ritalin SR*
- ◆ Dyanavel XR
- ◆ Concerta*
- ◆ Quillivant XR/Quillichew ER
- ◆ Focalin XR*
- ◆ Daytrana patch
- ◆ Aptensio XR
- ◆ Cotempla XR-ODT
- ◆ Adderall XR*
- ◆ Vyvanse
- ◆ Adzenys XR-ODT
- ◆ Mydayis

Options may be listed as brand name
Generic available*

■ Are generics bioequivalent?



Stimulant Side Effects

- **Mainly transient**
 - Headache
 - Appetite suppression
 - Insomnia
 - Abdominal discomfort
 - **Dysphoria**
 - **Anxiety exacerbation**
 - **Picking behavior**
 - **Abuse/diversion**
 - **Uncommon**
 - Tics
 - Growth suppression
 - Concern for cardiac problems/sudden death
- 




ADHD - Medications

■ Antidepressants

■ Tricyclics


- ◆ Imipramine
- ◆ Nortriptyline
- ◆ Desipramine

■ Others

- ◆ Atomoxetine
 - ◆ Bupropion
 - ◆ Venlafaxine
- 



ADHD Medication Use

- **Atomoxetine (Strattera)**
 - “All day” duration of action
 - Effective in adolescent and adult populations
 - Effect persists over time
 - Available as 10, 18, 25, 40, 60, 80, 100 mg capsules
 - Immediate release with pharmacodynamic effect longer than pharmacokinetic duration
 - No change in blood levels with food
 - Cyt 2D6 isoenzyme metabolism further slowed by fluoxetine and paroxetine
- 

ADHD

Antidepressant Side Effects

- Change in appetite
- Lethargy
- Dry mouth
- Irritability
- Constipation
- Urinary retention
- Potential cardiac effects (tricyclic antidepressants)
- Hepatotoxicity (atomoxetine)
- Psychiatric



ADHD

Adrenergic Drugs


- **Types**
 - **Clonidine**
 - ◆ Immediate release (Catapres)*
 - ◆ Extended release (Kapvay)*
 - ◆ Catapres TTS patch*
 - **Guanfacine**
 - ◆ Immediate release (Tenex)*
 - ◆ Extended release (Intuniv)*
- **Effects**
 - Improved attention
 - Decreased activity
 - Mood stability
 - Easier sleep onset
- **Side Effects**
 - Sedation
 - Irritability

*Generic available





ADHD Treatment Concerns

- **Effect size of medication**
 - Stimulants have largest effect size
 - **Seizures**
 - **Tic initiation/exacerbation**
 - **Impact on growth**
 - **Substance use**
 - **Psychosis and mood disturbance**
 - **Sudden death reports**
 - **Drug holidays?**
- 




**How does one initiate or
use medication for ADHD?**






ADHD Medication Use

- **Determine when treatment is needed**
 - Risk of physical injury
 - Impaired family relationship
 - Poor peer, spousal or social interaction
 - Academic or work failure
 - Disrupted daily functioning
 - Inadequate effect of behavioral/educational intervention
 - Comorbid disorder
- 



ADHD Medication Use


- Start low, go slow
 - Titrate to maximal efficacy
 - Medication choices
 - Stimulants as first line treatment
 - Atomoxetine/adrenergic drugs for:
 - ◆ Treatment needed for early AM/late PM
 - ◆ Stimulant nonresponders/side effects
 - ◆ Combination therapy
 - ◆ Concern about tics/substance use
 - Monitor for potential side effects
- 

Choosing a Stimulant Medication

- Realization that stimulants are equally effective
- Expected duration of action
- Type of delivery system
- Presence of other medical problems or comorbid conditions
 - Impact on other medications, such as MAOI's
 - Uncontrolled seizures or hypertension
- Daily dosing
 - Methylphenidate 0.3-2 mg/kg
 - D-methylphenidate 0.15-1 mg/kg
 - Amphetamine 0.15-1.5 mg/kg
 - Lisamfetamine 0.3-3 mg/kg




Treatment Options Stimulants

- Goal is coverage throughout day with stable blood levels and positive effect on school, homework, work, daily functioning and social activities while preserving appetite and sleep patterns
 - Goal may be difficult to achieve with IR stimulants
 - Changes in blood level and effect duration
 - Need for in-school and after-school dosing
- 




Treatment Options Stimulants

- **Who benefits from 6-8 hour medication?**
 - **School age child with no homework or major social/behavioral problems**
 - **Individual who cannot swallow pills
(methylphenidate sprinkle formulations)**
 - **College student or adult with 16 hour day**
- 




Treatment Options Stimulants

- **Who benefits from 12 hour medication?**
 - **Child with homework and/or significant social or behavioral problems**
 - **Adult with desire for once-daily dosing**
 - **Individual who cannot swallow pills (stimulant sprinkle, chewable or powder formulation and Daytrana patch)**
 - **Individual with need for potentially lower abuse potential**
- 



Therapies in ADHD

- Goal of treatment is the control of ADHD features during daytime functioning
 - All day therapy is optimal in achieving this goal
 - The use of extended release formulations leads to more consistent blood levels and longer duration of effect and may improve compliance
 - Medication should be used in conjunction with an appropriate educational, behavioral and/or psychosocial program
- 

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