Post-infectious Autoimmune Neuropsychiatric Syndrome

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Terms

Antigen – the molecule which triggers an allergic or autoimmune reaction

Enzymes – proteins involved in body's biochemical machinery

GABHS – Group A beta-hemolytic Strep

PANS – Post-infectious Autoimmune Neuropsychiatric Syndrome

PANDAS – Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal infection

PITANDS – Pediatric Infection-Triggered Autoimmune Neuropsychiatric Disorders

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Lecture Objectives

1) Introduce the concept of a post-infectious autoimmune disorder.

2) Describe PANS by using a specific diagnosis called PANDAS as illustrative of a post-GABHS neuropsychiatric disease.

3) Present the diagnostic criteria to help increase the index of suspicion for PANS, when a child presents with OCD and/or Tics.

4) Introduce the general concepts involved in treatment.

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Allergy, Autoimmunity or Adverse Reaction

Allergy

- The production of antibodies by the immune system, such that re-exposure leads to an adverse immune event
- Ig E allergies – immediate hypersensitivity which is classic allergy
- Ig G allergies – delayed response associated with chronic immune activation.

Autoimmunity

- A reaction where the immune system attacks self.
- Only a very small amount of antigen can trigger a prolonged adverse set of events.

Adverse reaction

- A negative reaction that is not necessarily allergy related.
- For example, the absence of necessary digestive enzymes in lactose intolerance.

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Symptoms of PANS

- Obsessions
- Complusions or Rituals
- Tics
- Irritability
- Emotional lability
- Tactile/sensory defensiveness
- Motor hyperactivity
- Deterioration in handwriting

Moretti G et al. What every psychiatrist should know about PANDAS: a review. *Clin Pract Epidemiol Ment Health.* 2008 May 21;4:13

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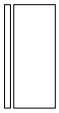
Obsession vs. Compulsion



Obsession:

- Thoughts that are intrusive (uninvited), irrational, recurrent, disturbing and anxiety provoking.
- Because they may not perceive their obsession as wrong, children may not have as much anxiety so long as they can act out their obsession.

Compulsion:

- The action or outward behavior associated with an obsession
- Similarly these actions are intrusive, irrational and may be disturbing.
- Interruption or deferring the compulsion can be very anxiety provoking.
- Affected individuals may not be able to associate the obsession with the compulsion.

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Obsessions

Contamination:
- Fear of germs or chemicals
- Aversion to previously tolerated or desired foods
- Concern about throwing up
- Refusal to change clothes, to bathe, or brush teeth

Symmetry Urges:
- Insistence on the certain order of events
- Counting
- Matching

Harm to Self or Others:
- Inability to separate from parent
- Worry about weather or robbers
- Fear of sickness or death of a parent
- Needing repeated reassurance that something bad is not going to happen to them

Doubting:
- Indecision for fear of being wrong
- High need of reassurance on the same/similar topic
- Feeling need to ask permission for normal activities of daily living
- Perseveration on certain ideas

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Compulsions

Fear of Germs:
- Repeated hand washing
- Avoiding touch of others or items touched by others
- Not changing clothes, bathing or brushing teeth

Symmetry Urges:
- Repeated counting of items
- Sorting by urge (#, color, other)
- Lining items

Magical Thinking:
- I can't do that because it will cause this bad thing to happen
- Having to do something to prevent a bad thing from happening

Others:
- Seeking reassurance or doing things "just right" (need for perfection or fear of failure)

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Classic PANDAS

Diagnostic Criteria	Comments
■ Presence of OCD or Tic disorder	■ By definition onset of illness is in childhood
■ Age of onset between 3 – 11 years of age	■ PANDAS is not an immediate diagnosis and is best utilized when two or more episodes of symptom exacerbation with GABHS infections/exposure have occurred
■ Episodic course of symptom severity	■ Diagnosis of antecedent GABHS infection may be by throat culture or by evidence of immune reaction to GABHS with ASO titer, Anti-DNase B and Streptozyme
■ Association with GABHS infection	
■ Association with choreiform signs (optional)	

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PANS (aka PITANDS)

Diagnosis	Comments
■ Presence of OCD, Tic disorder and/or intrusive Behavior Disorder	■ Like PANDAS a pediatric onset make the diagnosis more likely
■ Pediatric onset	■ PANS is not an immediate diagnosis and is best utilized when two or more episodes of symptom exacerbation occur with the presumed or diagnosed infections/exposure have occurred
■ Episodic course of symptom severity	■ Diagnosis of antecedent infection is expanded to include positive titers to mycoplasma and possibly other infections – C. pneumoniae, HHV-6
■ Temporal association with GABHS, mycoplasma and/or other infection occurring more than once	

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An Integrative Approach to PANS

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Goals of Treatment

- Identification of broken systems
  - Systemic, regional, and/or local
  - Organ systems
  - Metabolic and/or biochemical
  - Mind, body, and spirit
- Restoration of normal function
- Protection of re-injury
- Promotion of normal physical, emotional, and mental health

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Identify the Cause

History:
- OCD symptoms take up more than 1 hour daily
- Exacerbations when ill or when a family member is ill
- Difficult to explain OCD symptoms – timing/onset/ type

Response to Treatment:
- Dramatic improvement in symptoms with antibiotic therapy
- Dramatic response to pulse of steroids

Laboratory Assessment:
- Throat Culture for GABHS
- ASO
- DNase B
- Streptozyme
- *Mycoplasma* IgM & IgG
- *C. Pneumonia* IgM & IgG
- HHV6 IgM & IgG

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Phases of Treatment

1) De-bulk Infection
   Typically with antibiotics therapy and evaluate response of symptoms in 10-14 days

2) Immune Cool-down
   a) Curcuminoids
   b) Treatment of allergies
   c) Treatment of biochemistry, bowel & nutritional status

3) Adjunctive Therapies
   a) N-acetyl-cysteine
   b) Cognitive behavior therapy
   c) SSRI medication

4) Maintenance
   a) Expect relapses and monitor for triggers and antecedents
   b) May need referral or retreatment with antibiotics.

5) Induction of Tolerance (Future Technique)

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Foundational Treatments

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Essential Medical Treatment

- Dietary Intervention and nutrition
- Restoration of normal bowel function
  - Effective, daily stools
  - Digestive support
  - Proper colon ecology
- Correct oxidative stress and associated problems
- Assess and correct biochemical imbalances
- Assess and correct immune dysfunction
- Step-wise assessment of other possible co-morbid conditions

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Health Begins at the Dinner Table

Nutritious Food
- Organic
- Consciously prepared

Family Time
- Relationship building
- Consciously enjoyed (i.e. slow down)

Life Skills Building
- Emotionally grounding
- Family building with conversation and sharing

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Minimize Pro-oxidant Behaviors

- Minimize environmental toxic exposures – EWG.org
  - Cleaning products
  - Building materials (i.e. low VOC paint)
  - Plastics and other materials
- Reduce emotional, physical and emotional stresses.
  - Electronics are very potent neuroactivators
  - Find quiet time
  - Walk in nature
- Eat locally grown organic food; avoid nitrates, preservatives, and artificial additives; and know the heavy metal content of the fish you eat.

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Build your team

- Parents
  - Support groups
- Educators
  - IEP team
  - Tutors
- Community
  - Sports
  - Walk with a Doc
- Professionals
  - Mental health
  - Behavioral health
  - Integrative medicine
  - Massage/ Cranial Work
  - Bio- / Neuro- feedback

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Choose Mental Wellness

Practice Self Love

Each one of us deserves our own best effort in achieving physical, mental and spiritual wellness

- AND -

We need to treat ourselves with compassion and kindness – mistakes are inevitable in the human journey.

Much of a child's habits are learned along the way by imitation; therefore,

Parents who want to help their child, must first help themselves.

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Focus on the Fundamentals

Rest and Exercise
- 45-60 minutes of moderate to vigorous physical activity daily
- 8-10 hours nightly of restful sleep

Nutrition
- Eat high-quality fuel - fruits, vegetables, whole grains, nuts, beans and fish
- Choose organic, whole food
- Drink pure water

Environment
- Sunshine and nature
- Stress-minimized
- Avoid noise, clutter, electronics, heavy metals and toxic chemicals

Fellowship
- We are social beings with a need for a strong friendship(s)
- Mental Wellness is contagious
- Mental Wellness confers resilience to unhealthy thoughts

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Signs of OCD in a young child. Ideas from board parents. http://www.latitudes.org/forums/index.php?showtopic=6153.

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