State of the Science: Interventions for school-aged and transition-aged individuals with autism spectrum disorders

Latha V. Soorya, PhD, BCBA
Assistant Professor, Department of Psychiatry
Research Director, AARTS Program
Rush University Medical Center
Core & Associated Features

ASDs

Routline Behaviors & Compulsivity

Social Impairment

Impulsivity Aggression

OCD

Anxiety

Intellectual Disability

ADHD

Expressive/Receptive Language D/Os
Standard of Care

- Educational/Behavioral
- Medical Management
- Related Services
Current view of autism and related conditions

Then

Now
Considerations for school-aged children

• Academic integration & enhancement
• Peer groups
• Building independence in life skills
• Family/sibling dynamics, health
Considerations for adolescents

- Educational/vocational attainment
- Access to health/other services
- Attaining independence across domains
- Co-morbid psychiatric/associated symptoms
- Family outcomes
Long-term outcomes in high-functioning ASD

- National Autistic Society of Great Britain study (Bernard, Harvey, Potter, & Prior, 2001)
  - ¼ of sample had “normal” levels of social activity
    - 1/3 did not participate in ANY social activities
    - ½ reported going out 1-2x/month
- Rare to have dating experiences, long-term relationships
- High rates of unemployment
  - If employed, likely to be part-time
- Few live independently

Venter, Lord, Schopler, 1993
Interventions for Adolescents and Young Adults With Autism Spectrum Disorders
"Are you sitting down?"

THE STATE OF THE UNION
Evidence-based practices

- Systematic Reviews and Meta-analyses
- Randomized Controlled Double Blind Studies
- Cohort Studies
- Case Control Studies
- Case Series
- Case Reports
- Ideas, Editorials, Opinions
- Animal research
- In vitro ('test tube') research
Interventions for Social-Communication Impairments
Impact of social competence on overall development

• Good social skills in childhood predict:
  – Peer approval (Bierman & Montminy, 1993)
  – School adjustment (Eisenberg, et al., 1996)
  – Attention skills (Eisenberg, et al., 1996)
  – Coping skills (Eisenberg, et al., 1996)
  – Mental health in later life (Denham & Holt, 1993; Parker & Asher, 1987)
  – School placement, job opportunities (Rey & Putnam, 2002)
  – Overall quality of life (Howlin & Goode, 2000)
Social Impairments in Autism

• Striking deficits in social communication are a hallmark of autism spectrum disorders (ASD)

• Lack of early interest in faces and voices
  – Home videotapes of first birthdays (Osterling & Dawson, 1994)
  – Preference for non-speech analog over motherese (Kuhl et al., 2005)

• Difficulty identifying affect conveyed through these cues

• High-functioning individuals with autism impaired in understanding nonliteral language (Happe et al., 1993; Martin & McDonald, 2004)
Evidence from Neuroimaging

- Adults with ASD show abnormally low activation in the fusiform gyrus (FG) when viewing faces (Schultz et al., 2000; Pierce et al., 2001; Hubl et al., 2003)

- Fail to activate voice-selective regions in the superior temporal sulcus despite showing normal activation in response to nonvocal sounds (Gervais et al., 2004)

- Reduced activation in the medial prefrontal cortex during ‘theory of mind’ tasks (Happe et al., 1996; Castelli et al., 2002)
Targets for intervention in social-communication domain

- Nonverbal communication
  - Instrumental
  - Social/Pragmatic
- Language acquisition
  - Speech
  - Alternative/Augmentative Communication (AAC)
- Foundational skills
  - Gaze
  - Shared attention
  - Imitation
  - Play – symbolic & functional
- Emotions
  - Emotion recognition/expression
  - Empathy
- Perspective Taking
- Pragmatic language
  - Turn taking
  - Regulation
  - Flexibility
- Peer relationships
  - Initiation
  - Group settings
  - Intimacy
Socialization Programming for Children with ASD

• Target ASD specific deficits
  – Nonverbal communication
  – Reciprocal play
  – Social conversational skills
  – Emotion recognition
    • Coping skills/anxiety management
  – Understanding mental states of others

• Format
  – Individual, intensive
  – Dyadic
  – Groups

• Models
  – Supported play
  – Psychodynamic
  – Cognitive behavioral
Neural and behavioral effects of child-directed vs. CBT-based socialization skills groups for verbally fluent children with ASDs

Figure 1: Overview of Study Procedures

- **Screening**: 8 hours total (3 visits)
  - ADOB
  - ADI
  - WISC-IV
  - Vineland

- **Pre Group Assessments**: 4 hours total (2-3 visits)
  - Social cognitive tests
  - fMRI scan
  - Play sessions
  - Parent and teacher questionnaires

- **Social Skills Group**: 12 sessions
  - Child group (90 minutes)
  - Parent group (30-45 minutes)

- **Post Group Assessments**

- **3-Month Maintenance Assessments**

PIs: Ting Wang & Latha Soorya
Sample schedule (posted)

1. News of the Week & Snack
2. Review last week’s work (listening worksheet) & Award points
3. Continue skill: Speaker-Listener
4. Host your own talk show!!
5. Review homework
6. Game-time!
Teaching Aids

• Visual aids
  – Written schedule
  – Visual cues for learning steps
  – Visual cues in prompting skills

• Repetition
  – Verbal & written repetition of instructions, steps

• Reinforcement for performing skills
  – Increase reinforcement for spontaneous
  – Take advantage of the power of intermittent schedules of reinforcement
Homework

- Daily quiz homework
- Daily practice homework
- Flexible reward system
  - Resistance & significant skills deficits = rewards provided @ home & session
  - Maintenance or motivated students = rewards @ session only
Emotion recognition

DANVA-2 (2005)

Happy      Sad      Angry     Fearful

Low Intensity  High Intensity
trust me

BE HAPPY Oxytocin!

OXYTOCIN
The love hormone...

"I just made this for you, it's oxytocin."
Reading the mind in the eye

Baron-Cohen et al, 2001
Intranasal Oxytocin Improves Emotion Recognition for Youth with Autism Spectrum Disorders

Adam J. Guastella, Stewart L. Einfeld, Kylie M. Gray, Nicole J. Rinehart, Bruce J. Tonge, Timothy J. Lambert, and Ian B. Hickie

N=16, adolescents 12-17, placebo crossover trial

* * *
Interventions for Repetitive Behaviors, Restricted Interests
Repetitive Behaviors

A preoccupation with stereotyped and restricted patterns of interest

Inflexibility in adhering to routines and rituals

Stereotyped and repetitive motor mannerisms

Persistent preoccupation with parts of objects

*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*
Repetitive Behaviors

**Lower Order (motor/sensory)**
- Repetitive self-injury
- Motor stereotypies
- Sniffing/mouthing objects
- Touching
- Tapping
- Rubbing

**Higher Order (compulsive)**
- Insistence on sameness
- Ritualistic behavior
- Circumscribed interests & preoccupation
Repetitive Behaviors

Lower Order (motor/sensory)

Hoarding

Arousal regulation

Higher Order (compulsive)

Obsessions

Anxiety

Anagnostou et al, 2005
Behavioral Interventions For Repetitive Behaviors

Anxiety management
• Routines, schedules
• Self-management
• Relaxation approaches

Arousal regulation
• Picture activity schedules, structure
• Environmental contingencies
Repetitive Behaviors

**Lower Order** (motor/sensory)
- Repetitive self-injury
- Motor stereotypies
- Sniffing/mouthing objects
- Touching
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- Rubbing

**Higher Order** (compulsive)
- Insistence on sameness
- Ritualistic behavior
- Circumscribed interests & preoccupation
### Serotonergic Medications

<table>
<thead>
<tr>
<th>Medication</th>
<th>Open Label</th>
<th>Controlled</th>
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<tbody>
<tr>
<td>fluoxetine</td>
<td>++ ++ ++</td>
<td>++ --</td>
</tr>
<tr>
<td>fluvoxamine</td>
<td>+</td>
<td>++ --</td>
</tr>
<tr>
<td>sertraline</td>
<td>++ +</td>
<td></td>
</tr>
<tr>
<td>citalopram</td>
<td>+</td>
<td>--</td>
</tr>
<tr>
<td>escitalopram</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>venlafaxine</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>clomipramine</td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>buspirone</td>
<td>++</td>
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</tbody>
</table>
Lack of Efficacy of Citalopram in Children With Autism Spectrum Disorders and High Levels of Repetitive Behavior

Citalopram Ineffective in Children With Autism

Bryan H. King, MD; Eric Hollander, MD; Linmarie Silich, MD; James T. McCracken, MD; Lawrence Scahill, MSN, PhD; Joel D. Bregman, MD; Craig L. Donnelly, MD; Evdokia Anagnostou, MD; Kimberly Dukes, PhD; Lisa Sullivan, PhD; Deborah Hirtz, MD; Ann Wagner, PhD; Louise Ritz, MBA; for the STAART Psychopharmacology Network

N = 149
Antipsychotics - Risperidone

FIGURE 1. Scores for Compulsions on the Children’s Yale-Brown Obsessive Compulsive Scale of Children and Adolescents in a Placebo-Controlled Risperidone Trial and Open-Label Continuation Study

McDougle et al, 2005, Am J Psychiatry
# Atypical Antipsychotics – Abilify

Marcus et al, 2009, JAACAP

## TABLE 2

| Variable | Placebo (n = 49) | Aripiprazole 5 mg/day (n = 52) | Aripiprazole 10 mg/day (n = 59) | Aripiprazole 15 mg/day (n = 53) | Treatment Difference (95% CI) $^d$
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aripiprazole 5 mg/day vs. Placebo</td>
</tr>
<tr>
<td>Response rate</td>
<td>Week 8, n (%)</td>
<td>17 (34.7)</td>
<td>29 (55.8)$^*$</td>
<td>29 (49.2)</td>
<td>28 (52.8)</td>
</tr>
<tr>
<td>ABC Lethargy/Social Withdrawal subscale</td>
<td>Baseline (SE)</td>
<td>18.0 (1.5)</td>
<td>17.7 (1.4)</td>
<td>16.8 (1.3)</td>
<td>18.9 (1.4)</td>
</tr>
<tr>
<td>Mean change at week 8 (SE)</td>
<td>−5.2 (1.2)</td>
<td>−5.8 (1.2)</td>
<td>−4.9 (1.1)</td>
<td>−7.9 (1.1)</td>
<td>−0.7 (−3.8 to 2.4)</td>
</tr>
<tr>
<td>ABC Stereotypy subscale</td>
<td>Baseline (SE)</td>
<td>10.7 (0.8)</td>
<td>11.4 (0.8)</td>
<td>11.6 (0.8)</td>
<td>11.6 (0.8)</td>
</tr>
<tr>
<td>Mean change at week 8 (SE)</td>
<td>−1.8 (0.69)</td>
<td>−4.5 (0.68)</td>
<td>−4.2 (0.63)</td>
<td>−4.5 (0.66)</td>
<td>−2.6 (−4.5 to −0.8)$^f$</td>
</tr>
<tr>
<td>ABC Hyperactivity subscale</td>
<td>Baseline (SE)</td>
<td>31.0 (1.4)</td>
<td>33.1 (1.4)</td>
<td>33.7 (1.3)</td>
<td>32.2 (1.4)</td>
</tr>
<tr>
<td>Mean change at week 8 (SE)</td>
<td>−7.7 (1.7)</td>
<td>−14.0 (1.6)</td>
<td>−13.3 (1.5)</td>
<td>−16.3 (1.6)</td>
<td>—</td>
</tr>
<tr>
<td>ABC Inappropriate Speech subscale$^{b,c}$</td>
<td>Baseline (SE)</td>
<td>5.9 (0.6)</td>
<td>5.8 (0.6)</td>
<td>6.8 (0.5)</td>
<td>6.3 (0.5)</td>
</tr>
<tr>
<td>Mean change at week 8 (SE)</td>
<td>−1.1 (0.5)</td>
<td>−2.0 (0.5)</td>
<td>−1.8 (0.4)</td>
<td>−2.3 (0.4)</td>
<td>—</td>
</tr>
<tr>
<td>CGI-S$^{d,c}$</td>
<td>Baseline (SE)</td>
<td>4.7 (0.1)</td>
<td>5.0 (0.1)</td>
<td>4.9 (0.1)</td>
<td>5.1 (0.1)</td>
</tr>
<tr>
<td>Mean change at week 8 (SE)</td>
<td>2.6 (0.3)</td>
<td>3.8 (0.3)</td>
<td>5.0 (0.3)</td>
<td>11 (0.3)</td>
<td>8.3 (3.7 to 3.1)</td>
</tr>
<tr>
<td>CYBOCS (Compulsions only)$^{b,c}$</td>
<td>Baseline (SE)</td>
<td>13.7 (0.6)</td>
<td>13.9 (0.6)</td>
<td>13.5 (0.5)</td>
<td>14.1 (0.5)</td>
</tr>
<tr>
<td>Mean change at week 8 (SE)</td>
<td>−1.7 (0.5)</td>
<td>−2.6 (0.5)</td>
<td>−2.4 (0.4)</td>
<td>−3.2 (0.5)</td>
<td>−0.9 (−2.3 to 0.4)</td>
</tr>
</tbody>
</table>
Interventions for Associated Symptoms: Problem Behaviors, Anxiety, ADHD
• Leo Kanner (1943) suggested that many of the core features of autism were anxiety driven.
  
  – Kanner noted that ‘the child behavior is governed by an anxiously obsessive-desire for the maintenance of sameness” (1943, p 245).

**Fig. 1** Frequency of the number of comorbid lifetime psychiatric diagnoses per child with autism. Only DSM-IV diagnoses are included.
• 1 comorbidity: 70.8%:
• 2+ comorbiditides: 41%
• Social Anxiety Disorder was the most common disorder (29.2%)
Kim, Szatmari, Bryson, Streiner, & Wilson, 2000

• AS and autistic children showed greater rate of anxiety and depression compared to community sample

(% of PDD sample at clinically relevant scores)
  – 16.9% -depression
  – 13.6% -generalized anxiety
  – 8.5% -separation anxiety

• No differences in number of anxiety- mood problems between AS and autistic children
Children with HFA/AS show increase in social anxiety as they get older.

Anxiety may compound the social deficits of adolescents with ASD.
Factors impacting comorbidity of anxiety

• Social skill deficits (assertiveness, empathy) (Bellini, 2004)

• Severity of autism symptoms and anxiety
  – Asperger’s Disorder > PDDNOS > Autistic disorder (Weisbrot, Gadow, DeVincent, Pomeroy, 2005)
Depression and ASD

- Symptoms associated with depression in ASD (Stewart, Barnard, Pearson, Hasan, & O’Brien, 2006)
  - Onset or exacerbation of maladaptive behavior
  - Decrease in self care:
- Reasons for depression (Attwood, 2007)
  - Feelings of loneliness (Whitehouse, Durkin, Jaquet, Zitas, 2009)
  - Increased rates of bullying
  - Feeling unaccepted and misunderstood
  - Mental exhaustion of trying to fit in
Treatments for Anxiety & Mood Disorders
Multimodal Anxiety and Social Skills Intervention (MASSI)

(White, Albano, Johnson, Kasari, Ollendick, et al., 2010)

- Individual and Group Therapy
- Based on principles of CBT and ABA
- Modeling new skills
- Psychoeducation and explicit teaching about ASD and anxiety
- Focus on parent and family involvement
- Exposure, Problem Solving, Coping skills
# MAASI Modules

## Core Modules

- Orientation to MAASI & Psychoeducation about ASD
- Understanding Anxiety within ASD
- Thinking, Feeling, and Acting
- Functional Assessment
- Therapy Termination

## Anxiety Modules

- Exposures
- Problem-Solving
- Coping with Worry

## Social Skills Building Module

- Initiation with peers
- Conversation skills
- Recognizing nonverbal cues
- Handling Rejection

## Group Practice

- Introduction
- Talking to Peers
- Following a Conversation
- Recognizing Cues (Emotion)
- Handling Emotion
- Entering a Group
- Social Skills 10
Multimodal Anxiety and Social Skills Intervention (MASSI)

<table>
<thead>
<tr>
<th>Now and Later</th>
<th>Later</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being Anxious gets in the way of.....</td>
<td>When I feel less anxious I will be able to...</td>
</tr>
<tr>
<td>Social difficulties get in the way of...</td>
<td>When I have learned and practiced some new social skills. I will be able to...</td>
</tr>
</tbody>
</table>

(White, Albano, Johnson, Kasari, Ollendick, et al., 2010)
• Implemented a version of the Building Confidence CBT Program
  – Coping skills training
  – Cognitive Restructuring
  – In vivo exposure
  – 4 new modules
    • Social skills deficits
    • Self help skills
    • Children’s circumscribed interest and stereotypies
    • Poor attention and motivation
Results (Wood, et al., 2009)

- N = 40 children (7-11 years old)
- 16 sessions of CBT for anxiety or a 3 month waitlist control
- 78.5% of CBT group met Clinical Global Impressions-Improvement scale for positive treatment response vs. 8.7% of the waitlist group
  - Exception was child-reported anxiety
6 week CBT intervention

- Session 1: 2 positive emotions
- Session 2: anxiety/physical tools
- Session 3: social tools and thinking tools
- Session 4: feelings thermometer
- Session 5: Social Stories
- Session 6: Participants designed a program to improve anxiety management
Results (Sofronoff, Attwood, Hinton, 2005)

Figure 1 Parent ratings of social worries in their children across time

Figure 2 Number of strategies generated by children pre-intervention, post-intervention and at follow-up
CBT intervention adapted from “Cool Kids” (Lyneham, Abbott, Wignall, & Rapee, 2003)

- Program was extended (6 months)
- More visual aides and structured worksheets
- Largest component- Relaxation and exposure
- Cognitive activities were simplified
  - Example- HFA children identified helpful and unhelpful thoughts from worksheets with large lists of possible alternatives
Results (Chaflant, Rapee & Carroll, 2007)

Fig. 1 Changes in average number of anxiety disorder diagnoses for treated and WL participants.
Interventions

• The Coping Cat (Kendall & Hedtke, 2006) and C.A.T. Project (Kendall, 2002)
  ● F: Feeling Frightened?
  ● E: Expecting Bad Things to Happen
  ● A: Attitudes and Actions that Can Help
  ● R: Results and Rewards
Treatments for Problem Behaviors
Behavioral Interventions for Problem Behaviors

- Positive Behavior Support
  - Functional Behavior Assessment

- Parent Management Training
Functional Analysis of Behavior

- Designed to decrease or alter existing behaviors

- Target problem behaviors that:
  - Disruptive to social, educational, or family life
  - Exclude or isolate individuals

Positive Behavior Support

• Positive behavioral support has three primary features:
  1. Functional (behavioral) assessment
  2. Comprehensive intervention
  3. Lifestyle enhancement

Functional Communication Training

• Assumes the communication (verbal or nonverbal) serves same function as problem behavior

• FCT packages based on the results of functional analysis should:
  – Correctly identify variables maintaining problem behavior
  – Contain contingencies for both appropriate and inappropriate behavior
    • Positive reinforcers signs, words
    • Extinction (planned ignoring) or mild punishment for problem behavior

Results of FBAs

Setting events

Predictors (immediate antecedents)

Behaviors

Maintaining consequences

Preferred/desired behavior

Problem behaviors

Replacement behavior

Not finding required class materials

Transitions

Reaction to medication changes

Identify triggers to stress

Remove self from situation

Avoidance from anxiety provoking situations

Talking out

Yelling/swearing

teacher attention

Ask for help

Parent Management Training

• Based on treatments for disruptive behavior disorders

• Teaches parents principles of effective behavior management
  – 4:1 ratios
  – Common predictors of behaviors
  – Establishing behavior systems
Dopaminergic Medications

- Risperidone
- Clozapine
- Olanzapine
- Quetiapine
- Ziprasidone
- Aripiprazole
- Haloperidol *

>25 controlled and open trials

Improvements found for approximately 50% of patients in:
- aggression
- impulsivity
- self-injury
- hyperactivity
- irritability
- repetitive behavior

Tolerability is limited by:
- sedation
- weight gain
- dystonia
- dyskinesia
Risperidone

• N = 101, placebo controlled for 8 weeks (2002)
  – Ages 5 - 17
  – Mean dose = 1.8 mg/day
  – 69% responders (12% with placebo)
  – Improvement in irritability (56.9% vs. 14.1%)
  – Side effects: weight gain; appetite increase, sedation, drooling, dizziness

• At least 5 additional controlled trials with positive results

• FDA approved in children for the treatment of irritability, including aggression and self-injury (FDA, 2006)
<table>
<thead>
<tr>
<th>EVENT</th>
<th>RISPERSIDONE (N=49)</th>
<th>PLACEBO (N=51)†</th>
<th>P VALUE*</th>
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</thead>
<tbody>
<tr>
<td>Increased appetite — no. (%)</td>
<td>24 (49)</td>
<td>13 (25)</td>
<td>0.03</td>
</tr>
<tr>
<td>Mild</td>
<td>12 (24)</td>
<td>2 (4)</td>
<td>0.01</td>
</tr>
<tr>
<td>Nasal congestion — no. (%)</td>
<td>25 (51)</td>
<td>20 (39)</td>
<td>0.32</td>
</tr>
<tr>
<td>Fatigue — no. (%)</td>
<td>29 (59)</td>
<td>14 (27)</td>
<td>0.003</td>
</tr>
<tr>
<td>Enuresis — no. (%)</td>
<td>15 (31)</td>
<td>15 (29)</td>
<td>0.93</td>
</tr>
<tr>
<td>Drowsiness — no. (%)</td>
<td>24 (49)</td>
<td>6 (12)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Vomiting — no. (%)</td>
<td>16 (33)</td>
<td>12 (24)</td>
<td>0.43</td>
</tr>
<tr>
<td>Skin irritation — no. (%)</td>
<td>11 (22)</td>
<td>7 (14)</td>
<td>0.38</td>
</tr>
<tr>
<td>Drooling — no. (%)</td>
<td>13 (27)</td>
<td>3 (6)</td>
<td>0.02</td>
</tr>
<tr>
<td>Headache — no. (%)</td>
<td>9 (18)</td>
<td>6 (12)§</td>
<td>0.52</td>
</tr>
<tr>
<td>Stomachache — no. (%)</td>
<td>5 (10)</td>
<td>9 (18)</td>
<td>0.43</td>
</tr>
<tr>
<td>Dry mouth — no. (%)</td>
<td>9 (18)</td>
<td>5 (10)</td>
<td>0.34</td>
</tr>
<tr>
<td>Increased thirst — no. (%)</td>
<td>6 (12)</td>
<td>5 (10)</td>
<td>0.94</td>
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<tr>
<td>Dizziness — no. (%)</td>
<td>8 (16)</td>
<td>2 (4)</td>
<td>0.05</td>
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<td>Dyskinesia — no. (%)</td>
<td>6 (12)</td>
<td>3 (6)</td>
<td>0.45</td>
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<tr>
<td>Nausea — no. (%)</td>
<td>4 (8)</td>
<td>5 (10)</td>
<td>0.95</td>
</tr>
<tr>
<td>Decreased appetite — no. (%)</td>
<td>3 (6)</td>
<td>5 (10)</td>
<td>0.76</td>
</tr>
<tr>
<td>Tremor — no. (%)</td>
<td>7 (14)</td>
<td>1 (2)</td>
<td>0.06</td>
</tr>
<tr>
<td>Tachycardia — no. (%)</td>
<td>6 (12)</td>
<td>1 (2)</td>
<td>0.06</td>
</tr>
<tr>
<td>Upper respiratory tract infection — no. (%)</td>
<td>5 (10)</td>
<td>2 (4)</td>
<td>0.40</td>
</tr>
<tr>
<td>Earache — no. (%)</td>
<td>2 (4)</td>
<td>4 (8)</td>
<td>0.71</td>
</tr>
<tr>
<td>Muscle rigidity — no. (%)</td>
<td>5 (10)</td>
<td>1 (2)</td>
<td>0.11</td>
</tr>
<tr>
<td>Sore throat — no. (%)</td>
<td>5 (10)</td>
<td>1 (2)</td>
<td>0.11</td>
</tr>
<tr>
<td>Restlessness — no. (%)</td>
<td>3 (6)</td>
<td>3 (6)</td>
<td>0.71</td>
</tr>
<tr>
<td>Weight gain — kg</td>
<td>2.7±2.9</td>
<td>0.8±2.2</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

RISPERIDONE IN CHILDREN WITH AUTISM AND SERIOUS BEHAVIORAL PROBLEMS

Research Units on Pediatric Psychopharmacology Autism Network*
Randomized, Controlled, Crossover Trial of Methylphenidate in Pervasive Developmental Disorders With Hyperactivity

RUPP, 2005, Arch Gen Psych

N=72, placebo crossover + open label extension
Sig improvement on ABC-H
49% responders on CGI

Adverse Effects
- Appetite decrease *
- Difficulty falling asleep *
- Stomach or abdominal discomfort
- Irritability **
- Emotional outburst
- Anxiety *
- Depression
- Repetitive behaviors and thoughts
- Self-injury
- Headache
- Diarrhea
- Social withdrawal
- Increased motor activity
- Bradycardia
- Tiredness or fatigue
ADHD
Open label, N=12, 10 wks
Sig improvement ADHD-RS and Conners, trend on ABC-Hyperactivity (21% reduction)

Open label, N=16, 8 wks
Sig improvement on SNAP-IV and ABC-Hyperactivity
75% responders on CGI

Placebo cross-over, N=16, 6 wks
Sig improvement on ABC-H Hyperactivity > Inattention
Medication management of ADHD in ASD

- Methylphenidate, atomoxetine, and alpha-agonists are effective with fair evidence to support use.
- If a stimulant is helpful but side effects of anxiety emerge, switch to atomoxetine or alpha agonist.
- Monitor closely for irritability and mood lability among other side effects.
- Expect response rates to be lower than in typically developing kids with ADHD.
- Expect hyperactivity to respond better than inattention.
Interventions for Academic & Life Skills
Intervention approaches

• Interview Skills Curriculum

• Job coaching/training

• Support/recreational groups
Future Directions

- Early, early intervention
- Adolescent/adult interventions
- Integrated treatment approaches
Recently funded intervention studies

• Early childhood

• Pharmacological

• Effectiveness

• Services
Resources

• Autism Speaks Transition Toolkit

• National Professional Development Center on Autism Spectrum Disorders
  http://autismmpdc.fpg.unc.edu/
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