Use of Medications in Autism Spectrum Disorders

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Disclosures

- No affiliation or sponsorships
- Will be talking about off label use of medications
Off Label Use

• Used to indicate when a medication is being used in an age group or for treating a condition that has not yet been approved by the FDA.

• In most cases, the medication has not yet been thoroughly studied in a specific age group (children) or has not been studied for the condition for which it may be prescribed.
Medication Interventions

• May alleviate or modify certain behavioral symptoms.

• May allow a child to benefit more optimally from educational and behavioral interventions.

• May allow a child to function in both the home and school environment.
Sources of Evidence

- Controlled clinical trials in children and adolescents - Double blinded, placebo controlled study (DBPC)
- Controlled clinical trial in adults - DBPC
- Open label trials
- Case series, anecdotal, reports
- Clinical experience
- Neurobiology
Autism Network

- Research Units in Pediatric Psychopharmacology (RUPP)

Pediatric Rule
Medication Interventions

• Risperidone (Risperdal) and aripiprazole (Abilify) are the only two medications with FDA approval for use in Autism.

For the symptomatic treatment of irritability, including aggressive behavior, deliberate self-injury, and temper tantrums in children and adolescents with autism

Risperidone-Ages 5-16
Aripiprazole-Ages 6-17
Treatment Options for Target Symptoms

• Repetitive behavior, rigidity, obsessive-compulsive symptoms- SSRI, atypical antipsychotic, valproate

• Hyperactivity, impulsivity, inattention- stimulant, alpha 2 agonist, atomoxetine, atypical antipsychotic

• Irritability, aggression, explosive outbursts, self-injury- atypical antipsychotics, alpha 2 agonist, anticonvulsant mood stabilizer, SSRI, Beta-Blocker

• Sleep Issues- melatonin, alpha 2 agonist, trazodone, amitryptiline, zolpidem, mirtazipine

• Anxiety- SSRI, buspirone
Types of Medications

• Stimulants
• Alpha-2 Agonist
• Selective Serotonin Reuptake Inhibitors
• Atypical Antipsychotics
• Anticonvulsants
• Sleep Aides
Stimulants

- Methylphenidate/Dexmethylphenidate (Ritalin, Focalin, Daytrana, Concerta, Metadate)

- Mixed Amphetamine Salts/Lisdexamfetamine (Adderall, Vyvanse)

- Dexamphetamine (Dexedrine)

- Atomoxetine (Strattera)-nonstimulant
Stimulants

- Early studies indicated increased irritability and stereotypical behavior.

- Stimulants contraindicated for some time

- Later studies with better control of hyperactivity, impulsivity, and inattention
Stimulants-Side Effects

- Decreased appetite/weight loss
- Increase in motor and vocal tics
- Increased aggression/irritability
Alpha-2 Adrenergic Agonists

- Clonidine (Catapress)
- Guanfacine (Tenex/Intuniv)
Alpha-2 Adrenergic Agonists

Effects

• Similar to stimulants-decrease hyperactivity and impulsivity

  • Suppresses motor and vocal tics

  • Improved sleep initiation

  • Decreases aggression

  • Improved mood stability
Alpha-2 Adrenergic Agonists Side Effects

- Sedation/Fatigue
- Some irritability
- Dizziness
- Low Heart Rate/Bradycardia
Selective Serotonin Reuptake Inhibitors

- Fluoxetine (Prozac)
- Fluvoxamine (Luvox)
- Sertraline (Zoloft)
- Clomipramine (Tricyclic Antidepressants)
Selective Serotonin Reuptake Inhibitors - Effects

- Improved negative behavior/mood
- Improved anxiety
- Improved social interaction/language
- Decreased difficulty with transitions
Selective Serotonin Reuptake Inhibitors-Side Effects

• Agitation

• Aggression

• Hyperactivity

• Insomnia

• Elated effect/dissociative symptoms
Atypical Antipsychotics

• Risperidone (Risperdal)
  • Ariipiprazole (Abilify)
  • Quetiapine (Seroquel)
  • Olanzapine (Zyprexa)
  • Ziprasidone (Geodon)
Atypical Antipsychotics-Effects

• Decreased aggression

• Decreased self-injurious behavior

• Decreased repetitive behavior
Atypical Antipsychotics-Side Effects

- Sedation

- Extrapyramidal motor effects

- Dystonic reactions

- Gynecomastia in boys (increased Prolactin)

- Increased appetite/weight gain

- Risk of diabetes

- Gastrointestinal-abdominal pain/constipation
Anticonvulsants

• Valproate (Depakoate)

• Lamotrigine (Lamictal)

• Levetiracetam (Keppra)
Anticonvulsants-Effects

- Treatment of epilepsy
- Decreased aggression
- Decreased impulsivity
- Decreased repetitive behavior

Appears to be more effective with children with abnormal EEG’s or with known seizures

Valproate with more positive studies
Anticonvulsants-Side Effects

- Sedation
- Liver Abnormalities
- Bone Marrow suppression
- Decreased cognitive effect
Sleep Aides

• Melatonin
• Clonidine
• Trazodone
• Mirtazipine (Remeron)
• Atypical Antipsychotics
Sleep Aides-Side Effects

- Excessive morning sedation
- Increased sleep walking/talking/nightmares/night terrors (REM Sleep)
  - Headache
  - Confusion
  - Irritability
Sleep Aides

Melatonin (N-acetyl-5-methoxytryptamine)

Hormone derived from tryptophan released from the Pineal Gland in response to decreased light stimulation

Also has anti-oxidant properties
Summary

• Medications are useful to decrease disruptive or non-functional behavior in Autism

• Medications can increase functioning in both low functioning and high functioning forms of Autism

• Medications have a number of side effects and adverse effects and should be monitored very closely by a medical provider