

ASD'S: CO- MORBIDITIES AND MEDICATION TREATMENT STRATEGIES

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COMMON CO-MORBIDITIES IN ASD

Mood
Disorders and
Anxiety

Seizure
Disorders

ADD/ADHD

Tic Disorders

Sleep
Disorders

SEIZURES

Increased risk in ASD – up to 25%

All seizure types may occur

2 peaks of onset – before age 5 and puberty

Warning signs: late age of regression, sudden change in behavior, new overnight wakening, worsening attention, unexplained periods of fear or sensory complaints

AGGRESSION IN SEIZURES

- Not a directed behavior
 - i.e. Hitting a certain person, picking up and throwing a toy
- During seizure, behaviors would be “fight or flight” and non-directed
- Do not remember behaviors afterwards, so remorse is uncommon

ESES AND LANDAU KLEFFNER SYNDROME

- ESES = Electrical Status Epilepticus during Slow Wave Sleep. Broad areas of electrical seizures during sleep.
- LKS = Focused areas of seizure in the temporal lobes during sleep.
- Both have language regression. ESES also has some behavioral manifestations.
- Diagnosed with a sleep EEG.

ANTI-EPILEPTIC SIDE EFFECTS

Sleepiness

Tremor (Handwriting change)

Ataxia

Altered concentration

Word-finding difficulties

WHAT ELSE CAN MEDICATIONS TREAT IN ASD?

- Medications are most useful to target specific associated symptoms that can further impair social or educational function:
 - Irritability or Aggressive behavior
 - Self injury
 - Mood or Anxiety
 - Distractibility or difficulty with Attention
 - Obsessions or Compulsions
 - Sleep problems
 - Tics

THE “WHY” OF MEDICATION

- “Why” is a unique choice for each family!
- When a symptom is causing distress for a child or reducing the child’s quality of life
- When a specific target symptom is interfering with an individual’s ability to make progress with independence, social function or academic / vocational function
- Depends on the target symptom(s)
- ALWAYS a balance between risk and potential benefits
- What research is available to support the use of the medication
- Symptoms cannot be treated with behavioral interventions alone

BEFORE MEDICATION IS STARTED...

What specific behavior or set of behaviors is being targeted?

What are the risks and the possible benefits of the medication? Do I perceive the risks to be worth taking?

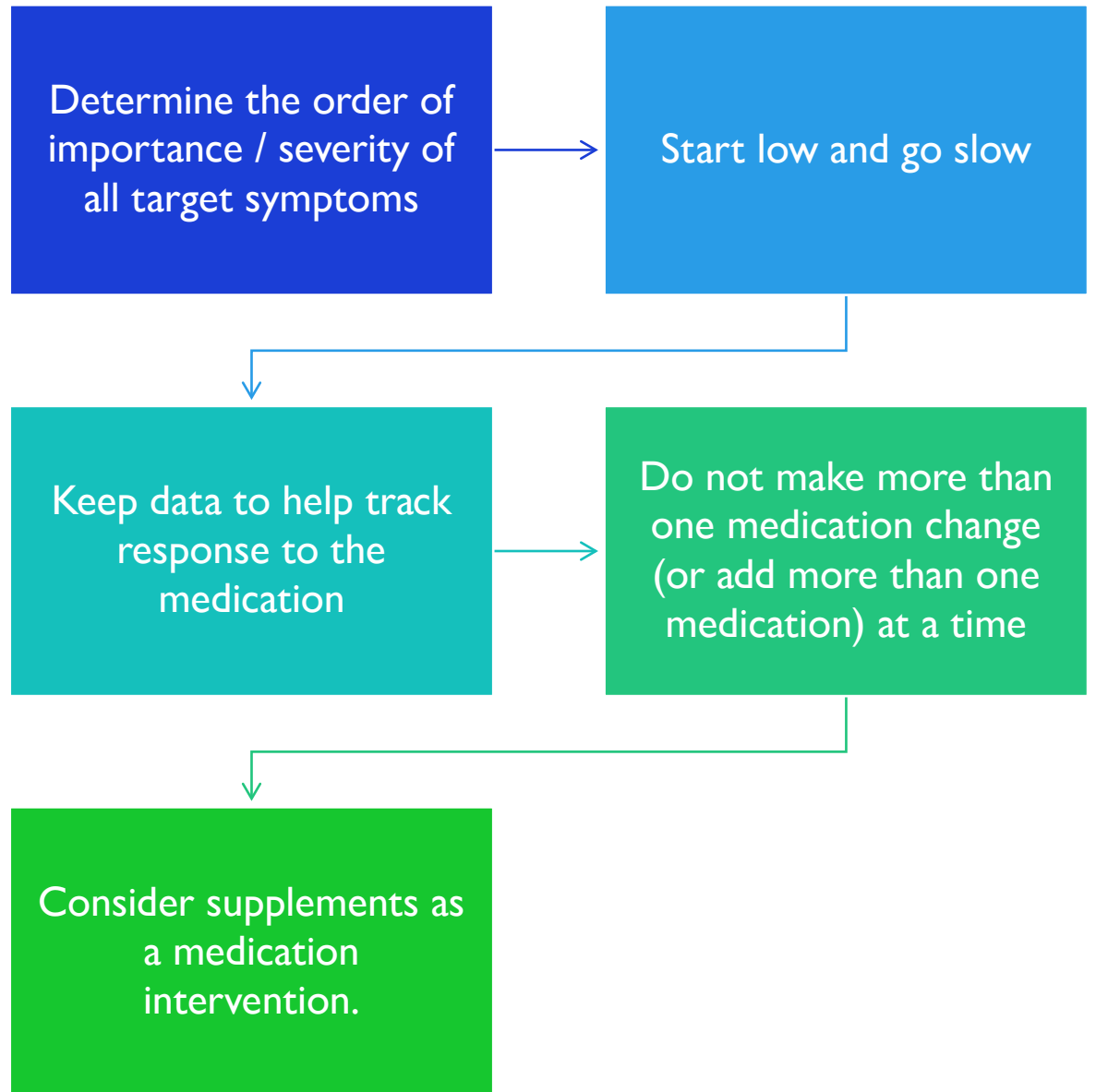
How will the effect on target behaviors be monitored?

What are my long-term expectations?

BEFORE MEDICATION IS STARTED...

- Assessment of the target symptom:
 - Single individual observation
 - Occurrences per time period or activity
 - Observation across settings
 - Teachers and care providers as partners
- Diagnostic scale or tool
 - Vanderbilt or Connors Scales – ADHD
 - Becks Depression Inventory
 - Becks Anxiety or SCARED
 - Aberrant Behavior Checklist

GENERAL PRINCIPLES OF MEDICATION USE



ATYPICAL ANTIPSYCHOTICS

- Target symptoms: irritability, aggression, stereotypic behaviors, self injury, hyperactivity
- Other possible areas of benefit: oral fluency, social withdrawal, apathy / lack of interests
- One of most well studied groups of agents in autism
- Studied in both children and adults

ANTIPSYCHOTICS IN CHILDREN WITH AUTISM

- 101 children studied using Risperdal at a dose of 0.5 - 3.5 mg/day
- Results:
 - 57% decrease in irritability
 - Improved stereotypies and hyperactive or aggressive behaviors
 - Persistence at 6 months
- Other studies in adults and children have also shown improvement in attention, eye contact and social withdrawal

COMMON ATYPICAL ANTIPSYCHOTICS

- Function = Binds and blocks D2 receptors
- Risperidone (Risperdal)
- Ziprasidone (Geodon)
- Quetiapine (Seroquel)
- Olanzapine (Zyprexa)
- Aripiprazole (Abilify) - also has agonist properties at 5HT1 receptors and antagonist properties at 5HT2 receptors

SIDE EFFECT PROFILE: ATYPICAL ANTIPSYCHOTICS

- Less risk of progressing to Tardive Dyskinesia/ EPS than traditional antipsychotics - but still a 30% risk with long-term use
- Weight gain - more prominent with Risperdal
- Worsened cholesterol profiles / steatohepatitis
- Increased risk of Type II diabetes - independent of weight gain
- Increased prolactin levels (better with Seroquel)
- Dysphoria / depression

SSRI'S

- Why is the serotonin system important?
 - Serotonin fluctuations may be involved in underlying pathophysiology of autism
- Symptoms that SSRI's target best:
 - Repetitive behaviors
 - Compulsions / Obsessions
 - Anxiety – 40% of individuals with ASD
 - Mood – 25% of individuals with ASD with depression

STUDIES ON THE SSRI'S

- Fluvoxamine - landmark study in adults
 - Decreased aggression and OCD symptoms
 - Increased social relatedness
- Many others: no one agent in this category has emerged as more powerful or effective than any other.
- One small study suggests additive improvements using SSRI's and atypical antipsychotics together

THE SSRI BLACK BOX WARNING

Much debate in medical literature about significance of the risk of suicidal behavior

Some studies suggest no increased risk; others suggest a two-fold or more risk increase

Studies are on patients with unipolar depression or bipolar disease

Increased risk of suicide particularly around the start of medicine and during medication increases

Warning is for ALL medications in the SSRI category

COMMONLY USED SSRI'S

- “Activating” – Paxil, Prozac, Celexa, Lexapro
- “Sedating” – Zoloft
- Serotonin and Norepinephrine – Effexor and Wellbutrin
- Serotonin and Dopamine – Abilify
- CYP450 testing now possible

ADD / ADHD

Approximately 60% of children with ASD

Diagnosis includes differences in:

- Attention: Time a child can spend without re-direction on a NON-PREFERRED task
- Distractibility: Poor ability to screen out surrounding noise and activity distractors
- Difficulty with impulse control
- Hyperkinesis: Difficulty regulation body movements

STIMULANT MEDICATIONS

- Short-acting
- Risk of “rebound moodiness”
- Risk of appetite reduction
- Weight loss
- Sleep disturbance
- Tics
- “Paradoxical” responses

STIMULANT MEDICATIONS

- 2 main chemical types – Don't be fooled!
- Choose based on how it is taken and dispensing properties.
- Methylphenidate versus Amphetamine salts (Dextroamphetamine)

SINGLE DOSE RITALIN STUDY

- 13 children with an ASD were given a single dose of Ritalin and monitored one hour later.
 - 5 had more stereotypies or tics, hyperactivity and / or dysphoria at one hour
 - Of the 8 that went on to a longer trial, none of these side effects emerged over several months (regardless of medication efficacy)

NON-STIMULANT MEDICATIONS

- Long-acting / 24 hour coverage
- Can augment the impact of stimulants
- Strattera - somewhat less risk of appetite and sleep disturbance; good for anxiety
- Intuniv – sleepiness is limiting factor
- Tenex / Clonidine

SLEEP DIFFICULTIES

Difficulty with sleep initiation and maintenance very common in ASD

May be related to differences in melatonin concentration and serotonin metabolism

If frequent nighttime waking is main concern, should be evaluated with sleep study or EEG

If excessive daytime sleepiness, consider a formal sleep study

CLONIDINE

- Shown to have a short-term benefit on hyper-arousal and irritability
- Helps with initiation of sleep (which is also the main side effect)
- No studies in autism (except for use during EEG sedation)

MELATONIN

- Shown to have benefit to sleep:wake cycle in children and adults with a variety of developmental difficulties
- Small study of 14 autistic children showed abnormal circadian cycles and low melatonin level in all of the participants
- Dose range = 1 to 10 mg
- Importance of melatonin breaks to prevent tolerance: 2 days per week or 1 week per month
- Not a prescription medication and not FDA regulated

TIC DISORDERS

Do tics warrant treatment?

Waxing and waning course

Explosive onset with OCD?
Consider auto-immune etiology

Medications – clonidine, anti-epileptics, atypical antipsychotics

FUTURE POSSIBILITIES

Anti-cholinesterase Inhibitors (donepezil, galantamine, rivastigmine tartrate): possible increase in verbal fluency and amount of expressive speech

Anti-epileptics: Keppra - decrease in irritability and improved interactions

Cyproheptadine (5HT2 blocker)

ANY QUESTIONS?



Feel free to reach out to me directly!



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