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#### Course details

7 Modules on-demand

Downloadable slides and resources mentioned are found in each Module under the Materials tab

Quizzes are at the end of the lessons where they pertain

PANDAS & PANS

Dr. Jill Crista

An Integrative Approach

Certificates of completion are sent for all student types

CME/CE certificates - please allow 1 week

Access for 1 year

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30-day money back guarantee, as long as not more than 25% of course materials have been downloaded

Copyrighted course assets and equal exchange ~

Please support my work and the voluminous hours I've spent collating my years of experience and research to put together this scientific presentation.

Please resist your healer's heart urge to share widely - even and especially if you're a parent! I understand - I've been there.

And I paid my kids' doctors with gratitude.

I ask for the same consideration.



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## Course Outline

- 1. Symptoms
- 2. Mechanisms
- 3. Diagnostics
- 4. Conventional treatment approach
- 5. Integrative treatment approach
- 6. Recovery essentials
- 7. Cases



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Paradigm Shift

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## Autoimmune encephalopathies

PANDAS = pediatric autoimmune neuropsychiatric disorder associated with streptococcal infection

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PANS = pediatric acute-onset neuropsychiatric syndrome

A third category? "PLANS" or "NADAL"

Autoimmune encephalitis (AE) found to be as common as infectious encephalitis (Mayo Clinic 2018)

Antecedent state: immune depletion

Autoimmune trigger: INFECTIONS &/or TOXICANTS

Target tissues depend on specific type of AE

PANDAS/PANS/BGE ~

ØJILL CRISTA brain stem/basal ganglia, GI, kidneys (theorized)

Overview

Incidence: Lacking large population data, however roughly estimated as 1 in 200-250 children

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Prevalence: males>females 2.6:1

FHx: autoimmune disease

Autoimmune relapsing-remitting pattern

Average 3 month pattern

Challenge of mgmt:

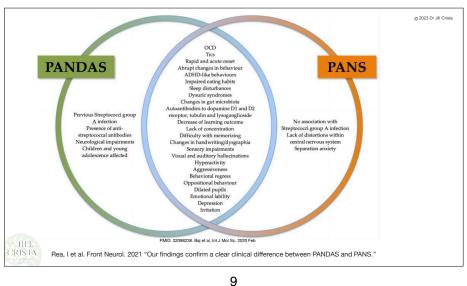
Wax: flare/natural progression or new exposure? Wane: treatment effect or natural remission?

Some variation PANDAS vs PANS

Different diagnostic criteria

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@2023 Dr Jill Crista Clinically Observed Symptoms: PANS/PANDAS Separation anxiety (98%) Inability to concentrate (90%) Urinary frequency, urgency, or urinary accidents (90%) Handwriting deterioration (90%) Alterations in sleep - insomnia, night terrors, inability to sleep alone (80%) Behavioral regression Hyper-alert appearance; enlarged pupils (80%) Hyperactivity, inattentiveness (70%) Tics (70%) Learning difficulties (60%) Short-term memory loss (60%) Aggression (60%) Sensory alterations - hypersensitive or insensitive (40%) History of repeat UTIs or sinusitis Disordered eating (20%) Hallucinations (10%) ØJILL. CRISTA Clinical observations O'Hara/Wells presentation WNDA Annual Conference 2021

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@ 2023 Dr Jill Crista PANS Phenotype (n=43) Anxiety 43 (100) Urinary problems 24 (56) Panic/Somatica 15 (35) Frequent urination (pollakiuria) 19 (44) Generalized anxiety disorder (GAD) 20 (47) Enuresis 11 (26) Separation anxiety disorder (SAD) 33 (77) Handwriting deterioration; 7-14 years (n=30) 17 (57) Social phobia 12 (28) Food restriction 20 (47) School avoidancea 20 (47) ADHD diagnosis 20 (47) Mood and behavioral symptoms 43 (100) Inattention 11 (26) Emotional lability and/or increased irritability 43 (100) Impulsivity/hyperactivity 14 (33) Anxious/Depressed 19 (46) Oppositionality 11 (26) Irrational thinking and/or psychotic symptoms 12 (28) Withdrawal/Depression 10 (24) Somatic complaints 9 (22) Visual hallucinations 5 (12) Social problems 2 (5) Olfactory hallucinations 4 (9) Auditory hallucinations 3 (7) Thought problems 21 (51 Attention problems 8 (20) Mydriasis 10 (23) Rule-breaking behavior 3 (7) Choreiform movements 9 (21) Aggressive behavior 12 (29) Anorexia (not caused by PANS-OCD) 5 (12) Suicidality (n=33) 10 (30) Visuospatial/Motor impairment (n=42) 28 (67) Behavioral regression 36 (84) Obsessive compulsive symptoms Deterioration in school performance 36 (88) Harm to self and/or others 39 (91) Sleep disturbance 36 (84) Ordering and/or arranging, symmetry 30 (70) Tics 30 (70) Contamination 29 (67) Simple 30 (70) Sexual and/or religious 16 (37) Complex 12 (28) Collecting and/or hoarding 14 (32) Sensory abnormalities 26 (61) PMID: 25314221. Murphy et al, J Child Adolesc Psychopharmacol. 2015.
Dr. Tanya Murphy questionnaire. Symptom headings were proposed core PANS diagnostic criteria symptoms.

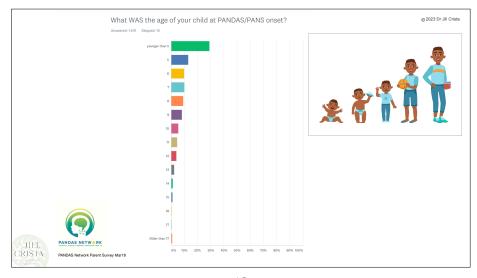
Stanford PANS Clinic Cohort (n=220)

Anxiety (97%)
Sensory amplification (97%)
Sleep issues (93%)
Insomnia, nightmares, restless sleep, reverse cycling,
REM motor disinhibition = REM Behavior Disorder (RBD)
Obsessions & compulsions (92%) [major criteria]
Mood disorder (92%)
Irritability/aggression (90%)
Behavioral regression (73%)
Deterioration in school (72%)
Urinary symptoms (66%)
Eating restriction (53%) [major criteria]

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ത 2023 Dr. Jill Crista PANDAS Dx Criteria Category 1 ~Presence of OCD (compulsions) and/or tics, particularly multiple, complex or unusual tics Imust be severe enough to meet criteria for OCD or a tic disorder and interfere with the patient's ability to function at pre-illness levels] Category 2 ~Age Requirement [first evidence between 3yo and puberty] Category 3 ~Acute onset and/or episodic (relapsing-remitting) course [with abrupt, dramatic, debilitating exacerbations of existing symptoms, at which time the symptoms seem to "explode" in severity] Category 4 ~ Association with Group A Streptococcal (GAS) infection [evidence of GAS infection found without apparent pharyngitis] Category 5 ~ Association with Neurological Abnormalities [abnormal results on neurological examination. Motoric hyperactivity and adventitious movements such as choreiform movements or tics are particularly common] Comorbidities ~ anorexia, urinary frequency, mydriasis, insomnia, abd pain boys>girls PMID: 28989283 SJILL-CRISTA

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### PANS Dx Criteria

Category 1 ~ An abrupt, acute, dramatic onset of obsessive-compulsive disorder or eating restriction

[many treating docs see a nuanced acute onset, owing to congenitally acquired infxns]

Category 2 ~ 2 co-morbid symptoms (also sudden onset):

- 1. Anxiety (commonly severe separation anxiety)
- 2. Sensory dysregulation (light, sound, and/or pain) or motor abnormalities (handwriting deterioration, piano fingers, tics, or motoric hyperactivity)
- 3. Behavioral (developmental) regression
- 4. Deterioration in cognitive functioning (school performance)
- 5. Mood disorder (emotional lability, depression, irritability, rage)
- 6. Urinary symptoms (polyuria, urge, enuresis)
- 7. Severe sleep disturbances

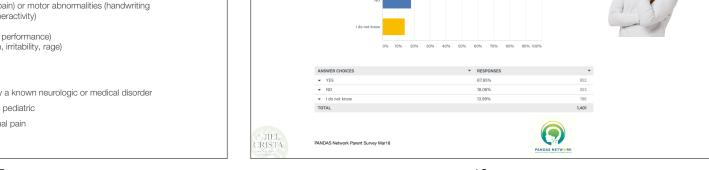
[most have 5-6 co-morbid symptoms]

Category 3 ~ Symptoms not better explained by a known neurologic or medical disorder

Category 4 ~ Age requirement - any, as long as pediatric

Comorbidities ~ mydriasis, generalized abdominal pain

@ 2023 Dr Jill Crista In hindsight, did your child display any subtle or early manifestations of symptoms within 6 months of the ACUTE ONSET of PANDAS/PANS symptoms? Answered: 1,401 Skipped: 10 ANSWER CHOICES ▼ YES 67.95% - NO 18 06% ØJILL CRISTA PANDAS Network Parent Survey Mar18



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# Differential Diagnoses

Obsessive-compulsive disorder (non-PANDAS/PANS)

Tourette syndrome

Sydenham's chorea (acute rheumatic fever)

Abuse and/or trauma

Other encephalidities (AE, NMDA-R)

Medications, recreational drugs

Post-concussive autoimmune hypophysitis

Tumor

Cerebral vasculitis, autoimmune vasculitis, Behcet's syndrome (Herpes?)

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And of course, myriad unrecognized contributing environmental and infectious factors (ie: novel viruses)

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#### PANDAS or SC?

Is PANDAS actually Sydenham's chorea 2.0?

Both are the result of a Strep infection.

Both conditions have OCD sxs and involuntary or unpredictable movements as part of their dx criteria.

May have ID'd what distinguishes them - different Strep proteins may lead more to one than the other, but it remains a diagnostic challenge.

About 1/3 with PANDAS or OCD have the choreiform movements seen in SC.

SC may cause more severe OCD symptoms, while also resolving sooner than PANDAS.

Be mindful of this close look-alike. SC is a common sx of rheumatic fever and therefore may require treatment strategies for RF.

PMID: 25301689



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# Distinguishing from other AEs

Distinguish by symptomatology that's missing.

IE: NMDA-R AE

- -seizures
- -myoclonus
- -coma
- -focal neurological signs

Genetic Predisposition?

PANS: HLA alleles: HLA-B 38, 52, 55

My own observations:

Snps related to IgG: Fc $\gamma$  Receptors Snps related to NTs: COMT, MAOA

Snps related to detox:

Phase I: CYP1A2, CYP1B1, CYP3A4 (mold)

Phase II: GSTM1, MTHFR, SUOX Snps related to histamine: DAO

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OCD in children

Obsessive-compulsive uncoupling

Obsessions = thoughts ~

Often involves a silent experience of intrusive thoughts

Intrusive thoughts interrupt normal cognition = looping/lack of focus

Cause = neuroinflammation impeding normal brain chemistry/fxn

Compulsions = behaviors ~

Involves a sense of lack of control

Take control of what they can

\*By listening to these with an investigative mind, they often point to the causal issue.

- controlling adherence to routines/everyone else must as well adrenals
- avoidance of certain people strep carriers
- food avoidance digesting increases LPS, neurological dysphagia
- must look left or bad things a need for craniosacral re-alignment
- hand-washing fear of further infection/need for immunomodulation

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Answered: 1,285 Skipped: 126

We've been supplied down and sideways, but we are stable now.

Answere choices

We've been supplied down and sideways, but we are stable now.

We've been supplied down and sideways, but we are stable now.

We've been supplied down and sideways, but we are stable now.

We've been supplied down and sideways, but we are stable now.

We've been supplied down and sideways, but we are stable now.

We are in the midst of the relier coaster and down't see an end in sight.

Our marriage has suffered.

We wan the midst of the relier coaster and down't see an end in sight.

Our marriage has suffered. We are in the process of separation.

Our marriage has suffered. We are in the process of separation.

Our marriage has suffered. We are in the process of separation.

Our marriage has suffered. We are in the process of separation.

Our marriage has suffered. We are in the process of separation.

Responses

T2.59% 226

MONION (Marrian Process Survey Marrian P

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