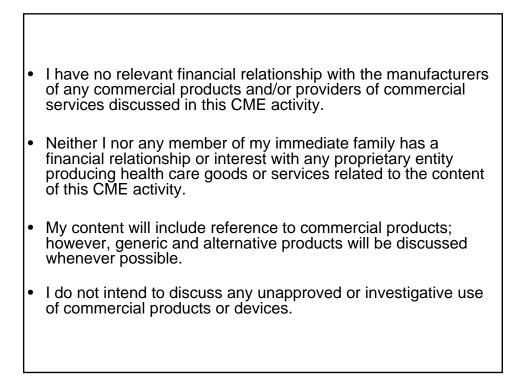
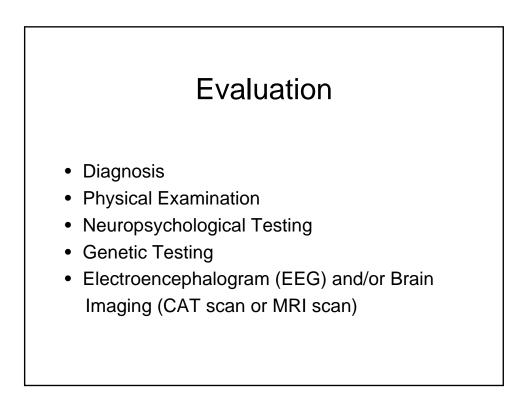
#### Practical Psychopharmacology of Autism Spectrum Disorders

Christopher J. McDougle, M.D. Director, Lurie Center for Autism Professor of Psychiatry and Pediatrics Massachusetts General Hospital and MassGeneral Hospital for Children Nancy Lurie Marks Professor Harvard Medical School



## **Off-Label Use Of Medication**

In this presentation, all discussion of use of medication refers to "**off-label**" use other than risperidone and aripiprazole for irritability in children and adolescents with autistic disorder



#### **Treatment Options**

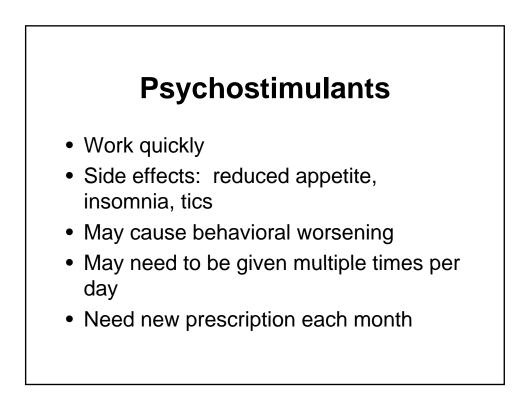
- Behavior therapy
- Speech and Language therapy
- Occupational therapy
- Physical therapy
- Social skills therapy
- Special educational services (academic vs. life skills track)
- Treatment of comorbid medical problems, including seizures
- Vocational training
- Pharmacotherapy

#### **Target Symptoms for Medication**

- Motor hyperactivity and inattention
- Interfering ritualistic behavior
- Aggression, self-injury, severe tantrums
- Mood disturbances: depression, bipolar
- Anxiety
- 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





- 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



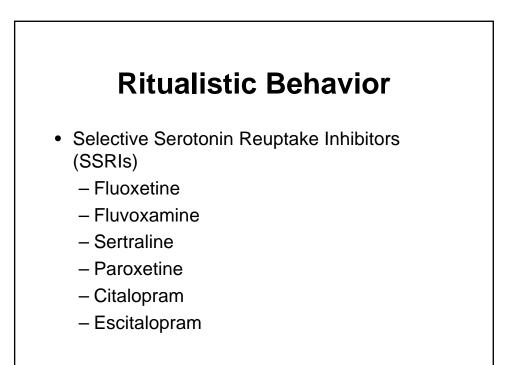
 Atomoxetine: effective in ADHD; preliminary studies in developmental disabilities. May take longer to work than stimulants. Generally won't make tics worse. May help with comorbid mood and/or anxiety.

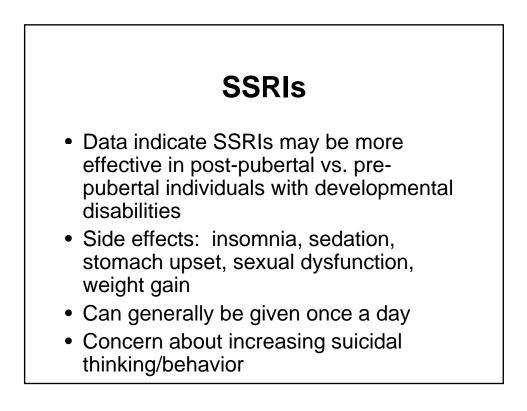
#### Non-Stimulants (Cont'd)

 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)

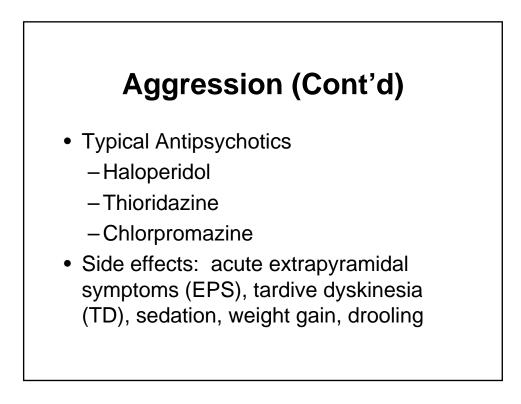
 Tricyclic antidepressants: not wellstudied in developmental disabilities. Associated with side effects including: dry mouth, blurry vision, constipation. Can lower the seizure threshold. Can affect cardiac rhythm.

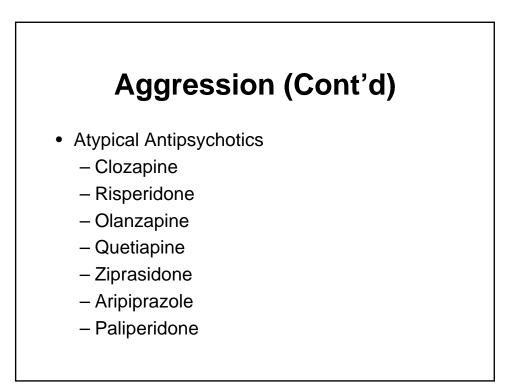


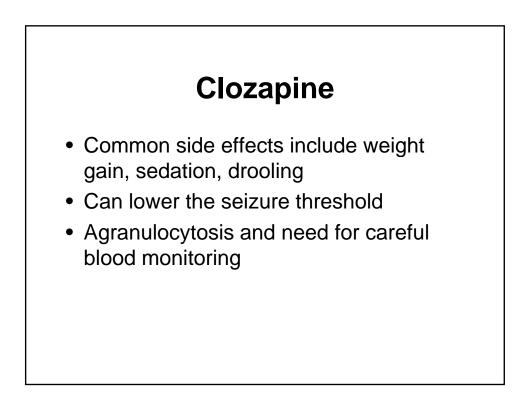


## Aggression Severe Tantrums/Self-Injury

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

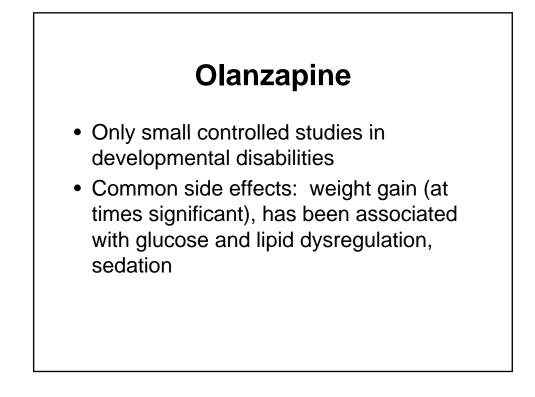






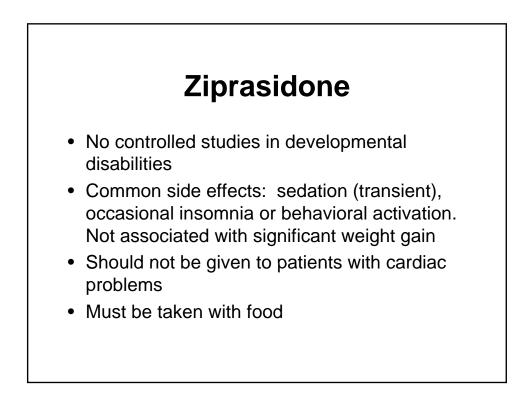


- Well-studied in autism (FDA approval) and mental retardation associated with behavioral dyscontrol
- Common side effects: weight gain, sedation (transient), drooling, elevated prolactin



## 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

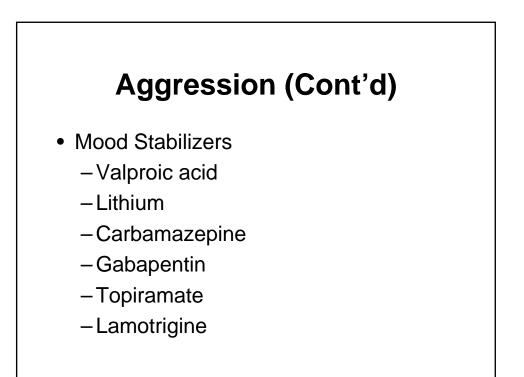


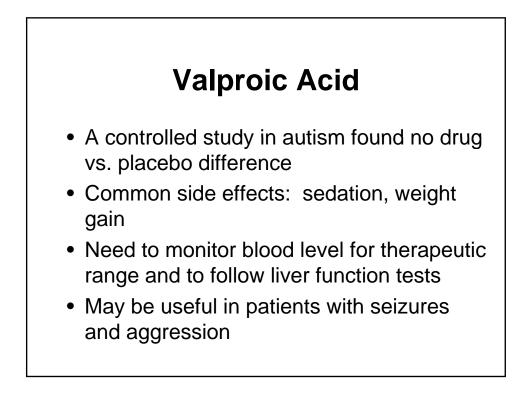


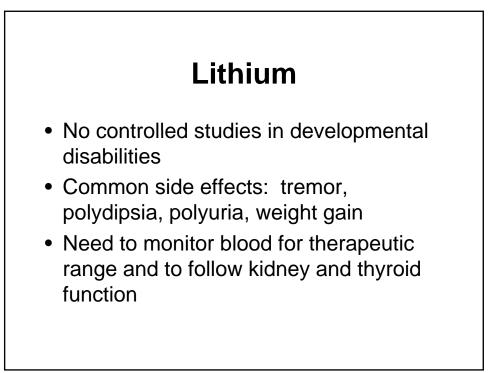
- FDA-approved for "irritability" in children and adolescents with autism.
- Common side effects: EPS and nausea/vomiting if given at too high a starting dose. Occasionally transient sedation or activation.
- Most weight-neutral other than ziprasidone
- No prolactin elevation

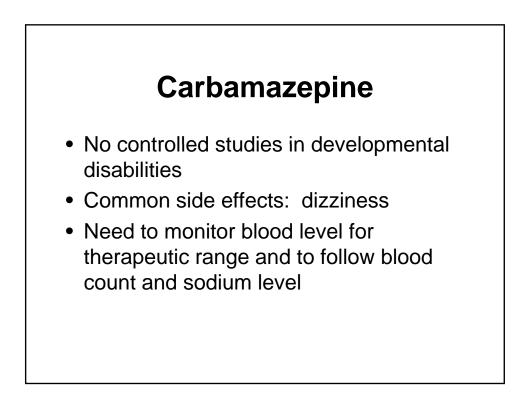


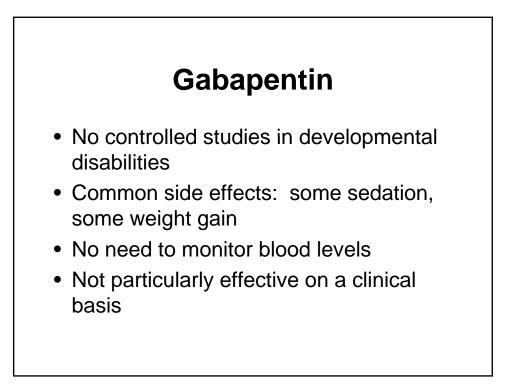
- Major active metabolite of risperidone
- Potentially fewer drug-drug interactions
- Once daily dosing
- Potentially less weight gain and prolactin elevation

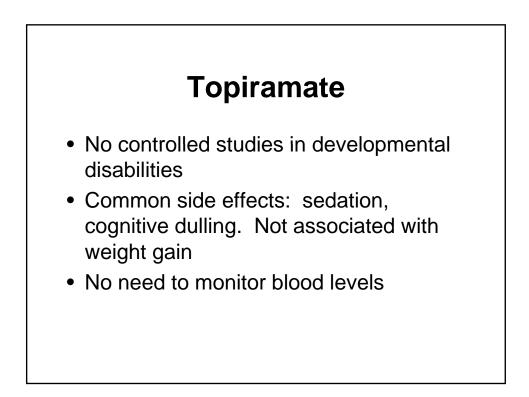












## Lamotrigine

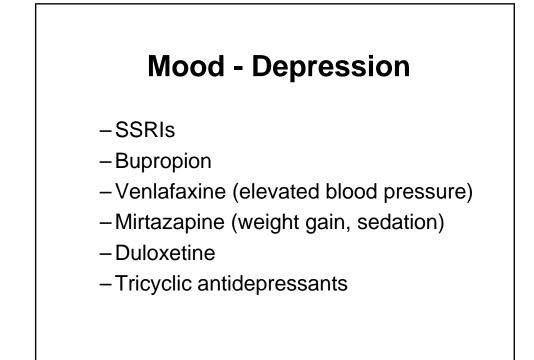
- Controlled study in autism found no drug vs. placebo difference
- Must increase the dose very slowly
- Steven's Johnson rash

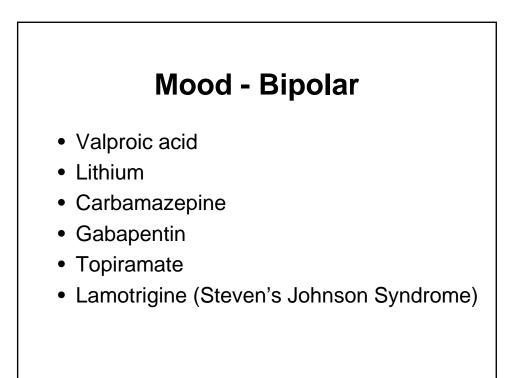


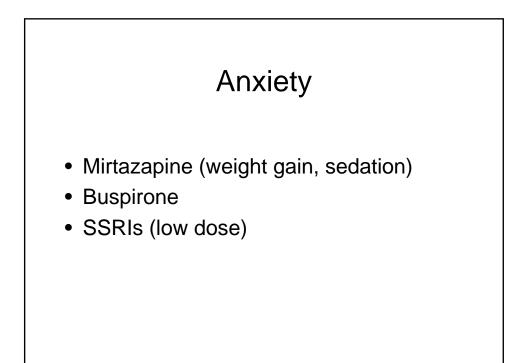
- Alpha-2 Agonists
  - Guanfacine: not particularly effective for aggression
  - Clonidine: can be effective for aggression. Need to balance sedation vs. clinical benefit
- Need to monitor blood pressure and heart rate



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

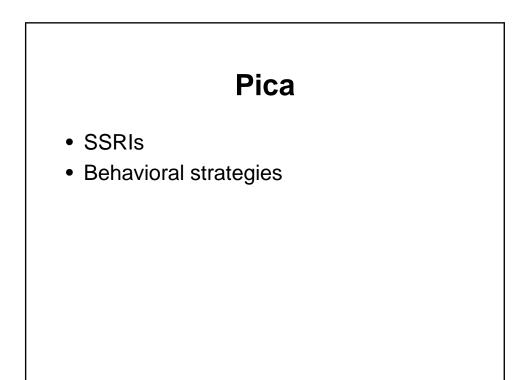






## **Sleep Disturbance - Insomnia**

- Melatonin
- Clonidine
- Trazodone (priapism)
- Mirtazapine
- Tricyclic Antidepressant (Doxepine, Amitriptyline)
- Chloral Hydrate
- Benzodiazepines (Paradoxical rxt'm)
- Dephenhydramine (Paradoxical rxt'n)



## **Inappropriate Sexual Behavior**

- SSRIs
- Hormonal strategies
- Behavioral strategies

#### **Lurie Center for Autism**

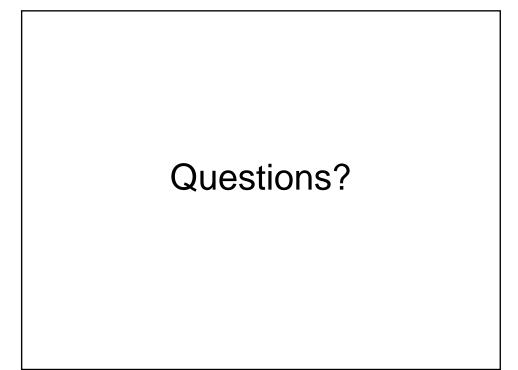
- Christopher J. McDougle, MD
- Ann Neumeyer, MD
- Timothy Buie, MD
- Susan Connors, MD
- Nora Friedman, MD
- Charles Henry, MD
- Yamini Howe, MD
- Katherine Martien, MD
- Michelle Palumbo, MD
- Laura Politte, MD
- Ron Thibert, MD
- Lisa Nowinski, Ph.D
- Gillian Erhabor, Ph.D
- Julia O' Rourke, Ph.D., M.S.



http://www.massgeneral.org/children/s ervices/treatmentprograms (781)-860-1700



- National Institute of Mental Health
- Autism Speaks
- National Institute of Child Health and Human Development
- Nancy Lurie Marks Family Foundation
- The Robert and Donna Landreth Fund



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