



**Two Sides of the Same Coin:
How Autism and Trauma are
Similar**

Charmi Patel Rao, MD
Child & Adolescent Psychiatrist
September 23, 2016



Outline

- * Explanation of the Title
- * My Background
- * History of Overlap Theories
- * Key Areas of Overlap
- * Bringing it all Together
- * Future Areas of Research

Case Presentation



- * 4yo boy living in his biological home who presents with aggression, poor frustration tolerance, inability to self-regulate, and poor peer interactions leading to being kicked out of two preschool settings.
- * Differential Diagnosis?

Explanation of the Title

- * Two different disorders
 - * Autism represents other developmental disorders
- * Two different etiologies
- * Areas of overlap and similarities?

My Professional Background

- * Board Certified Child & Adolescent Psychiatrist
- * Clinical expertise in ECMH and Developmental Disabilities
 - * Rady Children's KidSTART Clinic
 - * Vista Hill Stein Education Center
- * Common themes I have seen in clinical practice
- * Disclaimer: not a basic science researcher



Child with both Trauma and Autism

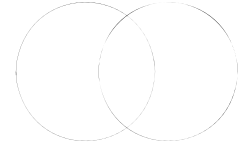
- * Complicated picture
- * Won't be talking too much about this today
- * If differential diagnosis includes both, start with trauma but keep autism close in mind because
 - early intervention is KEY!

History of Overlap Theories

- * Autism caused by emotionally detached mother (Kanner 1950s)
- * Autism caused by poor parenting (Bettelheim 1960s)
- * Autism caused by intrauterine trauma
 - * Infections, environmental agents, maternal conditions
- * Mostly discounted

Areas of Overlap

- * Genetics
- * Neurobiology
 - * Brain regions
 - * Brain pathways
 - * Neuroendocrine factors
- * Clinical presentation
- * Attachment/Attunement
- * Sensory processing
- * Treatment

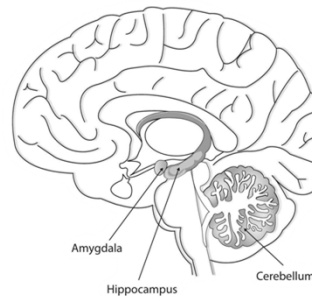


Genetics

- * Anxiety disorders, particularly those involving social phobia, occur more often in families with autism
- * Compared with Down syndrome
- * Particularly in children without cognitive delays
- * Seen with MDD, OCD and other anxiety disorders too but highest association with social phobia



Brain Regions



- * Cerebellum
- * Amygdala
- * Hippocampus

Cerebellum

- * Function:
 - * Motor planning, balance, coordination
 - * Attention/memory tasks
 - * Complex reasoning and problem solving
- * Abnormality seen in trauma and autism:
 - * Smaller volume

Amygdala

- * Function:
 - * Formation and storage of memories associated with emotional events
 - * Fight or flight response
- * Abnormality seen in trauma and autism:
 - * Higher activation in both

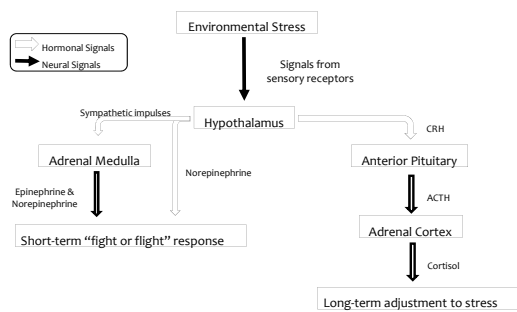
Hippocampus

- * Function:
 - * Long term memory formation
 - * Behavior regulation
- * Abnormality seen in trauma and autism:
 - * Dysfunction seen in both
 - * Different mechanisms
 - * Atrophy seen in trauma
 - * Abnormal shape seen in autism

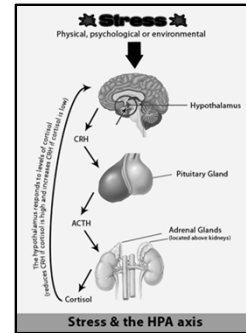
Brain Pathways

- * Sympathetic Nervous System
- * Hypothalamic-Pituitary-Adrenal (HPA) Axis

Sympathetic Nervous System



HPA Axis



Sympathetic Arousal

- * Aggression
 - * Impulsivity
 - * Hyperarousal
 - * Emotional reactivity
 - * Exaggerated startle response
 - * Hyperfocus
 - * Rigidity
 - * Repetitive behavior and stimming (autism)
- ... symptoms seen in both trauma and autism



Neuroendocrine Factors

- * Neuropeptides:
 - * Oxytocin
 - * Vasopressin
 - * Both involved in social behavior and communication
 - * Oxytocin has a role in stress buffering
- * Enzymes:
 - * Prolyl endopeptidase (PEP)
- * Hormones:
 - * Cortisol

Cortisol Elevation

TRAUMA	AUTISM
Re-traumatization	Play interactions
Memories of trauma	Novel environments
Environmental triggers	Eye contact
Flashbacks	Social interactions in general

Clinical Presentation

- * Emotional dysregulation
- * Tantrums/meltdowns
- * Aggression
- * Hyperactivity, impulsivity
- * Sleep disturbance
- * Feeding difficulties
- * Difficult peer interactions/difficulty with social engagement
- * Difficulty with transitions
- * Kicked out of preschool/daycare setting

Developmental Delays

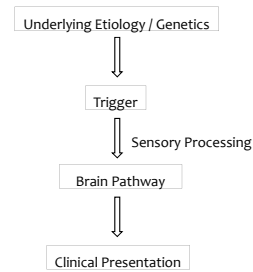
- * Speech and language delay
- * Fine motor delay
- * Gross motor delay
- * Cognitive delay



And of course...

- * Social-emotional delay

Sensory Processing



Definitions

- * **Sensory processing:** how the nervous system manages incoming sensory information and generates responses
- * **Sensory integration:** how the body's 8 senses work together to create the body's responses
- * **Sensory processing disorders:** difficulty taking in and interpreting sensory information so that an appropriate response can be generated

Sensory Processing and Trauma/Autism

- * Some but not all children with trauma have Sensory Processing Disorder
- * Some but not all children with autism have Sensory Processing Disorder
- * MOST children with trauma or autism have some challenges with sensory processing

Attunement and Attachment

- * Attunement = how reactive a caregiver is to a child's emotional needs and moods
- * Attachment = emotional bond that typically forms between infant and caregiver by which the infant gets primary needs met
 - * Engine of subsequent social, emotional and cognitive development
 - * Development of many neural pathways dependent on a child's attachment relationship
 - * Good attunement helps establish good attachment

Attunement and Attachment (continued)

- * Disconnect in the development of attunement^t and attachment in both cases^s
- * Interestingly, children with autism are shown to have the ability for secure attachment^t, especially if no cognitive delays
 - * Strongly based on caregiver's attunement



Treatment: General Points

- * Some treatments overlap
- * Makes sense when looking at the underlying neurobiology and involvement of sensory processing
- * Obviously there is a need for treatment to be different because the underlying etiology is still different

Common Goals of Treatment

- * Diminish autonomic arousal
- * Improve emotional regulation
- * Increase emotional expression
- * Engage cognition

- * Non-medication and medication approaches

Therapy: Common Themes

- * Dyadic therapy approach
 - * ASD: less so for ABA, seen in RDI and DIR Floortime
- * Emphasis on co-regulation
- * Sensory strategies
- * Movement tools
- * Mindfulness
- * Referral for other developmental services as needed

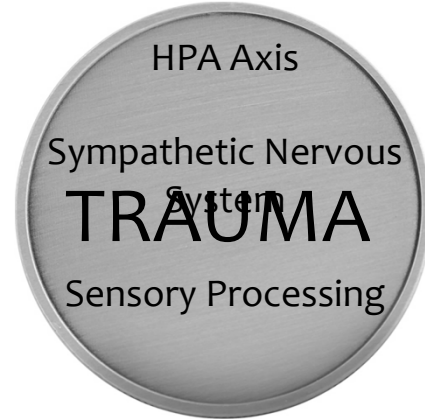


Treatments (medication)

- * Alpha-2 agonists (guanfacine, clonidine)
 - * Calming physiological reaction to stress can calm the psychological reaction to stress
 - * Helpful for impulsivity, anxiety, hyperarousal
- * Antidepressants (SSRIs)
 - * Can be helpful for anxiety and mood symptoms and possible impulse control issues
 - * Side effects: akathisia, worsening agitation, anxiety
- * Stimulants
 - * Not particularly useful for hyperarousal state
 - * Can cause worsening of anxiety symptoms

Future Areas of Research

- * Better understanding of the genetics of autism
- * Better understanding of a genetic link between trauma and autism
- * Better understanding of the early parts of the cascade that leads to abnormal activation of the HPA axis and sympathetic NS
- * Role of epigenetics for both trauma and autism



Acknowledgements

- * Professional Mentors/Colleagues
- * My patients
- * Family



Questions