Evaluation, Workup, and Treatment: the Biomedical Approach to Autism

Michael Montico, M.D.
Holland Biomedical Clinic
ASD Medical Consulting
Autism One
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Objectives
- Define the functional medicine approach to chronic disease
- Identify the “vicious cycles” in autism
- Outline the biomedical approach to ASD
- Illustrate that ASD is a treatable condition, by reviewing interventions and treatment plans

Practicing Functional Medicine
“Using essential knowledge about the physiology and biochemistry of mechanisms of chronic disease that cross multiple organ system boundaries; and to develop the clinical skills to integrate this approach in the assessment, treatment, and prevention of chronic disease in clinical practice”

What is wrong with “medicine”?
- “One size fits all”
- Doctor/drug “centered”
- How are doctor’s paid???
- Treat the symptoms… not the disease
- Evidence based medicine

What is Functional Medicine
- Biochemical individuality
- Genetic predisposition
- Environmental stressors
- Patient centered approach
- Identify imbalances that cause disease

Functional Medicine: Imbalances
- Methylation/Detoxification dysfunction
- Digestion, absorption, barrier integrity
- Hormone/Neurotransmitter regulation
- Immune system dysregulation
- Psychological/Spiritual equilibrium
Defining Autism
- DSM IV Criteria
- Areas of impairment
  1. Social Interaction
  2. Language/Communication
  3. Repetitive Behaviors

Dr. Kanner and Autism
"Since 1938, there have come to our attention a number of children whose condition differs so markedly and uniquely from anything reported so far, that each case merits—and, I hope, will eventually receive—a detailed consideration of its fascinating peculiarities."

Dr. Kanner and Autism
- Classic behavioral abnormalities
- GI abnormalities
- Immune system dysregulation
- Signs of allergy and asthma
- Parents to blame?

Defining Epidemic
- American Heritage Dictionary
  "A rapid spread, growth, or development"
- Prevalence: 1 in 100

The Autism Epidemic
- Rates are rising
  1930-1950 – Autism extremely rare
  1989 – 4.5 per 10,000
  2003 – 60 per 10,000
  Current estimates – 1 in 70!
- Is autism genetic?
- The first genetic epidemic?
- If not genetic…. 
Autism – Not Only Genetics!
- No genetic epidemics!
- Must be a trigger
- Finding more triggers:
  - Better testing
  - Potential prevention
  - Improved treatment

Vicious Cycles
- Increased oxidative stress
- Dysfunctional enzymes
- Environmental toxins

Increased damage from toxins
- Abnormal Methylation biochemistry
- Food sensitivities
- Malabsorption
- Gut inflammation
- Abnormal intestinal permeability

Abnormal Methylation
- Methyl groups – "currency of personality"
- Methyl groups added to molecules, changing their character
- Methylation leads to:
  - Melatonin production
  - Creatine production
  - Cell communication: DNA>>RNA
  - Detoxification

Methylation Cycle/Oxidative Stress
- Methionine
- 5-CH3THF
- 5,10-MTHF
- THF
- B12
- Betaine
- CH3 groups
- Cys
- Cystathionine
- Cysteine
- Glutathione
- Homocysteine

Impaired Detoxification
- Oxidative stress
- Methylation/sulfation abnormalities
- Environmental toxins
- Heavy metal toxicity

"GUT" Inflammation
- Inflammatory bowel
  - GERD
  - Lymphonodular Hyperplasia
  - Autistic Enterocolitis
- "Leaky Gut" syndrome
- Dysbiosis
- Malabsorption
Immune Dysregulation

- Immune dysregulation
  - Allergies – seasonal, food, etc
  - Frequent infx – bacterial, viral, fungal
  - Chronic inflammation
  - Autoimmune reactions
    - Gut lining
    - Brain proteins

Minding the GAPS!

Unhealthy GUT

- Mind the GUT…mind the GAP
- Altered Intestinal Permeability
  - Limited diet
  - Infection
  - Toxins
  - Food Allergy
- Altered Permeability >>> increased stress
  >>> systematic disease

Finding the source…

- Impaired methylation
- Faulty Detoxification
- Unhealthy GUT
- Inflammation
- Infection
- Dysbiosis
- Food Intolerance/Allergies
- Immune dysfunction

Vicious Cycles

- Increased oxidative stress
- Dysfunctional enzymes
- Abnormal Methylation biochemistry
- Food sensitivities
- Malabsorption
- Gut inflammation
- Abnormal intestinal permeability

Old Paradigm of Autism

- Genetic
- Psychiatric disorder
- Neurological disorder
- Treatment – concentrating on behavior
New Paradigm of Autism
- Genetic predisposition – environmental trigger
- Medical disorder
- Appropriate medical treatment
- Biomedical treatment
- Improved results with behavioral therapies

Defining “Biomedical Approach”
- Biomedicine (bio-med i-sin)
  - The application of the principles of biology and physiology, to clinical medicine.
  - The branch of medical science that deals with the ability of humans to tolerate environmental stresses and variations.
- “Functional approach”

Biomedical Approach
- Get rid of what is hurting them!
- Give them more of what they need!
- Break the vicious cycles!

Biomedical Alterations in Autism
- Methylation defects
- Impaired detoxification
- “GUT” inflammation
- Immune dysregulation

What is the approach?
- Intake evaluation
  - Questionnaire
  - Chart Review
  - Doctor Interview
  - Physical Exam
  - Initial Treatment Plan
  - Lab Evaluation
  - Follow-up Consult

Questionnaire/Chart Review
- Prenatal history
- Birth history
- Developmental history
- Vaccination history/reactions
- Family history
- Environmental history
Questionnaire/Chart Review
- Dietary/nutritional history
- Parent observations: signs, symptoms
- Medications
- Supplements
- Previous biomed workup/treatments
- Detailed history leading to ASD dx

Doctor Interview
- Questions for parents
- Questions for doctor
- Parental goals
- Initial treatment options
- Order labs

Physical Exam
- HEENT – allergic shiners, rhinitis, otitis, pharyngitis, conjunctival pallor
- Lungs – wheezing
- Abdomen – distended, doughy, dullness to percussion
- Skin – pale, eczema, keratosis pilaris, molluscum, yeast, anal ring
- Musculoskeletal – poor balance, poor muscle tone
- Neuro – poor eye contact, stimming, tics

Lab Evaluation
- Baseline labs
- Food sensitivity testing
- Comprehensive stool studies
- Organic acid testing
- Amino acid profile
- Oxidative stress markers

Intake “wrap up”
- Lab review with staff
  - Logistics
  - Parent execution
  - Supplement review
  - Insurance reimbursement
  - Parental support

Follow Up
- Lab review
- Treatment plan review
- Treatment plan adjustment
- Ongoing parental support
- Multidisciplinary approach
What is the approach cont…

- Individualized treatment plans
- "Partnering with parents…reaching your child’s potential!"
- Detective work
- Build a foundation…stay the course!
- Marathon… not a sprint.

Biomedical Approach - Labs

- Baseline labs
- Food sensitivity testing
- Comprehensive stool studies
- Nutritional Testing
  - Organic Acids
  - Amino acid profile
  - Oxidative stress markers
Spectrum Treatment Approach: the 3 R’s

- **Remove**
- **Replenish**
- **Restore/Repair**

**Remove**
- Foods
  - Gluten/Casein
  - Food sensitivities (IgG)
- Bugs
  - Bacteria - antibiotics
  - Virus – antivirals
  - Fungus – antifungal parade
- Toxins
  - Methylation support
  - Detox support

**Replenish**
- Enzymes – help with digestion
- Probiotics – restore the normal flora
- Nutrients
  - Zinc
  - Magnesium
  - B vitamins
  - Essential fatty acids

**Repair/Restore**
- Repair methylation
  - Methyl B12
  - Magnesium/B6
- Repair the GUT
  - Restore GUT flora
  - Repair the GUT wall
- Repair damaged tissue
  - HBOT
- Restore detoxification pathways

**Methylation Cycle/Oxidative Stress**

- Enzymes
- THF: tetrahydrofolate
- 5-MTHF: 5-methyltetrahydrofolate
- SAM: S-adenosylmethionine
- SAH: S-adenosylhomocysteine
- 5-CH3THF: 5-methyltetrahydrofolate
- MS: methyl group
- B12:钴胺素

**Transsulfuration Pathway**
- Methionine
- Cysteine
- Glutathione
- GSSG

**Are we simply treating a deficiency?**

… no, we are treating multiple different dependencies!
The spectrum GESTALT

The “ABC’s” of Autism
- A – Multivitamin
- B – Vitamin B 12
- C – Cod liver oil
- D – Diet
- E – Enzymes
- F – Fungus
- G – “Go Green”
- H - HBOT

Methylation/Detoxification
- Folinic acid
- DMG/TMG
- B6/P5P
- Magnesium
- Antioxidants: Vit C, Zinc, Selenium
- Taurine
- Glutathione
- Chelation

Interventions cont...
- Mitochondrial support: “3 C’s”
- Socialization: LDN
- Neurotransmitters: GABA
- Immune dysfunction/inflammation
- HBOT

Interventions cont...
- Prescription meds
  - Antifungals
  - Antibiotics
  - Antivirals
  - Anti-inflammatory
  - Spironolactone
  - Namenda
  - Psych meds

Interventions cont...
- Antifungal trial
- Food Allergen Elimination