Translating Research Into Practice: Current Evidence in the Management of ADHD

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Outline

• Management of ADHD: General Principles
• Evidence for Non-Pharmacological Management
• Evidence for Pharmacological Management
• Evidence for Complementary and Alternative Medicine

Management of ADHD
General Principles

• Non-Pharmacological Management
  – Behavior Therapy
• Pharmacological Management
  – Stimulant and non-stimulant medications
• Complimentary and Alternative Medicine
  – Diet, Mind-Body Practices, Neurofeedback

Appraising Evidence

Management By Age Groups
American Academy of Pediatrics (AAP) Practice Guidelines

• Preschool Age
  – FIRST LINE: evidence based parent- and/or teacher administered behavior therapy
  – May prescribe medication when:
    • No improvement with behavior interventions
    • Moderate to severe continuing disturbance with the child’s functions


American Academy of Pediatrics (AAP) Practice Guidelines

• School Age
  – FDA approved medications for ADHD
  – And/or Evidenced based parent and/or teacher administered behavior therapy


American Academy of Pediatrics (AAP) Practice Guidelines

• Adolescent Age
  – FDA approved medications for ADHD
  – Obtain assent from adolescent
  – Behavior therapy


Management By Modality

Behavior Therapy

• Represents a broad set of specific interventions that have a common goal of modifying the physical and social environment to alter or change behavior

Behavior Therapy

• Behavioral Parent Training
• Behavioral Classroom Management
• Behavior Therapy with Children
• Behavioral Peer Intervention
Behavior Therapy

• Behavioral Parent Training
  – Focus on strengthening parenting skills to help parents manage children’s behavior problems and increase positive parent-child interactions

Behavior Therapy

• Behavioral Parent Training
  – Incredible Years by Carolyn Webster Statton
  – Triple P Positive Parenting Program (Sanders and Colleagues)
  – Parent Child Interaction Therapy
  – New Forest Parenting Program (developed specifically for ADHD)

Articles in Support of Behavioral Parent Training

<table>
<thead>
<tr>
<th>Article</th>
<th>Source/Details</th>
</tr>
</thead>
</table>

Behavior Therapy

• Behavioral Classroom Management
  – Behavior modification principles provided for teachers for implementation in classroom settings

Articles in Support of Behavioral Parent Training

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Behavior Therapy

Articles in Support of Behavioral Classroom Management


Behavior Therapy

• Behavioral Classroom Management: What Studies say:
  – Outcome: improved attention to instruction, improved compliance with classroom rules, decreased disruptive behavior, improved work productivity

Behavior Therapy

• Behavior Therapy with Children and Behavioral Peer Intervention
  – Well established treatments
  – Cognitive training improves working memory performance but limited effects on ADHD symptoms

Behavior Therapy

Medications

• Stimulant medications are highly effective for most children in reducing core symptoms of ADHD (effect size 1.0)
  • Nor-epinephrine reuptake inhibitor (atomoxetine) and alpha 2-adrenergic agonists (extended-release guanfacine and extended-release clonidine) have also demonstrated efficacy in reducing core symptoms. (effect size 0.7)

Medications

<table>
<thead>
<tr>
<th>Type of Medicine</th>
<th>Brand Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stimulants:</strong></td>
<td></td>
</tr>
<tr>
<td>Mixed Amphetamine Salts</td>
<td>Adderal, Adderall XR</td>
</tr>
<tr>
<td>Dextroamphetamine</td>
<td>Dexedrine</td>
</tr>
<tr>
<td>Lisdexamfetamine</td>
<td>Vyvanse</td>
</tr>
<tr>
<td>Methylphenidate</td>
<td>Concerta, Ritalin, Ritalin LA, Ritalin SR, Metadate ER, Metadate CD, Methylin ER, Daytona, Focalin, Focalin XR</td>
</tr>
</tbody>
</table>
### Medications

#### Type of Medicine

<table>
<thead>
<tr>
<th>Non Stimulants:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atomoxetine</td>
</tr>
<tr>
<td>Strattera</td>
</tr>
<tr>
<td>Clonidine hydrochloride</td>
</tr>
<tr>
<td>Kapvay</td>
</tr>
<tr>
<td>Guanfacine ER</td>
</tr>
<tr>
<td>Intuniv</td>
</tr>
</tbody>
</table>

### Articles in Support of Medications


Storebo OJ et al. Methylphenidate for ADHD in children and adolescents: Cochrane systematic review with meta-analyses and trial sequential analyses of RCTs. BMJ 2015; 351:h5203

### Medications

#### Articles in Support of Medications


### MTA Study Follow Up

- **MTA Study Follow Up**
  - **2 Year Follow Up**
    - Half of the initial benefits of the intensive medication management and combination treatments dissipated
  - **8 Year Follow Up**
    - Most children had maintained improvement three years after the trial began
    - Initial advantages of intensive medication management alone or in combination with behavioral treatment had waned

Medications

- MTA Study: Analysis of 8 yr follow up results
  - revealed no differences in symptoms or functioning among the youths assigned to the different treatment groups as children
  - youths who had responded well to treatment and maintained their gains for two more years after the end of the trial tended to be functioning the best at eight years.

Medications

- MTA Study: Analysis of 8 yr follow up results
  - A majority (61.5%) of the children who were medicated at the end of the 14-month trial had stopped taking medication by the 8 year follow-up, suggesting that medication treatment may lose appeal with families over time
  - Children who were no longer taking medication at the eight-year follow-up were generally functioning as well as children who were still medicated.

Medications and Behavior Therapy

- Medications (Stimulants) have higher short-term efficacy for ADHD symptoms and are relatively safe
- Behavioral interventions have better long term benefits (e.g. executive functioning, organizational skills and learning parameters)

Complementary and Alternative Medicine (CAM)

- Complementary and alternative medicine (CAM) is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine

Complementary and Alternative Medicine

- Do not take all CAM claims at face value.
- Do your homework when considering CAM therapies.

Complementary and Alternative Medicine

- How to evaluate treatment claims
  - Look for solid scientific studies
  - Weed out misinformation
    - Check Dates
    - Check Documentation
    - Double Check


http://www.mayoclinic.org/healthy-lifestyle/consumer-health/in-depth/alternative-medicine/art-20046087
Complementary and Alternative Medicine (CAM)

- Supplements: 'Natural' doesn't always mean safe
- Watch out for scams
- Choose practitioners wisely
- CAM starts with complementary
  - Do not change conventional treatment

A Commonsense Guide to CAM Treatment Recommendations

<table>
<thead>
<tr>
<th>Is the therapy effective?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the therapy safe?</td>
<td>YES</td>
<td>Recommend</td>
</tr>
<tr>
<td></td>
<td>NO</td>
<td>Monitor closely or discourage</td>
</tr>
</tbody>
</table>

Complementary and Alternative Medicine (CAM)

<table>
<thead>
<tr>
<th>Type of Intervention</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elimination Diet</td>
<td>Mixed Results</td>
</tr>
<tr>
<td>Dietary supplements:</td>
<td></td>
</tr>
<tr>
<td>Polysaturated Fatty Acids</td>
<td>Significant results for inattentive and hyperactive symptoms</td>
</tr>
<tr>
<td>(Omega 3, DHA, EPA)</td>
<td></td>
</tr>
<tr>
<td>Dietary Supplements:</td>
<td>Effective for ADHD with sleep problems Effective if with deficiency</td>
</tr>
<tr>
<td>Melatonin</td>
<td></td>
</tr>
<tr>
<td>Iron, Zinc</td>
<td></td>
</tr>
<tr>
<td>Mind Body Practice: Yoga</td>
<td>Good adjunct to pharmacology</td>
</tr>
<tr>
<td>Mind Body Practice: Mindfulness</td>
<td>Reduction in attention and behavioral problems but did not persist</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>Improved executive functioning and cognitive functioning Improved attention</td>
</tr>
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</table>

Putting it Together

- Use age appropriate recommendations as stated by AAP
- Consider combined behavior therapy and medications
- Duration of medication use would depend on the response of the child
- Behavior therapy is for long term use
- May use CAM with established evidence, but should not interfere with conventional treatment

Caution

- Use interventions as directed
When Behavior Therapy Does Not Seem to be Effective

- Therapy strategies not applied in the standardized way (e.g., proper parent/teacher training)
- Therapy does not match the child’s needs
- Lack of parental involvement
- Inconsistency in approach among caregivers and teachers
- The child’s environment has changed

When Medications Do Not Seem to be Effective

- Dose is not appropriate for age and weight
- Dosing schedule is not appropriate
- Compliance is poor
- Medication is not appropriate

When Medications Do Not Seem to be Effective

- The child’s environment has changed
- Is it just ADHD? Is there another disorder?

Important Points

- Use best current evidence to manage ADHD
- May need to combine different evidence-based approaches
- Use intervention strategies as specified
- Evaluate what works best for the child and his family