Attention Deficient/Hyperactivity Disorder (ADHD):

Medication use in the pediatric population

Medication is not appropriate for children whose symptoms do not the meet DSM-V criteria for diagnosis of ADHD. Alternative causes for symptoms should be ruled out.[1] These are general recommendations and do not take into consideration your patient's entire clinical situation.

Preschool-Aged Children (4-5 years of age):

1st line: Evidence-based parent- and/or teacher-administered behavior therapy

- In areas where behavior therapy is not available, the risk of delaying diagnosis and/or treatment must be weighted with the risk of starting medications at an early age. Starting medication may be the only practical intervention.[1,3]

2nd line: Methylphenidate if behavior therapy doesn't provide significant improvement and child continues to have moderate to severe symptoms.[1,3]

Consider:

Stimulants are metabolized more slowly in children 4 to 5 years of age, so they should be given a lower dose to start and increased in smaller increments. Short acting forms may need to be used when there is no long acting form with sufficiently low dose for small children.[2]

This group is prone to higher rates of side effects from stimulants including social withdrawal, irritability, and crying. [2]

Statistics: Nationally, in 2009, 1 in 4 preschoolers with ADHD received medication only without behavior therapy.[5]

School-Aged Children (6-11 years of age):

1st line: Evidence-based parent- and/or teacher-administered behavior therapy and/or methylphenidate.[1,4]

- The second line should be considered after not achieving enough benefit of reduced ADHD symptoms or associated impairment derived with 6-week trial of methylphenidate in different available preparations at adequate doses.[1,4]

2nd line: Vyvanse[1,4]

- The next line in therapy should be considered if patient responding to Vyvanse but cannot tolerate longer effect duration of effect.[1,4]

3rd line: Dextroamphetamine and/or amphetamine OR atomoxetine or guanfacine[1,4]

Statistics: Nationally, in 2009, fewer than 1 in 3 children with ADHD received both behavioral therapy and medication.[5]

Adolescents (12-18 years of age):

1st line:

Long acting stimulants with less abuse potential should be considered:

- Daytrana, Concerta, or Vyvanse[1,2]
    - May improve evening driving performance relative to short acting[1,2]

Evidence-based parent- and/or teacher-administered behavior therapy[1,2]

- Especially for patients with comorbid disorders such as anxiety or disruptive behavior disorder and/or psychosocial stressors in family life.[1,2]

2nd line:

Atomoxetine > guanfacine > clonidine (in order of efficacy) can be considered for patients with an adequate trial or intolerance of methylphenidate and Vyvanse or if substance abuse is a concern.[1,2]

Special formulation considerations:

Consider longer acting stimulant preparations[4]

- Giving a medication once per day offers greater convenience, confidentiality, and adherence.
- There is no need to titrate to appropriate dose on short acting form before beginning a long acting form.
- Problematic effects of evening appetite and insomnia can be seen with longer acting preparations.

Consider atomoxetine[2]

- Patients with comorbid anxiety
- Concerns of substance abuse
- Can be given twice daily for effects on late evening behavior
- Patients developing decreased appetite, sleep disturbances, mood lability, or tics from stimulants.

Patient not responding to medication:

A trial must be of adequate dose and duration[3] to limit the number of medication switches and combinations. Dose should be upwardly titrated until benefit or unacceptable side effects are seen. A child should not be considered a non-responder because of exposure to a medication at too low of dose.

- Stimulant effects are seen immediately[1] and trials of different doses of stimulants can be accomplished in a 3 to 7-day trial.
  - A prescription should be written for a minimal day supply needed to see the effect to reduce unused pills at home and minimize waste.
  - Extra pills can create confusion and potential for abuse.
- Non-Stimulants: Clonidine, Guanfacine, and Atomoxetine (Strattera):[2]
  - Take 4 to 6 weeks to become effective. Dose change effects will not be seen immediately.
- Was there poor adherence?
  - Most medications that treat ADHD are reported to the PDMP, so this tool can be used to check for compliance in addition to patient reported compliance.
- Reassess for behavioral and emotional reactions to psychosocial stressors[2,3] which can be mistaken for symptoms of underlying biological illness.
  - For example:
    - If patient is experiencing irritability from a family or personal stress, psychosocial interventions may be more appropriate than medication.
    - If the irritability is part of a mood disorder, medication may be appropriate.
  - Patient's fluctuating symptoms do not always necessitate a medication change or addition.
    - Attempting to control fluctuating symptoms due to psychosocial stressor with medication changes and additions may unnecessarily complicate medication regimen and increase exposure to medication and side effects.
  - Stakeholders in child's care (ie. Parents and teachers) may not understand that medications may not address all of patient's symptoms, especially if child has concomitant psychosocial problems. A combination of psychosocial and pharmacological treatment is often needed.

Hyperactivity/ impulsivity vs Aggression/emotional liability:

Increased hyperactivity/impulsivity:[2]

- Most common in late afternoon when stimulant is no longer effective
- Probably present before treatment but more noticeable compared to improved behavior during the day
    - If patient is currently taking an Intermediate Acting Stimulant: Metadate ER, Methylin ER, Ritalin SR, Metadate CD, and Ritalin LA
        - A small dose of an immediate release stimulant may be administered in late afternoon.
        - Longer acting methylphenidate products such as Concerta, Daytrana, dexmethylphenidate ER (Focalin XR) can be considered.
    - If patient is currently taking a Long Acting Methylphenidate: Concerta, Daytrana, dexmethylphenidate ER (Focalin XR)
        - Long acting amphetamine products such as Dexedrine Spansule, mixed amphetamine salts (Adderall XR), and Vyvanse and can be considered.

Stimulant induced acute psychotic symptoms, aggression, emotional lability, or manic episode: [4]

- Most common during day when stimulant is active
    - Stop any medication for ADHD.
    - Consider restarting or starting a new ADHD medication after the episode has resolved, considering individual circumstances and risks and benefits of ADHD medication.
    - Adjunctive therapy with neuroleptics, mood stabilizers, or antipsychotics is NOT recommended for aggressive/labile behavior not present at baseline and/or if it is clearly a side effect of a stimulant.

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