Substance Use Disorders in the Brain Injured Patient

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Case of JD

ID: 27 year old male
CC: Overdose, Suicide?
HPI: Present to the emergency department via EMS after being found down in his home by family member. EMS report indicated patient was cyanotic with several empty bottles and needles near by. Patient had minimal response to naloxone, intubated in the field and transported. Upon arrival was hypotensive, tachycardia and febrile. CXR right lower lobe infiltrate, CT of the Head negative. CPK of 15,000 and Creatinine of 3.4. WBC 20k with bands. UDS + opioid, cocaine and cannabis. BAL .043 Patient remained intubated and ventilated admitted to the ICU.

Hospital course complicated by respiratory failure, prolonged ventilation. Treated for aspiration pneumonia, rhabdomyolysis, renal failure and anoxic brain injury.

Patient now with tracheostomy and feeding tube placement.

Patient transferred to PM&R Traumatic brain injury unit once stabilized.

PMHX:
Polysubstance abuse
ORIF right ankle at age 19

PPHX: Recent admission to inpatient detoxification and rehab discharged 10days ago. History of ODD and Conduct disorder. Residential treatment center ages 16-18.

Substance use HX: Cannabis age 13, smoked with father. Alcohol age 14. Opioid age 19, prescription pills after MVA. Heroin IV for the past 4 years. Trail of Suboxone maintenance therapy for 4 months.

FHX: Father alcohol dependence, Mother depression, Sister substance abuse died of suicide.

SHX: Currently lives with mother and younger bother. Parents divorced when patient was 14. Acquired GED while in residential treatment. Not currently employed, held jobs for 2-3 month at a time. Dishwasher, server and construction. On probation for possession and public intoxication. Mother reports recent break up with girlfriend.

DSM V Criteria

Problematic pattern of use leading to clinically significant impairment as manifested by at least 2 of the following in a 12 month period:

- larger amounts over longer periods time than intended
- persistent desire or unsuccessful attempts to cut down or control use.
- increasing amount of time spent in activities to obtain, use or recover from the substance
- craving and urges
- recurrent use resulting in failure to fulfill major role obligations
- continued use despite persistent social and interpersonal problems
DSM V Criteria

- Social, occupational or recreational activities are given up
- Recurrent use leading to situations which are physically hazardous
- Continued use despite knowledge of persistent physical or psychological problems related to substance use
- Tolerance
- Withdrawal syndrome

Specify
- Mild 2-3 symptoms
- Moderate 4-5 symptoms
- Severe >6 symptoms

Substances of Abuse

- Alcohol related disorder
- Caffeine related disorder
- Cannabis related disorders
- Phencyclidine/Hallucinogen related disorders
- Inhalant use disorders
- Opioid related disorders
- Sedative, hypnotic or anxiolytic use disorder
- Stimulant use disorder
- Tobacco use disorder
- Other Substance use

Commonly Abused Drugs

- Alcohol
- Amphetamines
- Cocaine
- DMT
- GHB
- Hallucinogens
- Heroin
- Inhalants
- Khat
- Kratom
- LSD
- Marijuana (Cannabis)
- MDMA (Ecstasy/Molly)
- Mescaline (Peyote)
- Methamphetamine
- Over the counter cough/cold medicines
- Prescription opioids
- Prescription sedatives & tranquilizers
- Prescription stimulants
- Prescription hypnotics
- Prescription pain medications
- Prescription sleep aids
- Synthetic cannabinoids
- Synthetic cathinones (Bath Salts)
- Tobacco

Falls

- Falls are the second leading cause of accidental or unintentional injury deaths worldwide.
- Each year an estimated 646,000 individuals die from falls globally of which over 80% are in low- and middle-income countries.
- Adults older than 65 years of age suffer the greatest number of fatal falls.
- 37.3 million falls that are severe enough to require medical attention occur each year.

Under age 60

- Alcohol involved in 30% of ground level and stairway falls

Over age 75

- Polypharmacy especially sedative hypnotics and opioids.
According to the 2014 National Survey on Drug Use and Health (NSDUH), 27.7 million people aged 16 or older drove under the influence of alcohol in the past year and 10.1 million drove under the influence of illicit drugs.

- Men are more likely than women to drive under the influence of drugs or alcohol.
- After alcohol, marijuana is the drug most often found in the blood of drivers involved in crashes.
- Deadly crashes found that about 47 percent of drivers who tested positive for drugs had used a prescription drug.
- Most common prescription drugs found were pain relievers.
- 10 percent of those who had used cocaine.
- Alcohol impaired driving fatalities accounted for 31 percent of all motor vehicle traffic fatalities in the United States in 2014.

Two-thirds of victims suffering violence by a current or former spouse or partner report that the perpetrator had been drinking, compared to less than one-third of stranger victimizations.

Women assaulted by intimate reported significantly higher substance abuse as well as other health-related problems.

Women experiencing physical violence, 33 percent reported drug and alcohol problems;

- 45% of all violent crime involve substance use.

Increase rates of substance use by both victim and perpetrator.

- 1% of Traumatic brain injury is related to suicide.
- 82% of intentional injuries causing a TBI and death were suicidal.
- 77% of TBI caused by firearm were intentional.
- Causes of suicide related brain injury:
  - Gunshot Injuries
  - Hanging
  - Carbon Monoxide Poisoning
  - Overdose
  - Electrocution
  - Suicide by Car
  - Drowning

Alcohol indicated in 25% of completed suicides.

- 40% of suicide attempts are under the influence.
- Opioid indicted in 20% of completed suicides.

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Iowa officials warn public about counterfeit oxycodone.

- Posted on July 18, 2017.
- Health and safety agencies in Iowa have issued an advisory to warn about counterfeit pain pills containing dangerous synthetic opioids. The Iowa Division of Criminal Investigation’s (DCI) laboratory analyzed pills made to resemble the prescription pain reliever oxycodone, finding them to contain more powerful and less synthetic opioids. The advisory says that 47,000 patients used oxycodone and 10,000 patients used oxycodone, however, only 6% of patients used oxycodone.

More information is available from the Iowa Department of Public Health, Department of Public Safety, Poison Control Center and Office of Drug Control policy.
New York City issues Health Advisory about overdoses from fentanyl added to cocaine

Posted on June 06, 2017

The New York City Health Department is warning citizens who use cocaine—even occasional users—that the potent opioid fentanyl has been implicated in a growing number of cocaine-involved overdose deaths. In the past, fentanyl has been most commonly present in heroin-involved deaths, but fentanyl is now also being identified in overdose deaths involving cocaine. In 2016, 12 percent of overdose deaths in New York City involved cocaine and fentanyl without heroin, up from 1.1 percent in 2015.

Last year more than 1,300 New Yorkers died of a drug overdose, and nearly half (44 percent) of those deaths involved fentanyl. In 2016, 37 percent of overdose deaths involved both cocaine and fentanyl without heroin. In 2015, 12 percent of those deaths involved both drugs. People who use cocaine occasionally and who are not used to taking opioids (i.e., have low tolerance) are considered to be at particularly high risk of overdose death. The NYPD Police laboratory testing data has confirmed the presence of fentanyl with cocaine products as well as in counterfeit prescription sedatives (e.g., Xanax) and pain relievers purchased off the street, as well as in heroin, fentanyl, and fentanyl analogs. Read the advisory from the New York City Health Department.

Alert issued in Ohio for human use of animal sedative Carfentanil, with cases also seen in Florida

Posted on August 23, 2016

Officials in the Cincinnati area (Cuyahoga County) have issued an alert about human use of the potent animal opioid sedative, Carfentanil, one of the strongest opioids on the market, with a potency approximately 10,000 times that of morphine and 100 times that of fentanyl. Carfentanil is an analog of the synthetic opioid analgesic fentanyl and is used as a sedative or in general anesthesia for large animals, including elephants. Side effects of fentanyl analogs in humans are similar to those of fentanyl itself, which include itching, nausea, and potentially serious respiratory depression, which can be life-threatening. Officials in Ohio have noted a high number of overdoses in a short period of time that are suspected to be from carfentanil. NIDA’s National Drug Early Warning System (NDEWS) External link, please review our disclaimer reports several confirmed deaths in Akron and Columbus and numerous seizures of the drug throughout Ohio. Read the public health warning from Cuyahoga County, Ohio External link, please review our disclaimer..

Allegheny County

Drug overdose deaths in Allegheny County increased nearly 44 percent from 2015 to 2016.

In 2016, 610 people died from drug overdoses.

Opioids were found in about three-quarters of those victims. Most of them were either heroin or fentanyl.

Pittsburgh paramedics used Narcan— the brand name of the overdose reversal drug naloxone—to reverse 2,320 overdoses in 2016, up from 1,198 in the year prior.

There were nearly 5,700 emergency room visits because of drug overdoses in 2016, up from about 3,730 in 2015.
Psychiatric Comorbid
- 2nd drug of abuse
- Mood disorders
- Anxiety disorders
- Personality disorders
- Psychotic disorders

Risk Factors for SUD
- History of chaotic upbringing/home
- Ineffective parenting
- Parent with substance use disorder
- Poor school performance
- Low self esteem
- Violence/aggression/antisocial personality/conduct disorder
- Risk taking propensity/impulsivity
- Loss of employment
- Loneliness
- Legal concerns

Screening Tools
CAGE-AID Questionnaire
- Have you ever felt you should Cut down on your drinking or drug use?
- Have people Annoyed you by criticizing your drinking or drug use?
- Have you ever felt bad or Guilty about your drinking or drug use?
- Have you ever had a drink/drug first thing in the morning to steady your nerves or to get rid of a hangover (Eye opener)?

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<tr>
<th>CAGE-AID Questionnaire</th>
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### PC-PTSD

- In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month:
  1. Have had nightmares about it or thought about it when you did not want to? **No**/**Yes**
  2. Tried hard not to think about it or went out of your way to avoid situations that reminded you of it? **No**/**Yes**
  3. Were constantly on guard, watchful, or easily startled? **No**/**Yes**
  4. Felt numb or detached from others, activities, or your surroundings? **No**/**Yes**

3 or more is considered significant.

### Treat withdrawal

- **Alcohol / hypnotic-sedatives**
  - WAS symptom triggered with benzodiazepine
  - Scheduled taper of benzodiazepine or phenobarbital
  - Combination therapy
  - Supportive care
- **Opioid**
  - COWS symptom triggered with clonidine or buprenorphine (Suboxone)
  - Scheduled taper of prescribed opioid
  - Supportive care

### Treat mental illness

- **Depression**
  - Common after brain injury
  - Resulting from injury itself
  - Emotional response to injury
  - Pre-existing condition
- **Medication**
  - SSRI (sertraline and citalopram)
  - SNRI (venlafaxine and duloxetine)

### Therapies

- Motivational interviewing
- Cognitive behavioral therapy
- Cognitive reconstruction (thought > mood > action)
- Relaxation techniques
  - Progressive muscle relaxation
  - Breathing exercises
  - Counted breathing
  - Alternate hand breathing with imagery
- Mindfulness
  - Meditation, action of presence
- Spiritual
- Peer navigators

### Motivational interviewing

- **The Stages of Change**
  - Precontemplation (Not yet acknowledging that there is a problem; behavior that needs to be changed)
  - Contemplation (Acknowledging that there is a problem but not yet ready or sure of wanting to make a change)
  - Preparation/Determination (Getting ready to change)
  - Action/Willpower (Changing behavior)
  - Maintenance (Maintaining the behavior change) and
  - Relapse (Returning to older behaviors and abandoning the new changes)
Tools

- **Peer Navigators**
  - Individual with lived experience of mental illness or substance use disorder
  - progressed in their own recovery
  - Willing to self-identify as a peer
  - Willing to assist other individuals
  - Trained in providing peer support

**Characteristics of Recovery**

1. The reawakening of hope
2. Achieving understanding and acceptance
3. Engagement and active participation in life
4. Active coping
5. Reclaiming a positive sense of self
6. Developing a sense of meaning and purpose
7. Each person’s recovery is a journey that is individual and unique

UPMC Mercy
- David Gardner
- CORS Community Outreach Recovery Specialist (CORS)
- CORS works with four local hospitals to identify members who have medical admissions in which untreated and co-occurring substance use is the driver of their admission (MA patients)

Centers of excellence
- UPMC: 412-692-CARE (412-692-2222)
- Centers of Excellence help ensure that people with opioid-related substance use disorder stay in treatment to receive follow-up care and are supported within their communities. The center’s core treatment goal for people with Medicaid and treatment is team-based and “whole person” focused, with the explicit goal of integrating behavioral health and primary care.

Psychiatry Evaluation Nurse (PEN)
- A wealth of referral information for mental health and SUD

Resolve Crisis Network
- Allegheny county: 1-888-7 YOU CAN (1-888-796-8324)