

Autism and ADHD in Corpus Callosum Disorders

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July 19, 2008

Autistic Features of CC Disorders

- Emotional Non-communicativeness
- Social indifference
- Echolalia
- Meaningless out of place language
- Lack of understanding of social behavior
- Poor social judgement
- Difficulty interpreting facial expressions
- Difficulty with inferring what others are thinking
- Poor pragmatic language skills

Autism in CC Disorders

- 9 percent overall
- 4 percent in higher functioning individuals
 - Schilmoeller et al, 2004

Autistic features very prominent in all surveys of such behavior.

What is Autism?

- Deficits in Social Interaction
- Deficits in Communication
- Stereotyped and Repetitive Behaviors

What is Autism?

- Other Common Characteristics
 - Emotional Dysregulation
 - Sensory Integration Issues
 - Lack of Theory of Mind
 - Extreme Inflexibility and Adherence to Routines
 - Aggression and Self injurious behavior

Common misperceptions

- Children with Autism don't
 - Talk
 - Smile
 - Make eye contact
 - Play
 - Want attention and affection
 - Want friends

Why identify autism in children?

- Understanding of behavior
- Learning to interact with others a core human need: basis for all social behavior
- Appropriate therapies
- Educational intervention

Autism: the Spectrum

- Mild to Severe
- Can be seen at all levels of ability
- More common in children with more developmental disability
- PDD-NOS or Autistic Spectrum Disorder:
 - meet most but not all criteria
 - mild symptoms
- Asperger's Syndrome:
 - Autism Spectrum Disorder
 - Average intelligence and language abilities

Social skills and Communication

- Require *cognitive* skills at every level:
 - Language
 - Visual perceptual/motor skills
 - Problem solving skills
 - *Social communication*
 - *Emotional regulation*
- Perceived and performed quickly, efficiently, often w/o thinking

Deficits in social skills and communication

- Language Disorder
- Hearing deficits
- Cognitive disability
- Learning disability
- Attention problems
- Processing difficulty
- Emotional dysregulation
- Autism

Social communication

- Joint attention:
 - Sharing attention, emotions, intentions and experiences
 - Responding to others sharing attention, emotion, intention and experiences
- Use of symbols to communicate joint attention

Communicative Symbols:

- Nonverbal:
 - Gestures
 - Facial expressions
 - Vocal expression
- Language

Symbols

- Learned through observation and modelling
- Abstract
- Learning needs to be tied to communication
- Practiced through everyday use and imaginative play

Gestures

- Conventional: particular to a certain culture, age, family
 - Arms up
 - Point
 - Nod yes
 - Shake no
 - Shush
 - Blow kisses

Gestures

- Unconventional/Nonspecific
 - Cry
 - Grunt
 - Throw
 - Kick/hit
 - More sign
 - Head on desk

Facial expression

- Pre-intentional: Non communicative
 - Reflecting internal states
- Intentional:
 - Paired with eye contact
 - Intent of sharing emotion with another
- Range of facial expression
- Appropriateness of facial expression

Vocal expression

- Intonation
- Loudness
- Prosody
- Intensity

Language

- Signs
- Pictures
- Speech
- Writing

Language

- Increasing levels of abstraction
 - Objects
 - Functional: More, eat, no
 - Verbs, adjectives, pronouns, etc.
 - Past, present, future
 - Ideas
 - Discourse

Language

- Functions
 - Call attention
 - Emotions
 - Needs/wants
 - Interests
 - Experiences
 - Conversation/chatting

All practiced through play

- Functional use of objects (12 to 15 mo)
 - Feeding self with spoon, talking on phone
- Pretend objects (15 to 18 months)
 - Feeding a doll, using a block as food
- Sequencing steps in play (24 months)
 - Setting table, feeding doll, doing dishes
- Turn taking
- Role play (3 to 4 years)

Early difficulties with joint att' n and conventional symbols:

- Not paying attention to relevant cues
- Being distracted by nonfunctional use of objects
- Lack of opportunity for practice
- Nonspecific words
- Difficulties recalling words out of context
- Difficulties with speech/articulation

Stereotyped Behaviors and Restricted Interests

- Unusual sensory interest in materials or persons
- Unusual hypersensitivity to sensory input
- Hand, finger or body complex mannerisms

Stereotyped Behaviors and Restricted Interests

- Preoccupations with unusual activities or objects
- Circumscribed interests
- Repetitive nonfunctional use of toys
- Repetitive actions
- Insistence on unusual routines
- Rituals

Interventions

- Depends on level of language and social engagement
- Goals:
 - Social engagement
 - Peers and adults
 - Play skills
 - Turn taking and reciprocity

Interventions

- Communication
 - Encourage use of communication for variety of functions, and situations
 - Communication temptations
 - Conventional use of symbols
 - Noticing communication of others

Interventions

- Emotional Regulation
 - Identifying emotions of self and others
 - Recognizing source of emotions
 - Problem solving what to do with emotions
 - Regulating state of arousal

General References

- Autism Speaks Website
 - www.autismspeaks.org
- Online Aspergers Syndrome Information and Support (OASIS) website
 - www.udel.edu/bkirby/asperger

ADD and CC disorders

- **Attention problems common in behavioral surveys**
 - Badaruddin 2007

Attention

- **Arousal and alertness**
- **Selectivity, focus**
- **Maintaining attention**
- **Divided attention**
- **Shifting attention**

Attention

- **The functional relationship between the individual and environmental stimuli:**
 - Gaining attention
 - Sustaining attention
 - Suppressing Attention to Distractors

Environmental influences of attention

- Visual components
- Timing
- Persons providing the stimulus
- Contingencies/consequences
- Learning history

ADHD

- **Heterogeneous**
 - Symptoms vary in severity, pervasiveness, frequency and impairment
- **Neurobehavioral disorder**

Multiple contributing factors

- Neuroanatomic
- Neurochemical
- CNS insults
- Genetic
- Environmental

Theories of ADHD

- Deficit in behavioral inhibition
- Executive function deficit
- Working memory
- Self-regulation of affect-motivation-arousal
 - Russell Barkley

Executive functions (Metacognition) (Information processing)

- Selects, controls and monitors use of cognitive strategies
- Interference control
- Effortful and flexible organization
- Strategic planning

Comorbidity

- Depression: boys/girls 15/30%
- Bipolar Disorder: 10%
- Anxieties: 32/26%
- Conduct Disorder: 20/7%
- Substance use disorder
 - Unmedicated: 30-35%
 - Medicated: 10%
- Learning Disabilities: 15/30%

DSM-IV criteria

- Six or more of the nine hyperactive/impulsive criteria *or* inattentive criteria
- Present for at least 6 months
- Maladaptive
- Inconsistent with developmental level

DSM-IV criteria

- Symptoms present in more than one setting
- Some symptoms causing impairment present before age 7
- Impairment in social, academic or occupational functioning
- Not accounted for by another mental disorder

Hyperactivity-Impulsivity

- Fidgets or squirms in seat
- Leaves seat when expected to stay in it
- Runs or climbs excessively
- Difficulty playing quietly
- Often on the go, acts as if “driven by a motor”
- Talks excessively
- Blurts out answers before question completed
- Difficulty awaiting turn
- Interrupts or intrudes on others

Inattention

- Fails to give close attention to details, makes careless mistakes
- Difficulty sustaining attention in tasks/play
- Doesn't listen when spoken to directly
- Does not follow instructions/complete work
- Difficulty organizing tasks and activities
- Avoids/ dislikes tasks requiring mental effort
- Loses things necessary for tasks or activities
- Easily distracted
- Often forgetful

Making the diagnosis

- History and physical
- Parent questionnaires vs. structure interviews
- Teacher questionnaires
- Classroom observation
- Review for comorbidities

Treatment

- Behavioral
 - Behavior Management Techniques
 - Cognitive behavioral therapy
- Medication
- (Neurodynamics)
- Other

Stimulants

- First line for ADD/ADHD
- Norepinephrine and dopamine reuptake inhibitors
- Weak norepinephrine agonists
- Improvements (70% of subjects)
 - core symptoms
 - noncompliance and impulse aggression
 - social interactions
 - academic productivity and accuracy

Methylphenidate (Ritalin)

Ritalin	4 hrs	Tablet	5, 10, 20
Focalin Methylphenidate	4 hrs	Tablet	2.5, 5, 10
Methylin	4 hrs	Chewable	2.5, 5, 10
Methylin Oral Sol'n	4 hrs	Liquid	5, 10 per 5cc

Sustained Release MPH

Concerta	12 hrs	Hard cap	18, 27, 36, 54
Metadate CD	12 hrs	Sprinkle	10, 20, 30, 40, 50, 60
Focalin XR	12 hrs	Sprinkle	5, 10, 15, 20
Ritalin SR	12 hrs	Tablet	20
Ritalin LA	8 hrs	Sprinkle	10, 20, 30, 40
Metadate ER	8 hrs	Tablet	10, 20
Methylin ER			
Datrana Patch	6 to 12 hrs	Skin patch	10 (27.5), 15 (41.3), 20 (55), 30 (82.5)

Dextroamphetamine

Dextrostat	2 to 4 hrs	Tablets	2.5, 5, 10
Adderall	4 to 6 hrs	Tablets	5, 7.5, 10, 12.5, 15, 20, 30

Dexedrine: long acting forms:

Dexedrine Spansule	8 hrs	Sprinkle	5, 10, 15
Adderall XR	12 hrs	Sprinkle	5, 10, 15, 20, 25, 30
Vyvanase	8 to 12 hrs	Capsule/contents may be dissolved in H ₂ O.	30, 50, 70

Stimulant Side Effects:

- Decreased appetite
- Insomnia
- Irritability
- Somnolence (zoned)
- Stomach/head ache
- Dysphoria
- Emotional lability

Stimulant Side Effects:

- Increased habits
- Increased anxieties and perseverative tendencies
- Social withdrawal
- Tics
- Rebound
- Hallucinations (dexedrine)

Strattera

- Norepinephrine re-uptake inhibitor
- 10, 18, 25, 40, 60, 80, 100mg
- May take up to 4 weeks to see effects
- 2nd or 3rd line
- Side effects: suicide warning, irritability, abdominal pain, nausea, sleepiness, TAKE with FOOD

Alpha agonists

- Guanfacine (Tenex) 1mg tabs
- Clonidine (Catapres)

3rd line

- Tricyclic antidepressants
- Wellbutrin
- Polypharmacy
- Not indicated for (run of the mill) ADHD:
 - Risperdal and other neuroleptics
 - SSRI's

General References

- Taking Charge of Your Child's ADHD, by Russell Barkley
- Children and Adults with Attention-Deficit/Hyperactivity Disorder website
 - www.chadd.org
- Straight Talk about Psychiatric Medication in Children by Tim Wilens

General References

- ADD Warehouse 1-800-233-9273, www.addwarehouse.com