When Trauma and Substance Use Collide

Laura Moss M.D.
Associate Medical Director
Washington Physicians Health Program
Agenda

- What is Trauma?
- Physiologic responses and neurobiology of trauma
- Prevalence Rates
- Post Traumatic Stress Disorder (PTSD) with co-occurring substance use disorder (SUD)
- Cases demonstrating Post Traumatic Stress Disorder with co-occurring substance use disorder (SUD)
- Psychotherapy treatment modalities
- Medication treatment modalities
- Questions and discussion
What is Trauma?

Trauma is the experience of violence and victimization including sexual abuse, physical abuse, severe neglect, loss, domestic violence and/or the witnessing of violence, terrorism or disasters.

(National Association of State Mental Health Program Directors)
Types of Trauma

- Witnessing accident or violence towards self or others
- Sudden or catastrophic illness or medical procedures
- Natural disaster
- Vicarious trauma (hearing trauma stories or unexpected poor patient outcome/death)
- Medical law suit
- Loss/death of loved one
- Harassment or oppression due to race, religion, sexual orientation, class, disability.
- Physical or sexual abuse/assault
- Bullying or emotional abuse
Responses to Trauma

- Depression
- Anxiety
  - Generalized Anxiety Disorder
  - Panic
  - Post-traumatic Stress Disorder (PTSD)
- Dissociation
- Somatization
- Substance use/abuse
Post Traumatic Stress Disorder (PTSD)

DSM-5

- A. Exposure to actual or threatened death, serious injury, or sexual violence in one or more ways
- B. One+ intrusive symptoms associated with trauma (intrusive memories, dreams/nightmares, dissociation, physiologic or psychologic reactivity/distress or with memories or dreams
- C. Persistent avoidance of memories or events that trigger thoughts of trauma
- D. Two+ negative alterations in mood or thoughts associated with the trauma (amnesia, negative beliefs, distorted beliefs, decreased interests, detachment, inability to experience positive emotions)
- E. Two+ physiologic arousal or reactivity symptoms (angry outbursts, reckless/self-destructive behavior, hypervigilance, hyperstartle, poor concentration, sleep problems)
Trauma

Effects are psychological, social, neurological, and biological, including:

- Social, emotional, and cognitive impairment
- High risk behaviors- smoking, substance abuse, self injury, sexual promiscuity, aggression
- Severe, persistent health problems and early death
- Changes in brain biology

(www.acestudy.org: Felitit et al, 1998; Herman, 1992)
Prevalence of Trauma and Substance Use Disorders (SUD)

- PTSD- Lifetime risk at age 75 is 8.7% (DSM-5), lifetime prevalence for adults 8% (DSM-IV-TR)
- The National Comorbidity Study (1994)
  - 52% of people dx with lifetime PTSD also dx with alcohol abuse or dependence- 2x more than adults with no PTSD
  - 35% of people dx with lifetime PTSD also dx with drug abuse or dependence- 3x more than adults with no PTSD
- Nearly two-thirds of men and women seeking substance abuse treatment report lifetime trauma exposure (CSAT, 2000)
PTSD and DUls

- Psychiatric co-morbidity reduces the efficacy of DUI treatment interventions
  - Repeat DUI offenders represent 1/3 of all DUI arrests
  - CDC (2009) reported that only 1% of DUI activity reported by adults ended in a DUI arrest
  - PTSD is one of the most common psychiatric comorbidities among 1st time and repeat DUI offenders
  - There are higher rates of repeat DUls with PTSD
    (Peller, Najavits et al. 2010)

Comorbid substance abuse and PTSD associated with greater symptom severity, worse tx outcomes, and increased medical/legal problems than with PTSD alone. (Najavits et al. 1998)
Amygdala’s Role in PTSD

- Elevated CRF in Amygdala assoc. with development of PTSD
- Amygdala nerves project to many areas of the central nervous system (CNS)...
  
  Increases HR/BP/resp, pupil dilation, vigilance, attention, startle, freezing, and further release stress neuropeptides

- Stress neuropeptides increase emotional memory and conditioned fear response through the amygdala

- Elevated CRF associated with lower levels of serotonin (5HT) in amygdala - in animal studies low 5HT assoc. with increased startle, freezing, and decreased social interaction
Cortisol’s Role in PTSD

- Cortisol levels fall over time but some areas of brain are now more sensitive to lower levels
- High cortisol levels assoc. with hippocampal cell degeneration (reduced volumes on imaging). Hippocampus can help inhibit fight/flight and involved in memory processing (habituation, extinction, learning)
- Elevated levels of norepinephrine (NE) found in urine and cerebrospinal fluid (CSF) of PTSD patients and higher CSF levels assoc. with greater severity of sx

(Yehuda 1992, 2001)
PTSD and Brain Function

- Excessive alpha-1-receptor stimulation (elevated NE) in pre-frontal cortex assoc. with...
  - Disrupted rational thinking/problem solving (Arnsten et al. 1999)
  - Increased alarm-related thought processing, fight or flight (Birnbaum et al. 1999)

- Exposure to memory or triggering imagery in PTSD
  - Increased blood flow to amygdala (fight or flight)
  - Decreased blood flow to Broca’s speech area in brain, mute or unable to articulate thoughts (Pitman et al. 2001)
  - Low prefrontal brain activity in working state during trauma intrusive thoughts (IT), decreased problem solving (Shin et al. 2001, 2004)
Dr. D’s Story

- Dr. D, a female Rehab MD in her 40’s, was referred for treatment after her husband suicided.
- Married since internship. Husband was depressed and threatened suicide.
- Domestic violence to Dr. D and her children
- Dr. D took over her husband’s care, prescribing meds, because she was worried he was not getting good care.
- She found him unresponsive after suicide attempt, called 911, but he died days later. She was noted to be behaving strangely in the ER after her husband brought him in and the ER physician reported her.
Dr. D’s Story

- At 5yo pt’s mother collapsed and almost died “terrifying”. Dr. D stayed with unfamiliar and abusive family.
- Mother had mental illness and stroke. Pt cared for mother by herself, learned to be self sufficient, and not ask for help.
- Mother died and then Dr. D’s mentor suicided and pt was 1st on scene.
- Responses - emotional numbing, avoidance, intrusive thoughts (ITs), low trust, feeling different, insomnia, irritable, hyperstartle, and worry. Only tx was taking her office samples of Celexa and Lexapro.
- Drug abuse
  - Sleep meds- Ambien or Lunesta, Valium + Ambien
  - Opioids- Demerol, oxycodone, percocet or Norco
Health Care Professionals

- At risk for “vicarious trauma” or “compassion fatigue”
- Not much data about physicians or included with burnout data
- Physicians not very good at asking for help
  - Often do not have PCP
  - Put the care of patients before own needs
  - False belief that knowledge imparts protection from adversity/illness
  - Fears about reports to licensing, credentialing and insurance companies
- PTSD-like sx associated with poor patient outcomes or law suits
- Survey of HCPs at the Hazelden Oregon campus between 2010-2012.
  - 12% of the physicians in chemical dependency treatment endorsed a history of trauma and 9% met DSM-IV-TR criteria for PTSD
Dr. O’s Story

- Dr. O surgeon in mid 50’s, previously a military trauma surgeon, referred for treatment of crack cocaine dependence.
- 1st came to attention of supervisors due to c/o tardiness and not answering pages. He stopped using for awhile, then resumed. He was questioned by nurse manager about management of patient, became defensive and yelled.
- Asked to refrain from practice and get eval. Saw psychiatrist, dx with PTSD, started Prozac, released back to work (minimized sx and experiences to psychiatrist) and crack use escalated.
- Asked co-worker for Rx for pain pills thinking he could trade for cocaine and was reported.
Dr. O’s Story

- Bullied by gang of boys 3rd-7th grades -> anxiety. Father made suicide attempt with hanging and later drowned.
- Army trauma surgeon, rocket fire with mass casualties. Injured Iraqi soldier brought in with US troops. Few supplies, chose to tx US 1st and Iraqi died. Felt terrible, decision against his values. Returned to US but trouble re-integrating and upset about decision, so volunteered 1 more tour in Iraq and 2 tours in Afghanistan.
- PTSD - emotional numbing, difficulty relating to others, felt civilian life wasn't real, avoided discussing war, emotional upset with ITs, flashbacks, insomnia, NMs, irritability, hyperstartle, hypervigilence (carried gun x 3yrs).
- Liked cocaine because he felt excited and happy again.
MD Data from Wars

- “PTSD Among Family Physicians in Bosnia and Herzegovina” (Hodgetts et al, 2003)
- Descriptive study, PCL-C
- Survey 133/147 response, 88% had traumatic experiences
- 18% of current family physicians, in country at the time of the war, may met criteria for PTSD
- Rates of civilian refugees (45-75%)
MD Data from the Gaza War

- “PTSD Among Hospital Surgical Physicians Exposed to Victims of Terror: A Prospective, Controlled Questionnaire Survey” (Weiniger et al, 2006)
- Survey of 2 grps of Jerusalem surgeons- Exposed to victims of terror (n=102) vs non-exposed (n= 110)
- Prevalence of PTSD similar, 16% vs 15%
- Increased probability of PTSD assoc. with use of non-adaptive coping (substance abuse, detachment, self blame), p = .009 or with higher level of outside exposure to terror, p = .013.
“Differences in Psychological Effects in Hospital Doctors with and without PTSD” (Einav et al, 2008)

N = 212, 16% had PTSD sx and only variable assoc. with PTSD was exposure to terror outside of work. No PTSD with only exposure to victims of terror.

PTSD vs non PTSD
- Felt workload was heavier
- Negative coping, p < 0.01
- Burnout, 51.5% vs 13.4%, p < 0.001
- Increased MH Sx and decreased function, p < 0.0001
- Only 15% of MDs with PTSD self referred for treatment
MD Data 6 months after Gaza War

- “Psychosomatic Symptoms Among Hospital Based Physicians during the Gaza War: A Repeated Cross-Sectional Study” (Menachem et al, 2011)
- 2 surveys MDs hospital exposed to rocket fire vs not exposed
  - 3 wks after war started (n=54) exposed vs not
  - 6 months later (n=31) exposed vs not
- MDs Directly Exposed to War had increased psychosomatic sx (concentration, sleep, tense, appetite, HA, sad, giddy) and decreased coping, p < 0.001
- Exposed MDs had increased sx 6 months later vs unexposed having decreased sx, p = .006. May function better in crisis or terror but exposure causes increased sx over time.
PTSD Psychological Treatments

- Seeking Safety for PTSD and SUD
- PTSD Treatments
  - Cognitive Processing Therapy (CPT)
  - Prolonged Exposure (PE)
  - Acceptance and Commitment Therapy (ACT)
  - Eye Movement Desensitization and Reprocessing (EMDR)
PSYCHIATRIC HELP 5¢

THE DOCTOR IS IN
PTSD Medication Treatments

SSRIs (Zoloft, Prozac, Celexa, Lexapro, Paxil) for depression and anxiety

- Paxil and Zoloft FDA approval for tx of PTSD with randomized, dbl blind, placebo controlled trials; other studies no clinical sig. over placebo
- Paxil some increased risk of dry mouth, weight gain, withdrawal sx and confusion in elderly

NSRIs (Effexor, Pristiq, Cymbalta) for depression, anxiety and pain

- Effexor XR- several recent placebo controlled studies saw sig. improvement of PTSD sx over placebo in short term (12 wks) and long term (6 months) tx, higher remission rates with longer tx (Pae et al. 2007)
PTSD Medications cont.

TCAs (amitriptyline, nortriptyline, etc.) for depression, anxiety, insomnia and pain
- Sedation, possible confusion in elderly (use low doses) and risk of cardiac arrhythmias with toxicity/OD

Buspar for generalized anxiety and boosting effects of antidepressants
- No studies for PTSD

Wellbutrin for depression, maybe improved attention
- Could increase anxiety/irritability and increased risk of seizures (avoid if h/o seizure, eating disorders or alcohol, benzodiazepine, barbiturate withdrawal)
Trauma Related Sleep Problems

- Increased brain alpha-1 receptor responsiveness to NE likely contributes to the development of PTSD
  - With PTSD see increased levels of CRF (anxiogenic) and NE levels in CNS
  - Increased levels NE disrupt REM sleep, normally low during sleep
  - Antidepressants not very helpful for trauma-related sleep disruption
Prazosin (Minipress) for PTSD

- Prazosin is a post synaptic alpha-1-blocker (blocks NE)
- 4 Placebo controlled Trials for Prazosin in PTSD
  - Two studies looked at Viet Nam Vets sig. reduction in night time PTSD sx (insomnia, awakenings, NMs) + improved daytime sense of wellbeing and fxn (Raskind et al. 2003, 2007)
  - Civilian trauma saw reduction of PTSD sx and sig. greater total sleep duration, prazosin 94 min > placebo (Taylor et al. 2008)
  - Decreased nightmare and non-nightmare distressed awakening in Vets with PTSD (Thompson et al. 2008)
Seroquel- antipsychotic with alpha-1 blocking and 2 previous sm., open label studies suggesting efficacy for PTSD

Prospective cohort study, chart review of Southern AZ. VA Vets with PTSD looked at longer term tolerability and safety of Seroquel (n=175) vs. Prazosin (n=62)

- Comparable short term efficacy, but prazosin superior long-term efficacy
- Fewer adverse events with prazosin (hypotension, dizziness, sedation, and 9% metabolic problems- elevated blood sugars, increased lipids or weight gain)
- Lower rates of med discontinuation with prazosin
- Prazosin was useful in pts who discontinued Seroquel (Byers et al. 2010)
Dr. D’s Treatment

- 12 step facilitated group therapy, Seeking Safety and individual therapy
- Buspar final dose 20mg BID in AM and afternoon
- Prazosin 2mg at HS for anxiety/insomnia after trials of Trazodone and melatonin
- She was no longer depressed and much less anxious at discharge and was referred to a psychiatrist and therapist in her community for ongoing treatment
Dr. O’s Treatment

- 12 step facilitated group therapy, Seeking Safety and individual therapy
- Prozac 60mg daily
- Prazosin final dose 2mg TID and 7mg at HS
- Bupropion SA 200mg daily for smoking cessation
- CPT at VA Hospital
- When found trusted VA staff transferred all of his psychiatric and psychotherapy to VA, qualified for service connected disability from VA for PTSD and eventually returned to work
Questions and Discussion