

ACE TEST and PRIMARY CARE

Primary Care the Primary Place to See the Results

Ray Cordry, D.O.

ACE Test

- 1. Did a parent or other adult in the household often or very often – swear at you, insult you, put you down or humiliate you? Or Act in a way that made you afraid that you might be physically hurt?
- 2. Did a parent or other adult in the household often or very often – Push, grab, slap, or throw something at you? Or Ever hit you so hard that you had marks or were injured?
- 3. Did and adult or person at least 5 years older than you ever – Touch or fondle you or have you touch their body in a sexual way? Or Attempt or actually have oral, anal, or vaginal intercourse with you?

ACE Test

- 4. Did you often or very often feel that – No one in your family loved you or thought you were important or special? Or Your family didn't look out for each other, feel close to each other, or support each other?
- 5. Did you often or very often feel that– You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? Or your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
- 6. Were your parents ever separated or divorced?

ACE Test

- 7. Was your mother or stepmother: Often or very often pushed, grabbed, slapped, or had something thrown at her? Or Sometimes, often or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
- 8 Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?
- 9. Was a household member depressed or mentally ill, or did a household member attempt suicide?
- 10. Did a household member go to prison?

Toxic Stress and Children's Brain

- When the ACE(Adverse Childhood Experience) Study was being done parallel research on kid's brains found that toxic stress physically damages a child's developing brain
- When children are overloaded with stress hormones, they're in fight, fright or freeze mode (cortisol,noradrenaline)
- They have difficulty trusting adults, or developing healthy relationships with their peers
- Many times they become loners and to relieve anxiety, depression, guilt, shame, and / or ability to focus they turn to easily available chemical solutions or risky behavior to "escape" their problems

Stress

- Using drugs or overeating or engaging in risky behavior leads to problems directly related to the behaviors - Smoking can lead to COPD or lung cancer, overeating obesity or diabetes, and research increasingly links chronic inflammatory response to disease
- As will be shown the brain and peoples lives are somewhat plastic and appropriate integration of resilience factors born out of Ace concepts help people improve their lives
- The first research published in 1998, followed by 70 other publications through 2015 had consistent results

Stress

- The publications from 1998- 2015, showed:
- Childhood trauma was very common, even in employed white middle class, college - educated people with great health insurance
- A direct link between childhood trauma and adult onset of chronic disease, as well as depression, suicide, being violent and a victim of violence
- More types of trauma increased the risk of health, social and emotional problems
- People usually experience more than one type of trauma- rarely is it only sexual or verbal abuse

Stress

- The ACE study original participants were 17,000 mostly white upper, middle class college educated San Diego residents with good jobs and great health care as they all belonged to the Kaiser Permanente HMO
- The Ace score was originated to explain a person's risk for chronic disease and on the test you get one point for each type of trauma, the higher the score the higher the risk percentage for problems
- A score of 4 or more ACE's sets the of percentages of the likelihood to acquire certain illnesses increasing dramatically pulmonary disease 390%, hepatitis 240%, depression 450%, suicide 1220%

Oklahoma Issues

- 20% of Oklahomans reported mental illness(800,000) and 12% reported a substance problem yielding the second highest rate of mental illness in USA and 47th in funding
- Over 15,000 jail beds, 820 total mental health crisis, inpatient and residential drug treatment beds while cost per day of mental health treatment only \$10 / day and \$63 / day jail and treatment
- Depression leading reason for missed work and reduced productivity and suicide is 2nd leading cause of death ages 10-14 and leading cause in kids 15 - 24

Abuse and Abandonment / Hunger

- The age when abuse and / or abandonment occurs very consequential in the development of social / interpersonal skills as an adult
- 60% of abuse and neglect falls between under 1 year to 6 years
- 1 in 4 children in Oklahoma go to bed hungry every night
- In 77% of intimate partner violence there was evidence of prior domestic violence, 67% had a history of committing domestic violence against other partners and 52% of intimate partner homicide victims were attempting to leave or had left the perpetrator at the time of their death

Ace Realization

- The science shows us that it is not us against them rather we all share a common enemy childhood adversity
- Adverse childhood experiences are not just at the root of a public health crisis in America, they were at the root of our public education crisis as well
- Toxic stress affects how we learn, how we parent, how we react at home and at work and what we create in our communities
- Once there is an understanding of how your body and brain are primed to react in certain situations, one can start to be proactive about how to approach situations

Local ACE Scores at Red Rock

- We run an ACE on everyone that is coming to our OKC medication clinic and have the following data as of 4/3/2019
- 3710 tests administered up to date/ 1953 had above a 3 score (keep in mind this is childhood trauma before age 18 !)
- Scores:
 - 4- 359 9- 186
 - 5- 374 10- 103
 - 6- 366 1953 > 3
 - 7- 319
 - 8- 246

Bullying

- Pure bullies did not show emotional functioning problems but were at risk to show little empathy, few scruples about manipulating for their own gain, and a few become antisocial personality disorders
- Pure victims were four times as likely to develop an anxiety disorder in adulthood as non-victims but also had higher incidences of depression as well as the anxiety disorders
- The bully/victims had the worst long term outcomes. They were at 4 times greater risk for depression, 10 times the likelihood of suicidal thoughts and 1.5 times the likelihood for panic disorder as non victims

Neuropsychiatry

- Charcot (neurologist) preeminent neurobiologist of the 19 th century had a keen interest in neuropsychiatry before the field existed (way before it was cool)
- Contemporary neuropsychiatry reasserts the intimate link between brain structure and function to integrate neuroscience into clinical psychiatry

The Neuropsychiatry of the Trauma

- A child's brain adapted from an environment of chaos, threats, and distress is ill - suited for the modern classroom or playground

The stress response alters their baseline state of arousal resulting in a situation yielding a state of alarm or fight or flight or freeze

This is a set up to overreact to no external threat but to their hypervigilance

- Traumatized children live in an aroused state, and or not prepared to learn from social, emotional, and other life experiences that are not threatening

ACE Biology

- Symptoms such as hyperarousal, sleeping difficulty, irritability, and trouble concentrating are maintained the higher their cortisol levels
- Functional 3-D MRI revealed the higher the cortisol level the smaller the hippocampus
- They measured again in 12-18 months and the hippocampus was smaller - the effects of the earlier stress were still acting on the neurological system
- They looked at pediatric population regarding elevated ACE scores and obesity and learning / behavior problems
- The life expectancy of a patient with ACE of >6 is 20 years shorter than patient's with an ACE of 0

ACE Biology

- The findings displayed the patients with four or more on the ACE s were twice as likely to be overweight or obese and 32.6 times as likely to have been diagnosed with learning and behavior problems
- What at times is noted to be (treatment resistant) may be the following:
- ADHD or “behavior problems” when these issues were directly correlated with toxic dose of adversity rather than ADHD a stimulant may not be effective consider toxic stress issues

ACE Biology

- Toxic stress for our purpose is defined by: chronic dysregulation of the stress response system, which inhibited the prefrontal cortex, overstimulated the amygdala, and short-circuited the stress thermostat in other words toxic stress
- Severely maltreated kids on MRI have a dramatic enlargement of their amygdala and this also produces miss reading of predictions regarding what is scary and what is not – so the amygdala starts sending messages to other parts of the brain about things that shouldn't really be scary

ACE Biology - Amygdala

- A complex structure adjacent to the hippocampus
- It is involved in processing emotions and fear-learning
- Amygdala links between the higher level cortex that processes higher level cognitive information and with hypothalamic and brainstem systems that control lower metabolic responses (touch, pain, sensitivity and respiration)
- This quality allows the amygdala to coordinate physiological responses based on cognitive information the most well known example fight or flight or freeze response
-

ACE Biology (Locus Coeruleus ?)

- Locus Coeruleus is the driving force behind aggressive behavior and it works closely with the prefrontal cortex to regulate impulse control (secretor of norepinephrine)
- When the locus coeruleus is dysregulated upward it releases too much noradrenaline which then results in increased anxiety, arousal, and aggression along with disturbing the sleep wake cycle

Prefrontal Cortex

- This area is more sophisticated than the amygdala and confers faculties of reason, judgement, planning, and decision making and can be thought of as the seat of executive function decisions
- PFC is the area differentiating among thoughts and inputs, considers future consequences of current activities
- PFC works toward a defined goal and exhibits “social control” to suppress socially unacceptable outcomes and harmonizes all the inputs into something that is coherent and beautiful not chaotic and loud

Prefrontal Cortex

- Children with toxic stress are inhibited in two ways:
- 1. The overactive amygdala sends messages to the PFC telling it to decrease its functioning because something scary is happening
- “ you don’t want reasoning to get in the way of survival”
- 2. The locus coeruleus is flooding the brain with noradrenaline, compromising the ability to override instincts and impulses
- The PFC is the part of the brain that puts the brakes on impulses and helps the child make smarter decisions
- Telling a child to sit still and concentrate when the stimuli are flooding the brain is a lot to ask

Ventral Tegmental Area

- This is area responsible for things like rewards, motivation, and addiction and this boils down to dopamine the feel good neurotransmitter that peppers your brain with rewards when you have sex, shoot heroin, or say yes to the triple chocolate cake
- When the body's stress response system is overloaded that messes with the sensitivity of dopamine receptors meaning you need more and more of the dopamine to feel the same amount of previous pleasure
- The need to stimulate dopamine can lead to high sugar foods, and increase in risky behaviors (dopamine goes to norepinephrine or noradrenaline)

VTA

- There is a dose response between ACE exposure and engaging in many activities and substances to activate the VTA
- A person with four or more ACEs is 2.5 times more likely to smoke, 5.5 times as likely to be dependent of alcohol and 10 times as likely to use IV drugs than a person with a 0 ACEs
- One must understand and not forget the exposure to early adversity affects the way dopamine functions in the brain

Hormones

- These are messengers responsible for kicking off a wide range of biological processes- growth, sexual function / reproduction or basically everything thyroid, insulin menstrual cycles, ovulating so stress response can affect everything
- There seems to be a large correlation between ACEs and autoimmune disorders
- The more inflammation in the body the greater chance of it contributing to disease - in New Zealand a study found that twenty years after maltreatment 4 different markers of inflammation were higher than in those with no maltreatment

Resilience- Children's Hospital of Philadelphia

- The capacity of a strained body to recover its size and shape after deformation caused by compressive stress.
- An ability to recover from or adjust easily to misfortune or change
- 7 areas children need to grow to healthy adults from Children's Hospital
- Competence - feeling of knowing you can handle a situation efficiently
- Confidence - believing in their own abilities derived from a feeling of competence
- Connection - developing close ties to family and community to create a solid sense of security

Children's Hospital Resilience Roster

- Character – children need to develop a solid set of morals to determine right from wrong and demonstrate a caring attitude
- Contribution – children need to realize the world's a better place because they are in it so as to understand the importance of personal contribution and serve with purpose and motivation
- Coping – learning to cope effectively with stress will help a child be better prepared to overcome life's challenges
- Control – to grasp they can control the outcomes of their decisions so they are more likely to understand they can bounce back

Piaget - Cognitive Development Stages / Rutter about Bowlby Let's Look at Early

- Piaget believed that children take an active role in the learning process, make observations, to learn about the world and they continue to add to that knowledge, building upon existing knowledge and adapt previously held ideas to accommodate new ones
- Deprivation is a disruption of relationship and / or interference with the relationship and not simply separation from primary caretaker - Rutter about Bowlby (mother entire problem issue)

Separation Issues and Development of Stability

- To disprove Bowlby's theory regarding mother's need to stay home the first two years of the child's life (and not work outside home) or great emotional harm to include Autism could occur to the child displayed the following results in Dr Rutter's study
- (A) Was the risk of mental disorder greater for children of divorce or death of a parent – the effects of an ongoing chaotic divorce were stronger than on death of a parent
- (B) Death is a more permanent separation and did not involve the conflict and discord that is a driving factor in mental health issues around divorce that may go on for years

Rutter's Conclusion

- Rutter's studies displayed that mental health issues were more than just separation but rather the accompanying chaos, conflict, and discord along with separation being the formative issue
- Most children have multiple caretakers growing up and unless the mentioned chaos, conflict, and discord are present separations alone were not harmful
- Bowlby did say : " it is not needed to be a perfect parent, just a good enough parent"

Trauma & Stressor - Related Disorders

- Reactive Attachment Disorder
- Disinhibited Social Engagement Disorder
- Post Traumatic Stress Disorder
- Dissociative Identity Disorder
- Acute Stress Disorder
- Adjustment Disorders

Decreased Levels of Tolerance

- When faced with a challenge:
- Resilient children may stay calm
- Normal children may become vigilant or anxious
- Vulnerable (toxic stress exposure) children will react with fear or terror
- Experiences during an early vulnerable period of life are critical to shaping the capacity to form healthy emotional and intimate relationships

Attachment / Bonding

Bruce Perry, M.D. prominent brain function expert with kids stated Attachment consists of the following:

- Enduring form of “emotional” relationship with a special person
- Involves soothing, comfort, and pleasure of attachments
- Loss or threat of loss of the specific person evokes stress
- Child finds security and safety in context of this relationship
- BONDING;
- The process of forming and attachment

Reactive Attachment Issues

- Inadequate emotional comforting in early childhood before age 6 yields:
- Minimal response to comforting
- Lack of socialization and empathy toward others
- Poor self - assurance
- Hypervigilance
- Irritability with poor ability to trust

Complex PTSD (Consideration for Future DSM's)

- Prolonged trauma especially childhood abuses, torture, and other trauma that's chronic may produce a clinical presentation that some believe is different from original PTSD
- Complex PTSD – impulsivity, dissociation, somatization, affect lability, interpersonal difficulties personality changes

Borderline Personality Secondary to ACE

- Pervasive pattern of instability of interpersonal relationships, self image and affect with marked impulsivity this beginning by early adulthood and present in a variety of contexts, as indicated by five or more of the following:
- Frantic efforts to avoid real or imagined abandonment
- Unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation
- Identity disturbance markedly and persistently unstable self image or sense of self

Borderline Personality Disorder & ACE's

- Impulsivity in at least two areas that are potentially self damaging (sex, spending money, substance abuse) (suicidal or self mutilating behavior are not included)
- Recurrent suicidal behavior, gestures, or threats, or self mutilating behavior
- Pattern of “black and white thinking” no gray, this brings on reactionary “mood swings” that last only few hours and rarely more than 1-2 days (not manic / not bipolar)

Bipolar disorder vs Borderline Personality

- Both can have history of childhood ACE's but remember bipolar disorder is purely biology and borderline is biology mixed with dysfunctional past
- Manic is a distinct period of abnormally and persistently elevated, expansive irritable mood and abnormally and persistently increased goal directed activity or energy, LASTING AT LEAST ONE WEEK and PRESENT MOST OF THE DAY, nearly everyday for the at least a week
- Hypomanic same symptoms but over 4 CONSECUTIVE DAYS

Manic

- During the period described with mood disturbance and increased energy 3 or 4 of following present along with mood disturbance;
- Inflated self esteem - grandiose
- Pressured speech
- Decreased need for sleep
- Flight of ideas - racing thoughts
- Distractibility activities that have high potential for painful consequences- -buying spree, sexual indiscretions, poor financial deals

Important to Recognize Difference

- Bipolar disorder usually responds well to appropriate medications but not to therapy alone)
- Borderline Personality Disorder responds to medication for help with baseline mood but therapy is the mainstay usually one of the cognitive approaches (cognitive therapy helps patient change how they approach the environment as they can only change themselves)

What to Do in Primary Care

- Don't be afraid of diagnosing and treating depression or if necessary early or maintenance bipolar
- Understand and get a feel for the ACE's in your patient's lives this gives one a different perspective of that patient and a better understanding of where they are coming from with their symptoms and style
- Mention therapy to patients they be relieved someone finally asked about their emotional pain

Community

- If on school board push anti-bullying - its more than just something else they have to put up with its life changing
- Kids need to be involved in some activity to belong and grow depend on the team or group (not the gang)
- Keep physical punishment to a minimum - some of the kids we learned about today get punished the most and additional physical punishment does not help break the violent cycle
- Oklahoma is a violent state we need to recognize that look it in the eye and say enough

Depression (UP TO 20% OF POPULATION)

- Remember depression with pain is very common and antidepressants are not opioids but can be helpful
- Post stroke and post MI patients are likely candidates for depression
- In strokes rehab will level off
- In post MI they may change their personality or become negative
- By treating depression in post MI you raise their chances to survive another episode by 4-5 times sertraline (Zoloft) approved for post cardiac
- These patients see primary care about 80% of time!

Depression Presenting to Primary Care

- Feeling of “blue”, “down” - anhedonia (inability to have pleasure in activities that usually are enjoyable), social withdrawal, poor concentration, shortened tolerance of frustration
- Vegetative signs:
- Loss of libido, weight loss or weight gain
- Low energy; easily fatigued, abnormal menses
- Sleep issues: problem getting to sleep, problem staying asleep, early morning awakening
- Symptoms can be worse in the morning with some people

Depression

- Constipation, Dry mouth Headache
- General appearance - more downcast, tearful, decreased personal appearance
- Mood / affect - affect constricted or labile, mood - depressed, irritable, frustrated, sad
- Speech could have long pauses (thought blocking from depression),
- Thought content - suicidal ideation affects 60% and 15 % commit suicide

Depression

- Thought content – obsessive rumination, pervasive feelings of hopelessness, worthlessness, and guilt (way more than is reality), somatic issues (stomach aches, constipation, diarrhea, headache, muscle aches)
- Psychotic depression – type of depression that includes hallucinations and delusions
- The hallucinations are directed to the patient telling them they are worthless, ugly, need to die anything derogatory and in congruence with depression – delusions same – this is not schizophrenia ! It is necessary to add an antipsychotic to the medication regimen

Depression

- Age Specific features:
- Prepubertal – somatic complaints, agitation, single – voice auditory hallucinations, anxiety disorder and phobias
- Adolescence – substance abuse, antisocial behavior, restlessness, truancy, school difficulties, promiscuity, increased sensitivity to rejection, poor hygiene
- Elderly – cognitive deficits (memory loss, disorientation, confusion, pseudodementia or the dementia syndrome of depression, apathy , and distractibility)

Primary Care the Metaphor

PEOPLE WILL FORGET WHAT YOU SAID.
PEOPLE WILL FORGET WHAT YOU DID.
BUT PEOPLE WILL NEVER FORGET HOW YOU MADE THEM FEEL

Maya Angelou