Overview of Autism Spectrum Disorders: Treatment Considerations for Primary Care

Aditi Sharma, MD
Vancouver, WA
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Disclosures

- I have no financial disclosures
- I will be discussing off-label use of medications
What is Autism?

• New terminology (DSM 5)

• *Autism Spectrum Disorder*
  • Reflects that we now think of autism as a **heterogeneous disorder of neurodevelopment**
  • In some cases, genetic contributors are identified
  • In most, there is not an identifiable underlying condition (yet)

• *Asperger’s syndrome*

• *Pervasive developmental disorder, NOS (PDD, NOS)*

• *Autistic Disorder*

• *Childhood disintegrative disorder*

Bauman 2014
Autism Spectrum Disorder

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history

1. Deficits in social-emotional reciprocity
2. Deficits in nonverbal communicative behaviors used for social interaction
3. Deficits in developing, maintaining, and understanding relationships
ASD Diagnostic Criteria (2)

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history:

1. Stereotyped or repetitive motor movements, use of objects, or speech
2. Insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal nonverbal behavior
3. Highly restricted, fixated interests that are abnormal in intensity or focus
4. Hyper- or hyperactivity to sensory input or unusual interests in sensory aspects of the environment
ASD Diagnostic Criteria (3)

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay.

- To make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.
ASD Diagnostic Criteria (4)

• Specify if:
  
  With or without accompanying intellectual impairment
  
  With or without accompanying language impairment
  
  Associated with a known medical or genetic condition or environmental factor
Note: Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger’s disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

Specify current severity, based on social communication impairments and restricted, repetitive patterns of behavior.
Severity Specifications

Social communication domain
Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.

Restricted, repetitive patterns of behavior domain
Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.
Severity Specifications (2)

**Level 2**
"Requiring substantial support"

Social communication domain
Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and how has markedly odd nonverbal communication.

Restricted, repetitive patterns of behavior domain
Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Severity Specifications (3)

Social communication domain
Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.

Restricted, repetitive patterns of behavior domain
Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.

Level 3 "Requiring very substantial support"
Presentation - varied

• 10-year-old boy in regular school, who has outbursts and "explosiveness" that occur on a daily basis when he is frustrated. He has normal cognitive abilities but struggles with inattention and peer relationships. He is vulnerable in school to bullying.

• 5-year-old girl with almost no verbal language, needs things to be arranged a certain way, wakes up in the middle of the night to make sure things are the way she left them.

• 9-year-old boy with language impairment, intellectual delay, who engages in fecal smearing and aggression. Requires a 1-1 aide at school for safety.
Common Medical Co-Morbidities

- Sleep disorders – 40-80% prevalence in children with ASD (compared with 30% prevalence in typically developing children)

- Seizure disorders – 20-25% prevalence in children with ASD

- GI problems – 9-70% prevalence

- Other issues (metabolic disorders, others)

Think of a medical problem when the chief complaint is new agitation/aggression in a child or adolescent with ASD and language impairment

Volkmar et al, 2014; Bauman, 2010
Common Psychiatric Comorbidities

- ADHD (28-78%)
- Anxiety disorders (42-55%)
- Depression (10-24%)
- Other mood disorders
- Intellectual disability
- Tic disorder
- Psychotic symptoms (hallucinations)

Note: with change in DSM criteria, these estimates may not be up to date, given that previous studies often cited comorbidities only for autistic disorder, rather than the entire spectrum

Toth & Stobbe, 2011; Kaplan & McCracken, 2012
Workup – this can be extensive

- M-CHAT
- Social Communication Questionnaire
- Speech and Language Assessment
- ADOS evaluation
- Genetic testing
- Genetics referral
Intervention

• There is no medication treatment for the core symptoms of autism spectrum disorder
  • For these symptoms, the best treatments are behavioral or focused on specific skill acquisition (speech therapy, for example)

• However, co-morbidities that may respond to medication are common (ADHD, anxiety)

• There are many effective behavioral interventions that can be taught to parents by the pediatrician or therapist
Basic behavioral interventions

A lot of aggressive/disruptive behavior occurs because a child is trying to communicate needs or get their way, and does not have the verbal skills to do so appropriately.

Do a functional behavior analysis

- This can be done briefly in an office visit (PCP), or during a therapy visit
- ABC model
  - Antecedent
  - Behavior
  - Consequence
- Types of reinforcement
  - Positive
  - Negative (escape)
  - Automatic
Behavioral interventions (2)

• Let’s talk about a typically developing child to illustrate the ABC model and types of reinforcement.

• 5-year-old child at the grocery store with her father. Asks for a candy bar and father says no. Starts to throw a tantrum and makes a big scene. Father, who is embarrassed and trying to calm things down, agrees to get her the candy bar. She calms down and they leave the store.

• What did she learn?
Behavioral interventions (3)

- An 8-year-old boy with ADHD acts silly during homework time with his mother, which occurs right after school. He is fidgety, distracted, and often runs off to do other things. Eventually, his mom gives up on the task and decides they will have to do it later.

- What did he learn?
Behavioral interventions (4)

• ABC
  • A: told “no”
  • B: tantrum
  • C: got the candy bar

• Can be a little more complex or a lot more complex
  • A: end of a long school day, tired, got in trouble at school, etc

• Positive reinforcement: when a child gets something as the result of a behavior (eg, candy bar)

• Negative reinforcement: when a child gets out of something as a result of a behavior (eg, homework)

• Automatic reinforcement: when a behavior in itself is reinforcing (eg, self stimulating behavior in ASD)
What is the pattern of reinforcement?

- 8-year-old boy with ASD, in a regular school but with an IEP, 50% of the time in regular education classroom and 50% of the time in special education classroom. He is bullied by peers at school in the regular classroom. He has started engaging in aggressive behavior. When this happens, all the other children are made to leave the classroom and three aides come to help calm him down.

- 9-year-old girl with ASD, home schooled. Has a lot of anxiety and frequently gets upset and has meltdowns when she does not get her way. When she has meltdowns, her mother takes her into her lap and soothes her.
What is the pattern of reinforcement?

- 11-year-old girl with very limited verbal abilities, who is frequently disruptive in school (throwing things). She gets aggressive on a regular basis. Whenever she is aggressive, the school calls the mother and tells her she needs to pick the child up. Mother does so.
What to do next?

- How to approach behaviors once you understand the function
- You can intervene at different levels
- Antecedent
  - Treat anxiety
  - Treat ADHD
  - Improve communication skills
  - Be mindful of situations that might precipitate problematic behaviors, and find ways to prepare
- Consequence
  - Don’t reinforce (but recognize that safety comes first)
  - Help child find ways to express their needs in a better way
A major function of behavior is...

To get attention

• Even bad attention is good attention in a way, and often, kids with behavioral problems don’t get much good attention

So, it’s important to teach parents to:

• “Catch their kids being good” and give positive attention to that (specific, positive praise)

• Ignore minor undesired behaviors (avoid giving attention to those behaviors)

You can model this in the visit!
Disruptive behavior

How psychiatric issues can contribute to disruptive behavior

- ADHD Symptoms: Inattention/hyperactivity → elopement in public settings
- OCD symptoms: Compulsions being interrupted → aggression
- Depression: irritability → aggression or self-injury
- Learning disability → frustration → attempts to elope from classroom
Disruptive Behavior (2)

How medical issues can contribute to disruptive behavior

• Sleep apnea → tiredness → irritability → aggression/self-injury/noncompliance

• Constipation → pain and discomfort (and perhaps inability to communicate this) → irritability → aggression/self-injury

• Hyperthyroidism → agitation and irritability

• Urinary tract infections → pain → self-injury/agitation

• Puberty
How medication side effects can contribute to disruptive behavior

- Stimulants $\rightarrow$ irritability $\rightarrow$ disruptive behavior
- SSRI $\rightarrow$ akathisia (restlessness) $\rightarrow$ disruptive behavior
- Sedation from polypharmacy $\rightarrow$ irritability and noncompliance
Behavior that is rewarded (aka reinforced)...

• Is repeated!

• So, talk with parents about finding ways to reward good/desired behavior

• Bribe vs. reward?
  • Reward is pre-determined and in response to a specific behavior
Other non-pharmacologic interventions

• Teach parents
  • Visual schedule
  • Consider alternative communication tools (sign language, communication boards)
  • Social skills groups (often offered at school)
  • Social stories

• Referrals
  • For motor and adaptive delays, refer to physical therapy and occupational therapy if these are available
  • For speech and communication problems, refer to speech and language pathologist if available (otherwise speech therapy is often available through school)
Medication Interventions

• It is generally accepted that children with ASD respond less favorably to psychiatric medications and are more prone to side effects

• Still, there are situations in which these medications are very helpful, especially in creating some stability that allows for the patient and family to engage in behavioral and skill-building treatments
For ADHD

- Until DSM 5, ADHD and autism could not be diagnosed concurrently!
- Symptoms have always been well-recognized as a comorbidity
- Methylphenidate has been studied in multiple RCTs, shown to have some efficacy, but less so than in typically developing children
- Side effects are more pronounced in patients with ASD (irritability is common)
- If using methylphenidate, start at doses about half of what you would start on a typically developing child of same age/size, and monitor closely for side effects

Kaplan & McCracken 2012
Medication Interventions

- **ADHD**
  - Stimulants (use short-acting at first, given propensity to side effects)
  - Guanfacine found to help with hyperactivity in a very small study
  - Atomoxetine - supported in two RCTs

- **Anxiety**
  - no RCTs examining SSRIs in ASD with anxiety as a primary outcome
  - Mixed studies re: efficacy on repetitive behaviors
  - Reasonable to try SSRIs (start very low), monitor closely for SEs (activation, insomnia, agitation)

- **Sleep disruptions**
  - Although no RCT, a common choice is use of alpha 2 agonists
  - Emerging evidence for melatonin (keep doses <6mg)

Volkmar, et al, 2014
Medication Treatment in ASD

- For aggression related to severe irritability
  - FDA approved:
    - Aripiprazole
    - Risperidone
  - Use when behaviors are severe, endangering, or the patient and family cannot engage in behavioral interventions or do not have access to these
- Consider risks/benefits
- Common side effects: weight gain, other metabolic dysfunction, sedation, motor side effects (dystonia, tardive dyskinesia, akathisia)
- Frequently re-evaluate need for these medications to prevent long-term use if possible
Medication Treatment in ASD

• Risperidone:
  • Approved for treatment of irritability in autistic disorder/ASD (with associated symptoms of aggression, self-injury, temper tantrums, rapid mood swings) for ages 6-15
  • Mean dose in RCT ~ 2 mg / day
  • Max recommended FDA dose, 3mg/day

• Aripiprazole
  • Approved for treatment of irritability in autistic disorder/ASD for ages 6-17
  • Recommended maintenance doses are 5-15mg/day
  • Most common side effects in the major studies were sedation and weight gain

Kaplan & McCracken 2012
What can I do?

- Monitor for signs of ASD, and refer for diagnosis if possible
- Start early intervention **as soon as concerns emerge**
  - With or without a specific diagnosis of ASD, you can start by getting kids into speech therapy, social skills groups, basic behavioral treatment
- Advocate for supports through school
  - Speech therapy
  - IEP/504 plan
- Assess for medical co-morbidities and treat
- Use pharmacologic interventions judiciously and with **specific targets in mind**, weighing risks and benefits
Other useful resources

- Visual schedules
- http://teacch.com/resources/teacch-articles-on-educational-approaches
- http://carolgraysocialstories.com/
References


