Sensory Processing & FASD

Tami Eller, MS
Jamie Bleakley, OTR/L

1

AREAS TO ADDRESS DURING THIS PRESENTATION:

- SLEEP
- NUTRITION
- SENSORY AS IT RELATES TO COMFORT (INTEROCEPTION)
- COMMUNICATION DIFFERENCES

2

How does Fetal Alcohol Spectrum Disorder present?

Behavioral issues

- Hyperactive behavior
- Difficulty with attention
- Poor reasoning and judgment skills

Learning challenges

- Poor memory
- Learning disabilities
- Speech and language delays
- Intellectual disability or low IQ
- Difficulty in school (especially with math)

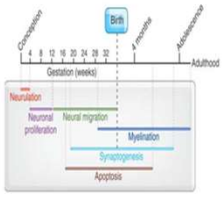
Physical problems

- Low body weight
- Poor coordination
- Problems with the heart, kidneys, or bones
- Shorter-than-average height
- Vision or hearing problems
- Small head size
- Sleep and sucking problems as a baby
- Abnormal facial features, such as a smooth ridge between the nose and upper lip (philtrum)

3

Studies show alcohol mainly targets the brain

- Alters neurogenesis and migration of neurons
- Increases neuronal cell death and/or apoptosis
- Alters dendritic growth, resulting in loss of functionality
- Alters microvascular development and induces hypoxia and/or ischemia
- Decreases protein synthesis
- Enhances free radical toxicity, resulting in premature cell death
- Impairs DNA methylation
- Causes vasoconstriction within the placenta, umbilical arteries/vein



4

Hypothalamus Development (6-28 weeks):

Your hypothalamus's main function is to react to these messages to keep your body in a stable state or internal balance. Just like you may have a "smart control" system to seamlessly manage all functions in your home, your hypothalamus is your body's "smart control" coordinating center. Your hypothalamus helps manage your:

- Body temperature.
- Blood pressure.
- Hunger and thirst.
- Sense of fullness when eating.
- Mood.
- Sex drive.
- Sleep.

Your hypothalamus performs many of its "body balancing" jobs either by directly influencing the autonomic nervous system or by managing hormones. Your autonomic nervous system (bodily functions that work automatically) control several important functions, such as your heart rate and breathing (respiration).

5

5

Individuals with FASD have information processing problems:

- Inconsistent with incoming, outgoing and encoding information.
- May not have developmental delays on ASQ or similar screening tools BUT may be manifesting:
  - Neurocognitive: developmental delays, easily distracted/ on task, forgetful, fluctuating tone, attachment issues
  - Self- Regulation: hard to soothe, easily overwhelmed, hard time going to and staying asleep, rages beyond tantrums, shut down.
  - Sensory: upset when try to cuddle, dislike bright lights/ noises, upset to textures/ foods, stare off into space
  - Adaptive impulsive, overly friendly, problems with daily tasks.

6

6

Impacts on other systems with PAE:

- ★ Maxillary hypoplasia
- ★ Small hands
- ★ Cardiac abnormalities
- ★ Joint disability
- ★ Overlapping fingers and toes
- ★ Ptosis (dropping eyelids)
- ★ Chest wall deformities
- ★ Microcephaly
- ★ Cleft lip or palate
- ★ Smaller or missing corpus collosum

RESEARCH MYLES HIMMELREICH (youTube)

7

Prevalence:

Nationally: estimated 1-5% of school aged children or 1 in 20 (autism is estimated to be 1 in 36 - studies indicate that approximately 18 - 33% of ASD Dx may involve PAE)

IN ALASKA: 1.7-6.5%

IN THE DFCS: 28%; Increasing prevalence with the increase in Adverse Childhood Experiences

8

Common diagnosis that may have been given to individuals with a FASD:

- Failure to thrive
- ADHD
- Speech and language disorder
- Learning disabled
- Reactive attachment disorder
- Posttraumatic stress disorder
- Seriously emotionally disturbed
- Conduct disorder
- Oppositional defiant disorder
- Autism
- Bipolar disorder
- Borderline personality disorder

9

Common Overlapping Symptoms

FASD

Communication & Social language difficulties- desire to engage

Sensory Integration difficulties- in all sensory areas: visual, touch, auditory, proprioception, taste, distractibility might look like ADHD

Executive functions- cannot control emotions, impulses, shift, initiate, have working memory issues, lack cognitive flexibility

Poor adaptive functioning-dysmaturity, neural 'disconnects' hampers their move toward age-appropriate/independence skills, hygiene issues

Intellectual disability- most have average IQ but cannot reliably access it on daily basis

Autism

Communication & Social language difficulties- might be more avoidant, lack eye contact

Sensory Integration difficulties-hyper focus on stimuli, objects rather than people, more likely to have repetitive/restrictive behaviors and oversensitivity

Executive functions- cannot control emotions, impulses, shift, initiate, may have working memory issues unless preferred topic, lack cognitive flexibility

Poor adaptive functioning-slower to achieve skills, hygiene issues

Intellectual disability but many 'high functioning

Trauma

Communication & Social language difficulties-may not developed receptive/social cues due to neglect, emotional abuse (dendrites were pruned when not used)

Sensory Integration difficulties- might be most impacted by loud or unexpected sounds, are visually hypervigilant, triggering events.

Executive functions- cannot control emotions, impulses, shift, initiate, have working memory issues, lack cognitive flexibility

Poor adaptive functioning- were not taught behaviors/skills that their typical peers engage in, can learn with modeling

Academic achievement may be behind but less likely to have an actual ID unless from another etiology.

10

Sensory Integration:

Sensory integration (SI) is the process by which the brain organizes and responds to sensory information from the body and environment. It's important for daily activities like eating, moving, learning, and socializing.

- Touch
- Sight
- Smell
- Hearing
- Taste
- Vestibular
- Proprioception
- Interoception

11

Sleep Disturbances:

Difficulty falling asleep

Frequent waking during the night

Early morning awakenings

Daytime fatigue

12

12

CAUSES OF SLEEP ISSUES

Disruption of circadian (sleep/ wake cycle) and homeostatic processes:

Poor reading of cues from the external environment to regulate timing.

Systems are controlled by parts of the brain that may have been affected negatively during the prenatal period.

Sensory processing disorders (brainstem needs downregulation): unable to ignore irrelevant stimuli

hypervigilance

(nucleus of hypothalamus)

**continue through the lifespan if not addressed in infancy

13

13

Failure to Thrive

Damage to hunger center

Poor coordination

Higher risk for lip/ palate/ tongue defects

14

14

- CRAVE CARB
- METABOLIC CHANGES/ NEED FOR HIGHER CALORIC NEEDS
- POOR FULL/ EMPTY AWARENESS
- TEXTURES- TACTILE, SMELLS, VISUAL PRESENTATION
- SWALLOWING DIFFERENCES/DECREASE COORDINATION
- NEED FOR MORE SENSORY INPUT (HOT/COLD, SPICY, CARBONATED)

15

INTEROCEPTION:

16

Communication:

Expressive Language: putting thoughts into words or gestures used to communicate with others.

Receptive Language: understanding the words/ sentences and meaning of information being provided (verbally or written).

Processing of Language: the ability to understand verbal information and following directions.

17

17

Processing Pace- Give Time

Can't rush processing- must allow for processing time. If it going to take a minute, give a minute	Use multiple means of communication- words, signs, pictures	Provide multiple ways to respond	Provide limited choices

18

18

Additional Resources:

Alaska Center for Fetal Alcohol Spectrum Disorders - Works to create FASD-informed professionals, and promote support for and successful outcomes for individuals and families affected by PAE/FASD.

FASD United. Information clearinghouse for online resources related to education, advocacy, treatment, and diagnosis of PAE/FASD.

CanFASD. An interdisciplinary collaborative network of research efforts related to PAE/FASD.

FASD Collaborative. United States resource for online webinars created by FASD experts , connection to support groups for caregivers, and connection to special interest groups for professionals.

FASD Across the Lifespan. Online webinar resource created by Alaskans for individuals, families, caregivers, and professionals for understanding the impacts of prenatal alcohol exposure and strategies for success.

Eight Magic Keys. Animated video for educators, children, and families, offering FASD-informed practices for the classroom, based on concepts developed by Alaskans Deb Evensen and Jan Lutke.

FASCETS. Offers a variety of services to help individuals, groups and organizations. Whether you are a parent, caregiver, support worker, educator or other professional, the Neurobehavioral Model will support the work you do.

19