

# Pharmacological Management of Autism Spectrum Disorders

*Lightin the Way 2018*

David Ermer Md

# Pharmacotherapy common in Autism Spectrum illnesses (ASDs)

- 45% of children and adolescents with ASDs treated with psychotropic medications
- 75% of adults with ASDs treated with psychotropic medications

# Research into Psychotropic Medications in ASD's is Relatively New

- Before 2006 there were no FDA approved medications for use in Autism
- With the increased incidence of ASDs being reported, there is increased interest from the pharmaceutical industry

# Treatment Strategies for Pharmacologic Intervention

- Pharmacologic treatments are available and significantly beneficial
- Educational and behavioral supports are the mainstays of treatment
- It is essential to integrate behavioral and pharmacologic treatments

# Realistic Expectations Must be Set

- Expectation that symptoms remit more quickly with pharmacologic treatment over behavioral treatments
- Expectation that response will be more complete with pharmacologic treatments
- “magic bullets”

# Must Optimize Environment

- Evaluate school setting
- Work with caregivers on home environment
- Pharmacologic strategies ineffective in unsupportive and inadequate environments

# Parental Collaboration is Essential

- Monitor patient and provide information to provider
- Administer medication
- Observe side effects
- Note emotional and behavioral effects
- Collaborate their information with school

# Focus on Symptom Clusters

- Most of the core symptoms are likely to remain
- Must focus on specific measurable symptoms
- The clinician's goal is a reduction in the specific symptoms that interfere with functioning
- Unlikely that medications will improve skills



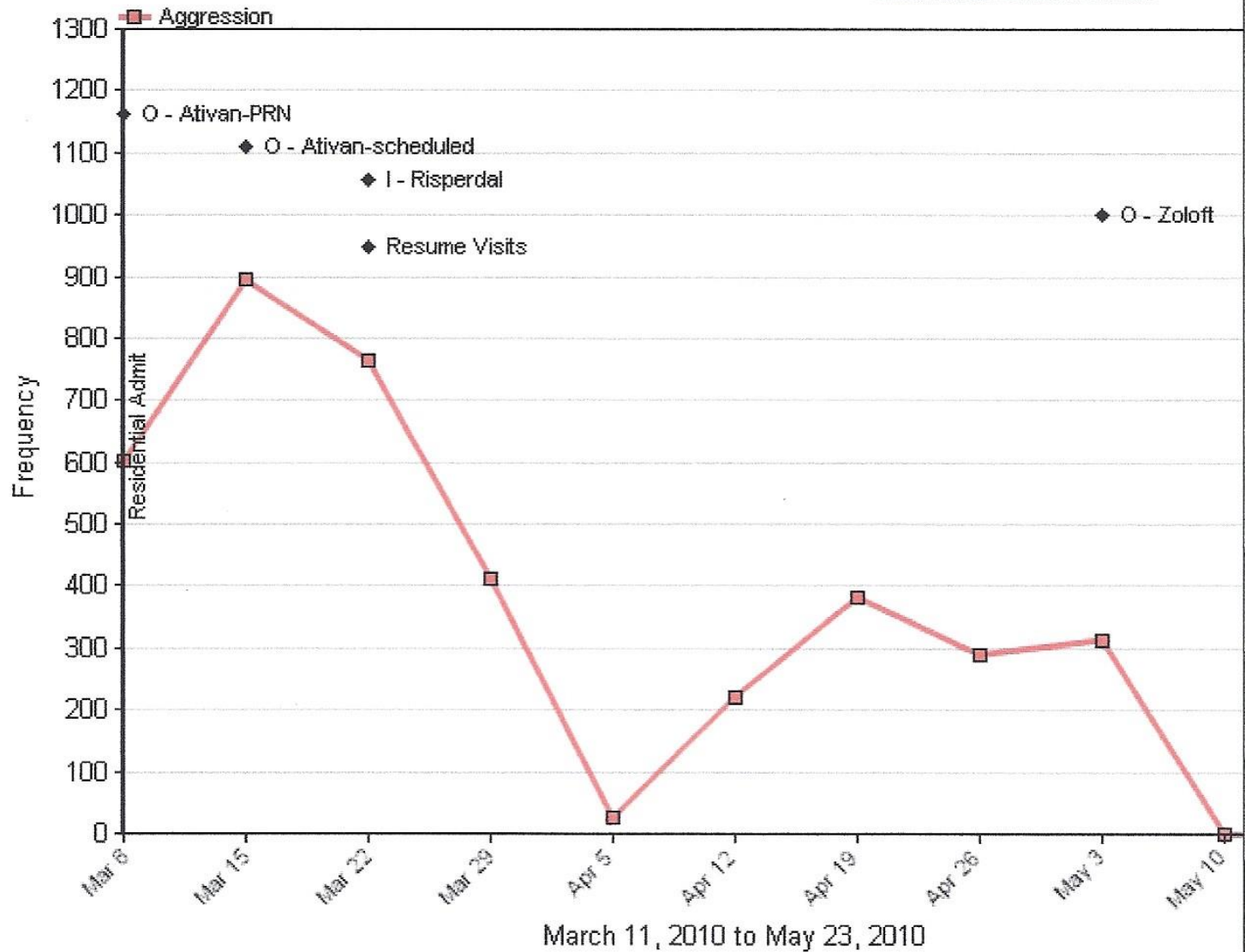
# Side Effects

- Side effects are more likely for all medicines used in autism spectrum disorders; greater variety and rate due to atypical sensory world
- May find even minor side effects impossible to tolerate
- They may be less likely to report side effects
- Highly concrete patients may need to be asked about specific side effects

# Data Collection is Essential

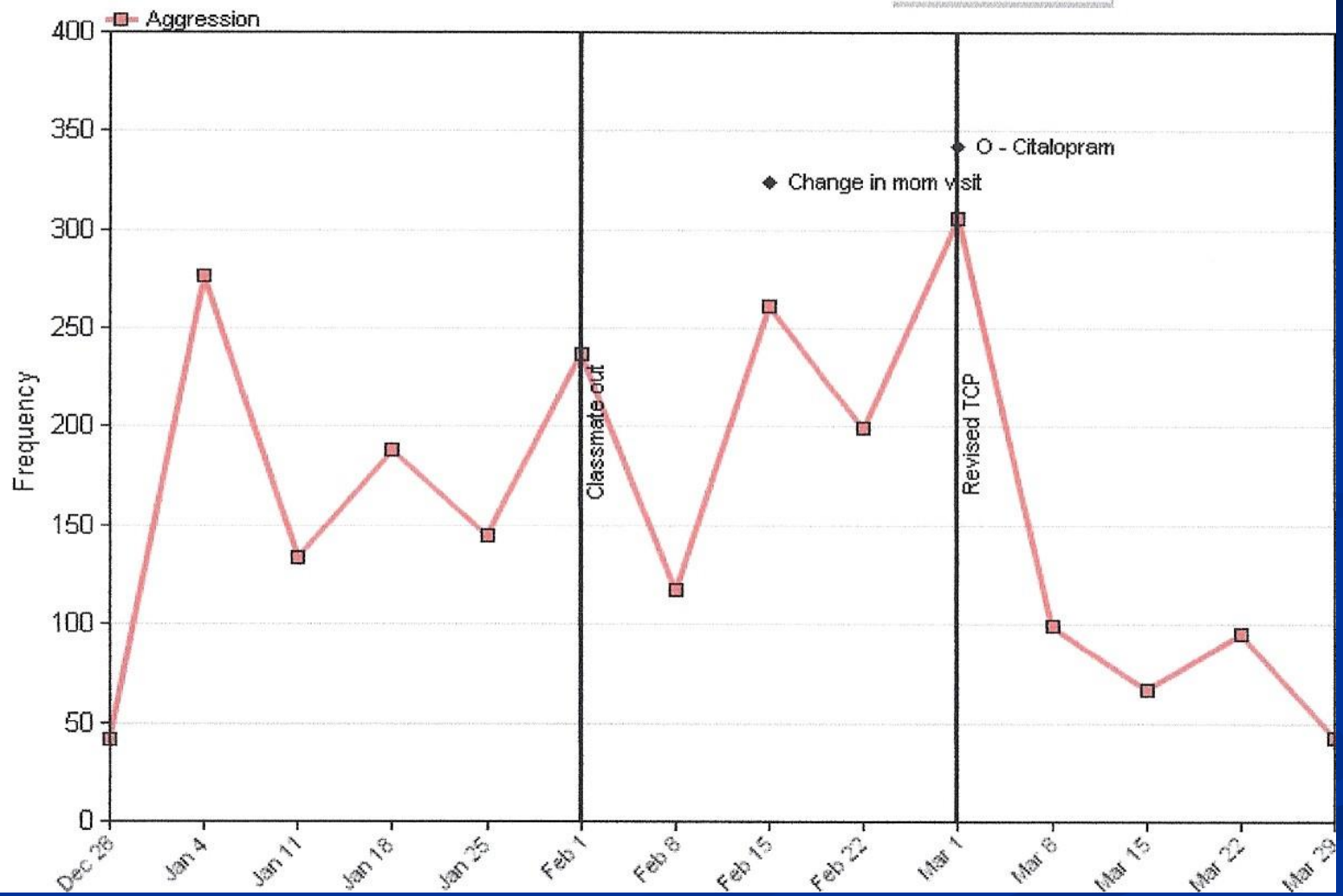
- First must pick realistic measurable target symptoms
- Must then collect baseline data for target symptoms
- Then collect data

# Maladaptive Behavior: Behavior for [REDACTED]



Medication Change: I - Increase D - Decrease O - Initiation X - Discontinue

# Maladaptive Behavior: Behavior for [REDACTED]



# Target Symptoms for Psychotropic Medications in ASDs

- ADHD-Like Symptoms
- Aggression, irritability, and self-injurious behaviors
- Repetitive Behaviors
- Deficits in Social Behaviors
- Sleep Issues

# Medications For ADHD Like Symptoms

- Stimulants
- Atomoxetine
- Alpha 2 Adrenergic Agonists
- Tricyclic antidepressants

# Stimulants

## Methylphenidate

- Ritalin: short acting lasting 3-5 hours
- Concerta: longer acting lasting 10-12 hours, capsules cannot be broken
- Ritalin LA, Metadate CD: Longer acting 8-10 hours, capsules can be broken and ingredients sprinkled

# Stimulants

## Dexmethylphenidate

- Focalin: Short acting 4-6 hours
- Focalin XR: 8-10 hours, can be sprinkled



# Stimulants

## Amphetamines

- Dextroamphetamine: Dexedrine lasts about 4-6 hours
- Amphetamine salts: Adderall lasts 4-6 hours, Adderall XR lasts 10-12 hours and can be sprinkled

# Stimulants

## Lisdexamfetamine

- Vyvanse: lasts 10-12 hours, can be sprinkled, possible less abuse potential

# Stimulants

- Benefits within an hour of administration
- Schedule II drug so have abuse potential
- Dosed based on response versus side effects

# Stimulants

## Side Effects

- Appetite suppression: most frequent side effect
- Insomnia
- Irritability
- Worsening tics
- Social withdrawal

# Atomoxetine (Strattera)

- Takes several weeks for maximum benefit
- Dosing up to 1.4mg per kg
- Side effects include gastrointestinal symptoms, fatigue, decreased appetite

# Alpha II Adrenergic Agonists

- Clonidine: May take several weeks for maximum benefit, 2 to 4 times/day dosing, side effects include sedation, dizziness
- Guanfacine: Tenex less sedating, 2x day dosing
- Intuniv: new sustained release form of guanfacine, once a day, benefits measureable until next morning

# Tricyclic Antidepressants

- Imipramine, Nortriptyline: effective but have fallen out of favor due to side effects and need for Blood level monitoring and cardiac monitoring

# Medication for Irritability, Aggression

- Atypical Antipsychotics
- Risperidone (Risperdal) and Aripiprazole (Abilify) FDA approved for use in autism
- Side effect include significant weight gain, sedation, Increased prolactin for risperdal, abnormal movements
- Must monitor serum lipids and blood sugars



# Other Atypical Antipsychotics not FDA Approved

- Olanzapine (Zyprexa), Quetiapine (Seroquel), Ziprasadone (Geodon)

# Medications for Repetitive Behaviors

- Selective Serotonin Reuptake Inhibitors: fluoxetine (Prozac), sertraline (Zoloft), citalopram (Celexa), fluvoxamine (Luvox), escitalopram (Lexapro), paroxetine (Paxil)
- Clomipramine (Anafranil): tricyclic antidepressant effective but with more side effects

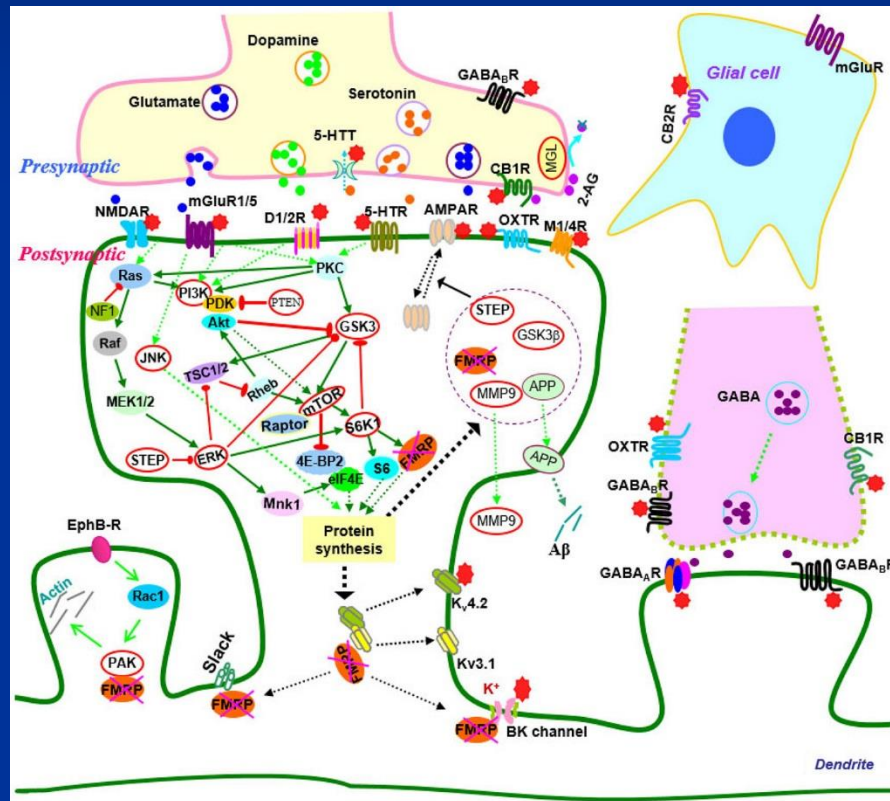
# Selective Serotonin Reuptake Inhibitors

- Potential Improvements in anxiety, repetitive behaviors, irritability, depression, transition difficulties
- Potential adverse effects: nausea, drowsiness, agitation, abdominal discomfort, behavioral activation, sexual dysfunction, suicidal thinking
- Take several weeks for maximum benefit

# Newer Medications?

- Many neurotransmitters being studied
- 2 Drugs designated FDA “Fast Track” status for core symptoms: Balovaptan (vasopressin receptor blocker) and L-79 (tyrosine hydroxylase inhibitor)

# Neurotransmitter Targets



# Deficits in Social Behavior

## New Study Area

- Preliminary studies suggest that medication that impact glutamate neurotransmitter system may help core communication and social deficits
- D-Cycloserine: well tolerated, minimal response
- Memantine (Namenda): Preliminary studies suggest some behavior side effects, improvement in social withdrawal and communication

# Insomnia

- Clonidine 20 minutes before bedtime, .05 to 0.2 mg
- Melatonin 20 minutes before bedtime, 1-6 mg

# Other Medication

- Lithium for mood instability, bipolar disorder
- Antiepileptics, valproic acid, carbamazepine, lamotragine etc for bipolar disorder



# Complimentary or Alternative Medicine (CAM)

- 50-75% children with autism treated with CAM
- Very little research on efficacy or side effects
- Secretin is most studied and found to be ineffective
- Naltrexone ineffective
- Vitamins or nutritional supplements well tolerated but unstudied
- Melatonin has moved from CAM to mainstream medicine due to improvement demonstrated on well designed studies

# With CAM, Seek More Information In the Following Situations

- Treatments that are based on overly simplified scientific theories
- Therapies that claimed to be effective for multiple different unrelated conditions or symptoms
- Claims that children will respond dramatically and some will be cured
- Use of case reports or anecdotal data
- Lack of peer reviewed references
- Treatments that are said to have no potential or reported adverse effects

# Challenges in using Medication

- Unclear Diagnosis
- Symptoms that span a range of diagnoses
- Comorbid medical diagnosis
- Limited research
- Higher rates of side effects

# First, DO NO HARM

- Weigh risks and benefits
- Closely monitor for side effects
- Discontinue if no clear benefit
- Periodically attempt a taper