Individualizing early intervention for children with autism spectrum disorder: Challenges and Solutions

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Affiliation and Disclosures

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• Neither presenter has a direct financial interest in the contents of the presentation
• Neither presenter has a conflict to disclose

Outline

• New Guidelines for ASD (DSM-V)
• Assigning Severity Levels
• Differential Diagnosis of ASD in Late Talking Children
• Role of SLP in Diagnosis and Intervention
• Early Intervention-Evidence Based Practice
• Early Intervention-Goals
• Early Intervention-Home and School
Learner Goals and Objectives: 1

• Identify three distinct autism severity levels and intervention support methods for these severity levels. Participants will list these levels, the diagnostic markers for these levels and explain support levels (such as one on one, preschool and parent).

Learner Goals and Objectives: 2

• Identify the diagnostic classifications associate with late talking children and clinical markers for completing a differential diagnosis of ASD, SCD, ID, SLI, SSD and nonclinical "late blooming."

Learner Goals and Objectives: 3

• Participants will distinguish and describe "Discrete Trial (Lovaas)," Pivotal Response Training (PRT), and Conversational Recast forms of Applied Behavior Analysis (ABA) intervention approaches for ASD.
Learner Goals and Objectives: 4

• Participants will identify four key parent training activities including "stay and play," "matching turns," "picture support," and behavior management.

DSM-5

• ASD requires communication disorders AND over reliance on routines.

What is Early Intervention?

• Treating a pathological condition as soon as possible
How Does One Test Early Intervention?

• Drug Example for Meningitis
• Radiation Example for Cancer

Failure!

• Diabetes Example; EI and Preserving Insulin Function

What Are The Needed Elements?

• Accurate Diagnosis
• Developmental Course of the Disease
• Data Based Estimate of Treatment Effect
Recent Advances: Identifying Children with Autism and Autism Spectrum Disorders

Big News On Autism Last Week!

- “About 1 in 68 children has been identified with an autism spectrum disorder (ASD) according to estimates from CDC’s Autism and Developmental Disabilities Monitoring (ADDM) Network.”
- “ASDs are almost 5 times more common among boys than among girls.”
Important Notes

• These are 2010 data on 8 year olds
• The 2008 recommendation for Universal Screening did not go into effect until 2008
• The 2018 data will begin to include those data

Does this Mean that 1 in 55 Boys will Grow up as “Rainman?”

Prediction

• ASD rate will continue to rise
• Because nearly all toddlers display some symptoms of ASD and Late Talking by itself is the primary marker in toddlers...
The “rate” of ASD will at least double by 2018.

“Prevalence findings from special education data do not support the claim of an autism epidemic because the administrative prevalence figures for most states are well below epidemiological estimates. The growing administrative prevalence of autism from 1994 to 2003 was associated with corresponding declines in the usage of other diagnostic categories.” p. 1028.
From CDC Report

“The proposed revised diagnostic criteria for Autism Spectrum Disorder (DSM-V) would combine three subgroups currently under the DSM-IV-TR heading of Pervasive Developmental Disorders into one category and might require a child to display more pronounced symptoms to receive a diagnosis.”

And...

• “The pooled Relative Risk was 1.95 \( (p < 0.001) \) showing that AD diagnostic stability was [significantly] higher than PDD-NOS. When diagnosed before 36 months PDD-NOS bore a 3-year stability rate of 35%.” Rondeau et al 2010 (JADD)

• Note: The stability of AS was greater than 90%

So...

• ASD stability: less than 35%
• Autism stability: greater than 90%
Finally...

• prevalence estimates are 13 per 10,000 for AD and 20.8 per 10,000 for PDD-NOS (Fombonne 2005).
• But, all of these were pooled into “ASD” for the CDC estimates.

For Early Identification, Only Classic Autism is Sufficiently Accurate to Test EI!!

• But, this group is more severe and slow to learn

What About “Developmental Course” of the Disease?
What about two year olds with ASD?

• Unstable diagnosis
• Variable Developmental Course

But if they get better, isn’t that evidence that EI works?

Bottom Line

• Autism and Autism Spectrum are on the rise!
• Rate is likely to “decrease” under new criteria, but that won’t mean society is “curing” ASD
• ASD that is not “classic autism” has a relatively high recovery rate, in some cases WITHOUT intervention. Autism does not.
For Intervention

• Untreated recovery creates culture of “superstitious” cures
• If a 24 month old isn’t using words, but has typical comprehension and no speech disorders
• The untreated “recovery” rate ranges from 50% to 70%

Kanner

He opposed “habit to dilute the original concept of infantile autism by diagnosing it in many disparate conditions which show one or another isolated symptom” of autism. Kanner (1965)

ASD (PDD-NOS, ASPERGER) versus PDD-Autism

- Treatment Challenge: Clinical Trials With a Heterogeneous Condition, and in the case of some ASD, LOW STABILITY
- Clinicians want to help!
- Need for fair comparison groups

The Lancet, June 2010

- "At the same time, today’s study exemplifies the complexity of attempting to detect change in samples of young children with such a heterogeneous condition. There are very few positive published trials in autism, for behavioural interventions, traditional pharmacotherapy, or complementary/alternative therapies."

What We Know

- Children will learn under a variety of behavioral intervention conditions
What We Don’t Know

• Whether applying these behavioral techniques is better if done early
• Is two better than three better than four and so on?

What Is Autism?
Is ASD the same Thing?
Why Does this Matter?

The domains of ASD (Folstein)
Measures and Assessments

- ADOS
- STAT
- M-CHAT
- Qualitative Markers (e.g., joint attention)
- Big National Push to Screen for Autism by the age of 2

DSM Diagnostic Process

Language Related Conditions in Toddlers

Delayed Onset of Language

- Nonclinical
- Speech Disorder
- Language Disorder
  - Expressive and Receptive
  - Social Communication Disorder
- Phonological Disorder
- Autism Spectrum Disorder
- Intellectual Disability
PDD-AUTISM

- Qualitative Impairment in Social Interaction
- Qualitative Impairment in Communication
- Restrictive/Repetitive and Stereotyped Behavior
- Delays or Abnormal Functioning (onset prior to 3) in: Social Interaction, Language, Symbolic Play

PDD-NOS

- Meets basic PDD criteria
- Does NOT fit into another PDD category OR into another DSM-IV category (e.g. mixed expressive-receptive language disorder)
- Displays some of the characteristics of Autism, but not all
- Example: Language Disorder PLUS stereotypy, but is social verbally and nonverbally
- A Broad, not well defined category
- Slated for Removal in DSM-V

Note: Social Communication Disorder

- Lack of Verbal Social Interaction
- Lack of Verbal Communication
- Use of Routines to Compensate for Reduced Comprehension
- Will often Receive “ASD” score on ADOS and CARS-2
Nonclinical Late Talking

- Language Growth without Intervention (Whitehurst et al. 1992; Paul, 1996; Law, 2002; Resorla and Dale, 2010)
- Early Strength in Analytical Abilities
- Dominance of Spatial-Analytical Skills
- Nonverbal Cognitive Abilities in typical range
- No Other Conditions (e.g. phonological disorder, receptive language disorder)

Asperger Syndrome

- Meets the broad PDD classification
- Normal Grammar
- Not late talking
- Normal Broad Cognitive Abilities
- Displays behavioral and some social characteristics of Autism
- Removed in DSM-V! Do NOT use this category

Vaccines, Autism and Treatment
Retracted autism study an ‘elaborate fraud,’ British journal finds

“I do believe sadly it’s going to take some diseases coming back to realize that we need to change and develop vaccines that are safe. If the vaccine companies are not listening to us, it’s their f___ing fault that the diseases are coming back.”

http://www.time.com/time/health/article/0,8599,1888718,00.html#ixzz1qFAZnfv9

What About Early Intervention?
Consequently, these children are not receiving intervention in their early years, which is increasingly recognized as an important time to begin intervention.
“The strength of the evidence overall ranged from insufficient to low.”

How Can That Be?
Everyone **KNOWS** Early Intervention works!
“Of the 60 studies critically that were reviewed, 11 operationally defined TI and IV [Treatment Integrity and Independent Variable]” p. 45

Into this void: Autism “Treatments”

• Example: Secretin
• Example: Defeat Autism Now (DAN)
• Example: Facilitated Communication

Secretin

• Digestive Hormone
• Promoted as “Cure” for Autism
• Clinical Trial Discontinued Early
DAN (Defeat Autism Now) Physicians

- Chelation as "detox" for mercury in vaccines (thimerisol removed from vaccines more than decade ago)
- FDA: "Federal regulators are warning eight companies to stop selling so-called 'chelation' products that claim to treat a range of disorders from autism to Alzheimer's disease."
  [http://www.fda.gov/downloads/ForConsumers/ConsumerUpdates/UCM229436.pdf]
Facilitated Communication

- Augmentative Communication with Facilitator
- Hailed as "Breakthrough"
- False Charges of Abuse
- Scientific Studies Showed Hoax/Facilitator Source of Message

Still Practiced Autism National Committee

- The benefit of FCT in leading to FC as an acceptable and valid form of AAC has been established...
Interactive Metronome

- Marketed as a treatment for autism
- Focuses on “tapping” and “rhythm” as treatment
- Use beats and hand or foot sensor
- Does not address core autism symptoms

http://www.interactivemetronome.com/

Hyperbaric Therapy

- Hyperbaric Chamber
- Infuse oxygen into neural system
- Claim: Increases “myelin”
- No Evidence
Sensory Integration Therapy
Potential Confounds

• Play Based Interventions Include Many “ingredients”
• Example: Verbal Transactions
• Hundreds of Studies with Diverse Disabilities
Parents should be informed that the amount of research regarding the effectiveness of sensory integration therapy is limited and inconclusive. Important roles for pediatricians and other clinicians may include discussing these limitations with parents, talking with families about a trial period of sensory integration therapy, and teaching families how to evaluate the effectiveness of a therapy. Pediatrics 2012;129:1186–1189

Matching Children to Treatments
No one treatment will apply to all children
Pivotal Response Training

- Koegel and Koegel
- Approach rather than didactic "package"
- See Koegel, Koegel & Camarata, JADD 2011

Treatment Process:
What Should be Taught for a Child to Access Transactions?
What Level of Support is Needed for a Child to Learn?

Figure 2: Schematic of Intervention Plan

- Time 1: Initiation
- Time 2: More advanced form in "The ball is rolling"
- Time 2 + n: Language Development

- Adult Linguistic Input: Responses with more complex language model in "the ball is rolling" increased morphological complexity.
- Child Linguistic Input: Additional sentence and repetitive information added to repeat response "It’s a rolling down the ball."
Diagnostic Process: What is Interfering with Transactions?
Potential Breakdowns

- Attention
- Memory
- Rate of Learning
- Social Interaction
- Hyperactivity
- Motor Skills
- Sensory Skills (e.g. Hearing)

Research Goal: Discovering Which Treatments Are Needed to Gain Access to Learning Transactions

What We Know

- Talking Late, which is a primary symptom in ASD has at least a 60% spontaneous recovery rate
- This is also an entrée into a pantheon of controversial diagnoses (CAPD, CAS, SID [SPD])
- Classic Autism has a low spontaneous recovery rate
What We Know

• Behavioral Intervention Works!
• Hundreds of studies showing that a pantheon of behaviors can be taught
• Includes speech, language, receptive language, social skills, behavioral management, peer interactions etc.

What We Need To Know

• REAL Sensitivity and Specificity for ASD diagnosis at 24 months
• Natural History of new ASD
• Differential Diagnosis of ASD

What We Really Really Need to Know About EI

• Are long term outcomes behavioral or drug treatments are delivered at age 2 as compared to age 3, age 4 and so on.
• This will require fair intervention studies that are not confirmatory
Why is Receptive Language Important in Autism?

Rationale

- Gillum & Camarata review indicated that Auditory Comprehension is one of the most stable deficits in Autism and ASD.
  

  Auditory Comprehension is one of the strongest predictors of long term outcomes in Preschoolers with ASD. (Moricke et al 2010)

Implications

- Social Skills
- Overselectivity (Camarata et al 2009)
- Behavior Regulation
- Impact on “Stores of Acquired Knowledge”
- Lack of Intervention Studies (Focus on Expressive Skills with assumption of Cross-Modal Generalization)