# Practical Aspects of Medication Treatment in Autism

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# **Target Symptoms for Medication**

- · Motor hyperactivity and inattention
- · Interfering ritualistic behavior
- Aggression, self-injury, property destruction
- Mood disturbances: depression, bipolar
- Others: sleep disturbances, pica, inappropriate sexual behavior

## Motor Hyperactivity and Inattention

- Psychostimulants: methylphenidate, dextroamphetamine
- Alpha-2 agonists: guanfacine, clonidine, Intuniv
- Non-stimulants: atomoxetine, bupropion, tricyclic antidepressants

## **Psychostimulants**

- · Work quickly
- Side effects: reduced appetite, insomnia, tics
- · May cause behavioral worsening
- May need to be given multiple times per day
- · Need new prescription each month

# Alpha-2 Agonists

- Need to monitor blood pressure and heart rate
- · Can be sedating
- Generally don't make symptoms worse
- 2/3 need to be given 2-3 times per day
- Intuniv now FDA-approved for ADHD in children

## **Non-Stimulants**

 Atomoxetine: effective in ADHD; preliminary studies in developmental disabilities. May take longer to work than stimulants. Generally won't make tics worse. May help with comorbid mood and/or anxiety.

## Non-Stimulants (Cont'd)

• Bupropion: has been shown to be effective for ADHD. Not well-studied in developmental disabilities. Can lower the seizure threshold and should NOT be given to a patient with a history of seizures or active seizure disorder. Can make tics worse.

# Non-Stimulants (Cont'd)

• Tricyclic antidepressants: not wellstudied in developmental disabilities. Associated with side effects including: dry mouth, blurry vision, constipation. Can lower the seizure threshold. Can affect cardiac rhythm.



# **Ritualistic Behavior**

- Selective Serotonin Reuptake Inhibitors (SSRIs)
  - -Fluoxetine
  - -Fluvoxamine
  - -Sertraline
  - -Paroxetine
  - -Citalopram

#### SSRIs

- Data indicate SSRIs may be more effective in post-pubertal vs. prepubertal individuals with developmental disabilities
- Side effects: insomnia, sedation, stomach upset, sexual dysfunction, weight gain
- Can generally be given once a day
- Concern about increasing suicidal thinking/behavior

## Aggression/Self-Injury/Property Destruction

- Typical antipsychotics
- · Atypical antipsychotics
- · Mood stabilizers
- Alpha-2 agonists
- Naltrexone

#### Aggression (Cont'd)

- Typical Antipsychotics
  - -Haloperidol
  - -Thioridazine
  - -Chlorpromazine
- Side effects: acute extrapyramidal symptoms (EPS), tardive dyskinesia (TD), sedation, weight gain, drooling

# Aggression (Cont'd)

- Atypical Antipsychotics
  - Clozapine
  - Risperidone
  - Olanzapine
  - Quetiapine
  - Ziprasidone
  - AripiprazolePaliperidone

## Clozapine

- Common side effects include weight gain, sedation, drooling
- · Can lower the seizure threshold
- Agranulocytosis and need for careful blood monitoring

#### Risperidone

- Well-studied in autism (FDA approval) and mental retardation associated with behavioral dyscontrol
- Common side effects: weight gain, sedation (transient), drooling, elevated prolactin

## Olanzapine

- Only small controlled studies in developmental disabilities
- Common side effects: weight gain (at times significant), has been associated with glucose and lipid dysregulation, sedation

#### Quetiapine

- No controlled studies in developmental disabilities
- Common side effects: weight gain (may be less prominent than with clozapine and olanzapine), sedation, orthostatic hypotension if dose increased too quickly

## Ziprasidone

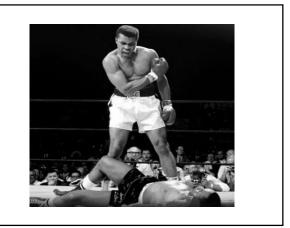
- No controlled studies in developmental disabilities
- Common side effects: sedation (transient), occasional insomnia or behavioral activation. Not associated with significant weight gain
- Should not be given to patients with cardiac problems
- Must be taken with food

#### Aripiprazole

- FDA-approved for "irritability" in children and adolescents with autism.
- Common side effects: EPS and nausea/vomiting if given at too high a starting dose. Occasionally transient sedation or activation.
- · Most weight-neutral other than ziprasidone
- No prolactin elevation

#### Paliperidone

- · Major active metabolite of risperidone
- Potentially fewer drug-drug interactions
- · Once daily dosing
- Potentially less weight gain and prolactin elevation



## Aggression (Cont'd)

- Mood Stabilizers
  - -Valproic acid
  - Lithium
  - -Carbamazepine
  - -Gabapentin
  - -Topiramate

## Valproic Acid

- The only controlled study in autism found no drug vs. placebo difference
- Common side effects: sedation, weight gain
- Need to monitor blood level for therapeutic range and to follow liver function tests
- May be useful in patients with seizures and aggression

#### Lithium

- No controlled studies in developmental disabilities
- Common side effects: tremor, polydipsia, polyuria, weight gain
- Need to monitor blood for therapeutic range and to follow kidney and thyroid function

## Carbamazepine

- No controlled studies in developmental disabilities
- Common side effects: dizziness
- Need to monitor blood level for therapeutic range and to follow blood count and sodium level

# Gabapentin

- No controlled studies in developmental disabilities
- Common side effects: some sedation, some weight gain
- · No need to monitor blood levels
- Not particularly effective on a clinical basis

#### Topiramate

- No controlled studies in developmental disabilities
- Common side effects: sedation, cognitive dulling. Not associated with weight gain
- No need to monitor blood levels

# Aggression (Cont'd)

- Alpha-2 Agonists
  - -Guanfacine: not particularly effective for aggression
  - -Clonidine: can be effective for aggression. Need to balance sedation vs. clinical benefit
- Need to monitor blood pressure and heart rate

# Aggression (Cont'd)

- Naltrexone
- Not effective on a clinical basis
- No significant side effects
- · Need to monitor liver function



## **Mood - Depression**

- -SSRIs
- -Bupropion
- -Venlafaxine (elevated blood pressure)
- -Mirtazapine (weight gain, sedation)
- -Duloxetine (recently released)
- -Tricyclic antidepressants

## Mood - Bipolar

- · Valproic acid
- Lithium
- Carbamazepine
- Gabapentin
- Topiramate
- Lamotrigine (Steven's Johnson Syndrome)

#### **Sleep Disturbance - Insomnia**

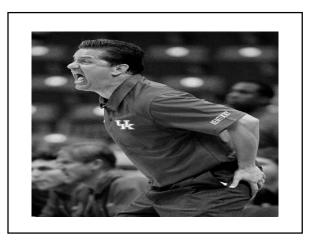
- Diphenhydramine (paradoxical rxt'n)
- Clonidine
- Trazodone (priapism)
- · Chloral hydrate
- Benzodiazepines (paradoxical rxt'n)
- Melatonin
- Mirtazapine

## Pica

- SSRIs
- Behavioral strategies

## Inappropriate Sexual Behavior

- SSRIs
- Hormonal strategies
- · Behavioral strategies



Questions Parents Should Ask Physicians

- Do you have experience using medication to treat symptoms associated with autism? - If so, how many patients with autism do you currently treat in your practice?

- If not, can you recommend someone in the community you have confidence in for this purpose? - Will a medication "cure" my child?

- How will you know if a medication is working?

- How long will my child need to be on medication?

- How often would you want to see my child if she/he is on medication?

Questions Physicians Should Ask Parents

- Does your child have symptoms of irritability (aggression, self-injury, severe tantrums), hyperactivity, inattention, interfering rituals, sleep disturbance, anxiety, or depression?
- If so, attempt to determine frequency, duration and intensity of symptoms.

- Does your child have a seizure disorder?

- Ask about prior medication treatment, including drug, dose, duration and response.

- List the top 3 things you would like to see improve.



#### **Christian Sarkine Autism Treatment** Center

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## **QUESTIONS?**

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