

Autism: Emotion and Behavior - is it all in the Brain?



Saturday, February 16, 2008

Treating Children with Autism: Have we missed something?

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QuickTime™ and a YUV420 codec decompressor are needed to see this picture.

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Neurological Assessments of the Child with Autism

1. Obtain a medical and developmental history
2. Neurological examination and behavioral observation
3. Consider need for additional studies:
 - a. Chromosomal/DNA analysis
 - b. Electroencephalogram (EEG)
 - c. Imaging studies (MRI, CT)
 - d. Metabolic (blood/urine) studies

What have we been missing?

- Important to describe cognitive, behavioral, language and processing modalities in ASD.
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- But ASD may be more than a disorder of information processing, language and behavior.
- ASD children, adolescents and adults can and often do have medical issues that have largely gone unrecognized and unaddressed.

What is the definition of “Behavior”?

- The manner in which an organism behaves in reacting to social stimuli or inner need.
- Observable activity in response to an external or internal stimulus.
- Anything that the organism does that involves action or response to stimulation.

What do we know?

- Research indicates that typically developing children often show elevated rates of problem behavior in association with physical illness.
- Physical illnesses are common in persons with developmental disabilities.
- Studies have documented significantly higher rates of acute and chronic medical conditions in developmentally disabled persons than in the general population.

What medical conditions have been documented?

- Problem behaviors have been linked to conditions such as constipation, allergies, premenstrual syndrome, ear infections, urinary tract infections.
- Plausible explanation relates to the degree of pain or discomfort that the individual experiences at the time rather than to the physical illness per se.

Monitoring pain & discomfort in the DD population is a complex process

- DD persons often lack the communication and cognitive skills to allow for direct assessment of pain using a patient scale, checklist and/or interview strategies.
- Recent data suggests that those with the most severe cognitive impairment and fewest communication skills are likely to experience the most pain over time (Breau et al., 2003).

Why have these been overlooked?

- 1) Longstanding assumptions among the medical community about what autism is and who ASD persons are. Abnormal behaviors often interpreted as “part of the autism”.
- 2) ASD individuals may not present with the same symptoms or “red flags” as their “neurotypical” peers. Medical history may not help us.
- 3) Many ASD persons cannot tell us if they hurt/are uncomfortable nor accurately localize discomfort.

Weak Insights into Overall Health Issues

- Difficult to see beyond cognitive or behavioral features of the disorder
- Limited research into physiology of other organ systems outside of the brain
- No vehicle for collaboration on health issues
- No uniform set of clinical measures or data base.

Associated Medical Concerns?

Seizures
Sleep disturbances -
Headaches
Gastrointestinal disorders
Genitourinary
Hormonal imbalance/endocrine dysfunction
Metabolic Disorders

Seizures - are they real?

- Often hard to tell - presentation may be atypical
- Routine EEG may not be helpful
- More prolonged EEG by high quality lab may help - the study is only as good as the person who interprets it.
- Use of video monitoring, MEG, other.
- Use of video taping

Sleep Disorders

- Problems with sleep onset or staying asleep
- Is this coming from the brain (centers of arousal)?
- Is this due to GI disorder? Acid reflux?
- Is this a respiratory problem? Does the child mouth breath suggesting big tonsils/adenoids?
- Sensory integration issues - needs deep pressure?
- Allergies?

Gastrointestinal Disorders

- Chronic diarrhea or constipation
- Feeding/eating disorder
- Change in sleep patterns
- Parents concerned about food allergies, need for special diet, yeast
- Possible abdominal pain/discomfort
- Behavioral changes or increased severity.



Neurotransmitters

- Every known neurotransmitter present in the brain is present in the gut
- Acetylcholine, GABA, dopamine and serotonin have been connected with ASD
- All affect GI motility and sensitivity in a variety of ways.

Endocrine/Hormonal Disorders

- ASD girls whose behavior worsens with onset or during adolescence.
- Small subset with Congenital Adrenal Hyperplasia
- Should we also be looking at teenage ASD boys?

Reason for GU referral

- Previously continent child becomes incontinent
- Usually a preteen
- May be a “spastic bladder”
- Treatment with Ditropan may be helpful

“Red Flags” for Metabolic Work-up

- Poor physical endurance
- Late walking (i.e. 24 months)
- Repeated regressions after age 2 1/2 years
- Dysmorphic features
- Making poor progress despite excellent services
- Qualitatively “different”
- Involvement of multiple organ systems

Bullets

- ASD individuals need/deserve appropriate medical care.
- May not present with typical symptoms.
- Changes in behavior or prolonged episodes of behavioral abnormalities merit a medical look.
- Many of these disorders are treatable.
- We need to learn the language and signs of pain/discomfort in non-verbal and sensory impaired children.

The Autism Treatment Network (ATN)

Began in fall 2003. Modeled after LADDERS program

Originally consisted of five academic sites

– U. Wash (Seattle), Baylor, Columbia, OHSU, MGH

Involves multidisciplinary medical teams

Involves use of common protocols

Commitment to data sharing across/between sites

Why a consortium?

- Evaluate potential “red flags” - are they valid?
- Are there other “red flags” as yet to be identified?
- What proportion of ASD population affected?
- Accurate identification of medical disorders
- What interventions are most effective?
- Establish scientifically sound and meaningful standards of care

Why is this initiative important?

- Improve quality of life.
- If ASD persons feel better, they can take better advantage of services/therapies provided.
- Subsets of ASD persons may be more specifically identified - genetically and/or metabolically.
- Understanding associated medical conditions could enhance our understanding of the neurobiology of ASD.

Where are we now?

- In January 2007, Autism Speaks initiated a Request for Proposals - to expand the ATN initiative
- As a result, there are now a total of 15 multidisciplinary medical sites associated with academic centers in USA and Canada. Centers met in LA in Jan. 2008.
- Sites will provide high quality medical evaluation and care for ASD persons, share protocols and submit data into a common database.

