Early Communication Development in Children with and at Risk for Autism Spectrum Disorder

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Agenda: Communication Development

• Early communication development
• Effective strategies to enhance early communication development

In the first two years

• Babbling
• Response to speech input
• Emerging language comprehension (response to name, understanding words, understanding phrases and simple commands)
• Joint attention
• Initiation and social approach (affect sharing)
• Imitation (reciprocity and social cognition)
• Communicative use of speech sounds
  - Diversity
• Words and phrases (directed)
• Gestures
• Play

Language and communication

Bloom & Lahey, 1978

Experience
Want to thwart this kind of experience and expertise

Language learning – dynamic process

Learning to communicate: Reciprocity and initiative – present early in infancy

Starts early in life
Infant contributes
Dynamic process
Takes interaction

Children with ASD

- Atypical attention biases (Chawarska et al., 2010)
- Passivity (Zwaigenbaum et al., 2005)
- Low social approach (Mundy et al., 2009)
- Low social reciprocity (Dawson et al., 1984)
- Imitation (Williams et al, 2004) and theory of mind (Baron-Cohen, 1997)
- Affect understanding and expression (Capps et al., 1992)
- Stereotypic, repetitive patterns of behavior and interests (Wolff et al., 2014)
- Sensory (Tomcheck & Dunn, 2007)

Learning Language

- In the next video- see how the boy pursues input from his sister
- Note how she repeats, affirms, expands
- Her language is highly contingent on his

Compromised ability to develop language and communication skills
Detours development

Atypical information processing & development
Atypical social and communicative behaviors
Atypical experiences & input

Prospective, longitudinal approach

- Autism is heritable (Folstein & Rutter, 1977) and familial
- In younger siblings of children with ASD:

1 in 5

(Landa & Garrett-Mayer, 2006; Ozonoff et al., 2011)

HR: Outcome classifications

Autism Diagnostic Observation Schedule + Clinical judgment

ASD

Other delays

Unaffected

36 months

Prodromal period

- In medicine, a prodrome is an early symptom (or set of symptoms) that might indicate the start of a disease before specific symptoms occur.

Prospective longitudinal design

High Risk (HR for ASD; other DD)  
Low Risk (LR)

6 m 10 m 14 m 18 m 24 m 30 m 36 m

Outcome Diagnosis

Rate confidence of presence of ASD at each age

Receptive language: Infancy

1. Things start out ~ok
2. Different trajectories for ASD
But

- Standardized test scores are not helpful at this age
- Test scores 'miss' the developmental disruptions
  - Motor
  - Possibly attention (needs replication)
  - Social anticipation?

Motor system

1. Postural control
2. Passivity: self-initiated movements
3. Fine motor
4. Anticipatory motor response
5. Visual-motor

Measurable by 3 months

Clinical implication

- Quality of movement:
  - Postural control (head lag, changing positions)
- Likely to affect quality of imitation, gesture

Typical head control: age 6 months

*Baby is laid on flat surface
*Make sure nothing of interest behind or above baby
*Try to get baby's attention
*Gently pull on arms
*Goal: Baby pulls self upward into sit with a little help

Motor-social intersection at 6 months

von Hofsten, 1983; infants perform this 'catching' behavior by age 36 weeks
We found

- Babies ‘catch’ the ball at age 6 months
- And LR and HR babies attend to the person and to the ball rolling toward them
- But significantly fewer HR show anticipatory motor response to the ball coming toward them (failing to ‘catch the ball’)
- Implications: slower in showing social responses during dyadic interactions? Could this affect the partner’s input and timing of the interchange?

Second year of life

- A shift in trajectory
  - Frank symptoms usually begin to appear
    - ADOS scores elevated
    - Language skills
    - Shared positive affect – social approach
    - Joint attention – social approach
    - Attention to faces
    - Repetitive and stereotyped patterns of interests & behavior
    - Sticky attention
    - Reduced reciprocity

What babies know….
Contingencies…. Social initiation

Shared positive affect

- When you look at someone and smile, you
  - Invite them to share something with you
  - Invite them to communicate with you
  - Make them feel that you want to connect with them

Task matters! Peek-a-boo

Exogenous cues: support social attention

Trajectories 6-36 months; different paths
Second year of life
Sharing positive affect (smiling)

No sharing positive affect (smiling)

Receptive Language Raw Scores

Typical development: Responding to other’s social cues

Another aspect of joint attention:

- Social attention:
- Tuning in to others body language:
  - gesture
  - gaze cues
- Understand that these cues ‘tell’ what the person is thinking about, what interests them
- By looking at the object of their attention, you ‘share attention’ with them
- This results in a moment of joint (shared) attention

Frequency of Initiation of Joint Attention

All groups WNL at 6 months
Absence of typical language growth spurt in ASD
Plateau in Early dx group

Age 14 months
ASD: Not responding to name or others’ social attention cues

Age 24 months

Predictors of ASD at age 18 months

- Poor eye contact
- Few gestures
  - Limited use of giving objects to share
- Intact eye contact
- Emerging repetitive behaviors
  - Limited use of giving objects to share or request

Chawarska et al., (2014)

Summary of Early Communication Development

- Prodromal phase
- Early stages – signs may be subtle
- Standardized tests not too helpful in early detection
- Communication affected in all domains in HR infants
- Some HR show resiliency during toddlerhood
- About half of ASD detectable as early as 14 months (Landa et al., 2007) or 18 months (Chawarska et al., 2014) with 93% stability (Ozonoff et al., 2015)

Part 2: Intervention

How to teach

Dissemination of new knowledge
NIH__, Parents’ Place/AAP__, Community

Hi Becky,

Just wanted to let you know that an alumna of my alma mater, Wellesley College, used the early signs video over the weekend as she processed some concerns about her son. She reached out to a parents board we are both members of with her concerns, and not fewer than 3 other alums recommended the videos as a tool in addition to making very helpful suggestions for evaluation and discussing the benefits of early intervention. The videos are definitely out there in the wide world doing good work and it was wonderful to see them helping a member of my community so directly.
Responsivity literature

• In DD, TD, ASD, parents can learn to engage in responsive interactions with their children (e.g., Backersmans-Kranenburg, van Ijzendoorn, & Juffer, 2003; McCollum & Hemmeter, 1997; Trivette, 2003)

• Responsivity:
  – Parents respond to children’s verbal and nonverbal acts
  – Recode these communicative acts
  – Take a turn and wait
  – Follow the child’s lead
  – Imitate the child

• Need relationship base, but also need to take steps to directly teach specific gestures, vocalizations, coordinated gaze, and communication (Fey et al., JSLHR, 2006)

Learning to persist and scaffold

Routine
Devel appropriate
Face to face
Pause
Scaffold
Child:
Initiation
Motor component

Child strategy

Child strategy

Mastery

Routine
Modeling
Devel appropriate
Balanced turns
Child contingent
Core vocabulary
Rewarding
Pausing to give opportunity for initiation

Types of Routines

Social
Daily life
Social

Book sharing
Toy-based

Scaffold & Reward attempts

Scaffold & Reward attempts

Top Ten Toy- Routine Tips

1. Set out toys child likes (motivating)
2. Use toys that are at child’s play level
3. Remove distractions
4. Follow child’s lead (child contingent)
5. Keep language simple and the same each time (core vocabulary)
6. Take turns (balanced turns)
7. Pause and let your child fill in what comes next
8. Help child when he/she needs it (scaffold/modeling)
9. Do the routines over and over again
10. Have fun!
Questions

Thank you