Autism Spectrum Disorder: Latest in Prevalence, Diagnosis and Interventions

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DISCLOSURES: NONE
Early Infantile Autism (Kanner, 1943)

- 11 Children
- Inability to develop relationships
- Extreme aloofness
- Delay in speech development
- Repeated simple patterns of play activity
Prevalence of Autism

- 2-5/10,000 (DSM-IV TR, 2000)
- 5-10/10,000 (Gillberg and Wing, 1999)
- 1/68
- 4 to 5 boys : 1 girl
- In Intellectual Disabilities 8.9% - 11.7%
### Identified Prevalence of Autism Spectrum Disorder

**ADDM Network 2000-2010**

Combining Data from All Sites

<table>
<thead>
<tr>
<th>Surveillance Year</th>
<th>Birth Year</th>
<th>Number of ADDM Sites Reporting</th>
<th>Prevalence per 1,000 Children (Range)</th>
<th>This is about 1 in X children...</th>
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</thead>
<tbody>
<tr>
<td>2000</td>
<td>1992</td>
<td>6</td>
<td>6.7 (4.3 - 9.9)</td>
<td>1 in 150</td>
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<td>2002</td>
<td>1994</td>
<td>14</td>
<td>6.6 (3.1 - 10.6)</td>
<td>1 in 150</td>
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<td>2004</td>
<td>1996</td>
<td>8</td>
<td>8.0 (4.6 - 9.8)</td>
<td>1 in 125</td>
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<td>2006</td>
<td>1998</td>
<td>11</td>
<td>9.0 (4.2 - 12.1)</td>
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<tr>
<td>2008</td>
<td>2000</td>
<td>14</td>
<td>11.3 (4.8 - 21.2)</td>
<td>1 in 88</td>
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<tr>
<td>2010</td>
<td>2002</td>
<td>11</td>
<td>14.7 (14.3 - 15.1)</td>
<td>1 in 68</td>
</tr>
</tbody>
</table>
Childhood Disintegrative Disorder (CDD)

Autistic Disorder

Asperger’s Disorder

Rett’s Disorder

Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS)

Pervasive Developmental Disorders

*ASD is not a DSM-IV TR definition but reflects categorization in the general public.

Autism Spectrum Disorder in DSM 5

- Persistent deficits in social communication and social interaction across multiple conditions as manifested by the following, currently or by history:
  - Deficits in social-emotional reciprocity
  - Deficits in nonverbal communicative behaviors used for social interaction
  - Deficits in developing, maintaining and understanding relationships
Autism Spectrum Disorder in DSM 5

- Restricted, repetitive patterns of behavior, interests or activities as manifested by two of the following, currently or by history:
  - Stereotyped or repetitive motor movements, use of objects or speech
  - Insistence on sameness, inflexible about routines, or ritualized behaviors
  - Highly restricted, fixated interests
  - Hyper or Hyporeactivity to sensory input
Autism Spectrum Disorder in DSM 5

- Symptoms must be present in the early developmental period
- Symptoms cause clinically significant impairment in social, occupational, or other important area of functioning
- These disturbances are not better explained by ID or global developmental delay
Key Differences Between DSM IV TR and DSM 5

- Shift from Categorical to Dimensional
- Autism Spectrum Disorder instead of Autism, Asperger’s Disorder, Childhood Disintegrative Disorder & PDDNOS
- Rett’s Disorder more on medical domain and different trajectory
Key Differences Between DSM IV TR and DSM 5

- Two Key Domains instead of Three
  - Criteria A: Deficits in Social Communication & Social Interaction
  - Criteria B: Restricted, Repetitive patterns of behaviors, interests, or activities
  - Criteria B includes Sensory issues
  - Criteria C: Symptoms present in Early Childhood
  - Criteria D: Symptoms impair everyday functioning
Key Differences Between DSM IV TR and DSM 5

Specifiers

- With or Without accompanying ID or Language Disorder
- Associated with medical or genetic condition (for example seizures, fragile X)
- With Catatonia
- ASD and ADHD can be diagnosed together in DSM 5
Key Differences Between DSM IV TR and DSM 5

- Level of Severity
  - Level 1: Requires support, without support, significant deficits in social communication
  - Level 2: Requires substantial support, marked deficits in social communication
  - Level 3: Requires very substantial support, minimal social communication
In most cases (> 50%) parents are worried in first year of life

In almost 90% of cases parents are worried by age 2

Common presenting problems include speech delays, worries that child may be deaf, problems with social interactions
Other Features

- Intellectual Disability
- Seizures
- Sensitive to loud sounds, light, touch
- Attention problems
- Hyperactivity
- Sleep problems
- Food preferences
Stereotypy, self-injury, and aggression are the problem behaviors most often identified for intervention.

Early use of behavioral interventions may result in an 80-90% reduction in problem behaviors.

Meta-analysis of 9 studies

Medical Comorbidities

- Rate of medical conditions in autism 10 – 15%
- Fragile X Syndrome
- Tuberous Sclerosis
- Neurofibromatosis
- Down Syndrome
Environmental Factors

- No scientific proof that any vaccine or combination of vaccines can cause autism (Institute of Medicine, 2004)
- No increase associated with MMR vaccine
- Food allergies
- Gastrointestinal abnormalities
Eye Tracking Studies
Assessment

- Interdisciplinary approach
- Input regarding child related to different settings
- Family input
- Input from other sources
Assessment

- Social relatedness
- Development of language and communication
- Stereotypies
- Aggression
- Self Injurious behaviors
- Hyperactivity
- Inattention
- Sleep
Assessment

- Pregnancy and neonatal history
- Developmental history
- Medical history
- Family and psychosocial factors
- School history
- Intervention history
- Observation
Assessment

- Hearing and visual examination
- Neurological
- Laboratory (Fragile X)
- Psychological assessment
- Speech/language
- OT/PT
Assessment Scales

- Childhood Autism Rating Scale (CARS)
- Autism Behavior Checklist (ABC)
- Autism Diagnostic Interview (ADI)
- Autism Diagnostic Observation Schedule (ADOS)
- Vineland Adaptive Behavior Scale
Can You Make It to The End

https://www.youtube.com/watch?v=Lr4_dOorquQ
Autism Treatment Is Multimodal

- Pharmacotherapy
- Occupational Therapy
- Educational
- Socialization Skills
- Behavioral Therapy
- Speech Therapy
- Environmental

Child And Family
Early Intervention

- Early intervention is extremely important
- Planned and intensive intervention
- Interdisciplinary, integrated, family involvement
- Teaching of specific skills, individualized
- Child engagement is central
Family Involvement/Support

- Family involvement at every stage of process
- Support groups for parents and siblings
- Basic information from school and professionals
- Internet and other resources
Pharmacotherapy

AUTISM

- Social Interaction
- Communication
- Repetitive Behavior
- Associated Symptoms
Indications for Pharmacotherapy

- Inattention, hyperactivity, impulsivity
- Aggression, irritability, temper tantrums, self injury
- Repetitive behaviors
- Mood instability
- Anxiety
- Insomnia
- NIMH RUPP Network
- 101 children, 82 boys and 19 girls
- Mean age 8.8 years ± 2.7 years
  (Range 5-17 years)
- 8 week double blind, randomized
- Mean dose 1.8 mg/day (Range 0.5-3.5mg/d)
- Improvement: Risperidone 69% (34/49) versus Placebo 12% (6/52)
Improvement in self injury, aggression, irritability, stereotypy and hyperactivity

Mean increase in weight
- Risperidone 2.7 ± 2.9 kg
- Placebo 0.8 ± 2.2 kg

Adverse effects include increase appetite, fatigue, drowsiness, drooling

No EPSE’ S

**Mean scores during the 8-week RUPP trial**

**CGI Global**

<table>
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<tr>
<th>Week</th>
<th>Risperidone (n=49)</th>
<th>Placebo (n=52)</th>
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<td>1</td>
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- **Risperidone**
  - 75.5% improvement
- **Placebo**
  - 11.5% improvement

* Dose range: 0.5-3.5 mg/d
* Age range: 5-17y
* \( p < 0.001 \)

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Secondary Outcomes of the RUPP Trial

Differences Between Baseline and End Point Scores on the Aberrant Behavior Checklist Subscales at 8 Weeks

Dose range: 0.5-3.5 mg/d
Age range: 5-17 y

*^p=0.03; t^p=0.001

16 week extension, open label

63 children (49 boys, 14 girls)

Mean Risperidone dose 2.08 mg/day

51 (81%) children completed the 16 week trial

82.6% Responders on CGI-I

Most frequent adverse effects include nasal congestion, increase appetite, coughing

RUPP Autism Network.
36 children entered this phase of the study
8 weeks in duration
Children randomized to ongoing Risperidone vs gradual placebo substitution (dose reduced by 25% per week)
Relapse Rate: Placebo 62.5% vs Risperidone 12.5%
Numerous other open label and controlled studies showing effectiveness.
Double Blind Palcebo Controlled study over 8 weeks

218 children and adolescents (age 6 – 17 years) with Autistic Disorder

4 Groups: Placebo, 5mg, 10 mg, 15 mg

Starting Dose 2mg/day (week 1), 5mg/day (week 2) then 5mg/day weekly increments

Response: Significant Improvement on ABC-Irritability and CGI with all 3 dosages

AE: Sedation, drooling, tremor

Weight Gain: Aripiprazole: 1.3-1.5 kg/Placebo: 0.3 kg

Case

- 9 year old boy with history of bipolar disorder and ADHD
- Behavioral problems including aggression, biting, spitting, hyperactive, concentration problems, poor sleep
- On admission taking Quetiapine, Lithium and Atmoxetine
- History of developmental delays
Case

- Poor eye contact, chooses solitary activities, poor social interactions
- Delayed speech, poor social communication
- Repetitive behaviors
- Difficulty in transitions
- Sensitive to physical touch
Predictive Factors for Outcome

- Presence of communicative speech by age 5
- Absence of Intellectual Disability
- Early intervention
Summary

- Comprehensive Assessment
- Alliance with the families
- Child & Family at the Center of the Treatment
- Rule out Medical and Environmental reasons for behavioral issues
- Incorporate behavioral approaches
- Medications: start low and titrate slow
- ASD more sensitive to side effects
- Monitor impact on child and family
National Initiatives

- Qatar’s National Autism Plan
- WISH Autism Forum
- Renad Academy
- QBRI
- Sidra
“CHILDREN LEARN TO CARE BY EXPERIENCING GOOD CARE”