When to see a Metabolic Geneticist

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Natowicz is specifically interested in metabolic disorders in autism and, in a 1999 Boston based "LADDERS" lecture, enumerated a number of "red flags" which invite investigation into underlying metabolic (including mito) disease in autism:

Red flags requiring further scrutiny by metabolic clinicians:

1. The autism is not classic and/or the diagnosis is not straightforward when observed by credible specialists. Examples of this are children who may score as autistic or PDD-NOS by DSM-IV criteria because they have language, social and behavioral deficits. However, professionals often say that they have "too much eye contact" or a certain "eye quality" or are "too social" even though their social skills are below expectations for developmental age. Diagnosticians use terms like "atypical autism" or "features of atypical autism," or they may say, it's "not quite autism" but we're not sure what it is either. This is a "squishy" diagnosis.

2. Developmental regression: Because some 25-33% of autism is regressive in the first year of life, some clinicians discard these kids as unworthy of further scrutiny. Loss of previously attained skills is always significant and should be carefully regarded by medical professionals. Video documentation is very helpful.

3. Neurological regression: This might manifest as loss of muscle strength or physical ability, easy fatigue or lethargy. Be on the look out for intermittent loss.

4. Seizures: Some 33% or more of children with autism are expected to show EEG abnormality or seizure activity in their lifetime so many clinicians discard this very important marker for metabolic stress.

5. Food intolerances or avoidance: If foods cause changes in neurological status, this is significant for metabolic disorder. A child who has typical or near typical muscle skills but becomes frankly ataxic upon eating a certain food, may have a

"leaky form" or partial defect associated with a given metabolic disorder. For example, children with less advanced maple syrup urine disease (MSUD) can become clumsy after eating foods high in branched chain amino acids (generally proteins). The disorder may be more apparent under circumstances where there is a greater catabolic demand on the body such as during fasting (i.e. overnight) or infection. For this reason, first in the AM urine is often preferred for analysis. This underscores the need to collect urine samples during times of obvious unbalance or muscle loss.

6. Given the proper educational, behavioral and therapeutic supports, children with autism are capable of learning. When children do not learn (or lose cognitive skills), one may first question whether the child is being taught appropriately. If the answer is "yes" or if the educational piece is corrected and the child still does not make progress, metabolic scrutiny is often appropriate. When observed together with one or more other "red flags," lack of learning in autism demands scrutiny.

7. Family history: a second affected sibling cries out for metabolic scrutiny. I would venture to add here that families who have a history of miscarriage along with an affected child, should demand further metabolic work up in their child.

8. Unusual findings on physical examination including:
*growth retardation or excessive growth
*small head circumference esp. if this declines over time relative to over-all-size
*significant motor dysfunction
*atypical biochemical findings [examples include but not limited to low blood CO2, high blood ammonia, liver function abnormalities, creatine phosphokinase (CPK) abnormalities indicative of muscle injury, etc.. Some clinicians feel that values must be at least 2 standard deviations from the mean in order to be significant.

Most agree that flagged values (i.e. any value outside the normal reference range) warrant a repeat blood draw for validation.] For more information, contact www.umdf.org, www.mitosoc.org, www.mitoaction.org.