Jay Weiss, MD

March 2024

ADDICTION PEARLS FOR PROFESSIONALS

OVERVIEW

- Definitions
- Disease concept
- Anatomy and neurochemistry
- Risk Factors
- Defenses, statistics, comorbidity
- Professionals and treatment

Scope of Problem 1

- USA-More RX opioids than other countries
- 99% of HCD RX in world
- 13.5% lifetime prevalence for SUD
- 50% ER admits substance-related(1/7)
- 1/32 receiving chronic opioids will OD/die
- 2.5 million in US addicted to opioids (1.9 million RX, 0.5 million to Heroin
- 55 billion /year societal costs

Scope of Problem 2

- Opioid OD up 4x 1999-2015
- Pain as 5th vital sign
- JCAHO emphasis
- Press-Ganey scores
- Patient Satisfaction
- DR. Murthy letter August 2016
- Legal Actions Against Prescribers
- High RX rates and patient mortality

Prescriptions for CDS

- Adderall, Ritalin: ADHD
- Oxycodone, Methadone, Hydrocodone: Chronic Pain, LBP, Headache
- Methadone, Suboxone, Subutex: Chronic Opiate Maintenance for Addiction
- Muscle Relaxants
- Benzodiazepines: Anxiety, Tremor

History 1

- 3400 BC Sumerians Joy Plant (Opium)
- 330 BC Alexander brought opium to India
- 250 AD Hua Tuo Chinese Surgeon gave opium to patients before surgery
- 1680 Thomas Syndenham- Laudanum
- 1804 Morphine isolated from opium
- 1856 Hypodermic syringe brought to USA
- 1860s US Civil War and morphine
- 1874 Heroin “non addictive alternative”

History 2

- 1898 Bayer Heroin and Aspirin
- 1914 Harrison act. Gatekeepers
- 1916 Oxycodone “less addictive”
- 1918 Prohibition
- 1920 Docs in jail
- 1924 Heroin act
- 1970 Controlled substances act
- 1972 Methadone clinics (stigma)

History 3

- 1973 DEA and war on drugs. Nixon
- 1980s. Opioids and chronic pain
- 1990s Aggressive lobbying for opioids
- 2012- 259million RX for opioids (a bottle for every adult in USA)
- 2015 HCD to Schedule II. Heroin skyrockets
- El Chapo Business Model- Cannabis to Heroin
- 2016- US Surgeon General letter

History 4

- Opioids used in 1700s to treat pain, cough, diarrhea, communicable diseases
- Bayer ceased production of Heroin in 1913
- 1800-1842 - 0.72 addicts /1000
- 1890s- 4.59 addicts/1000
- 1895-1910 Physicians able to slow and reverse addiction to Morphine
- Doctors better educated and informed by 1919

Substance Use Disorder

- DSM 5 Eliminates Dependence and Abuse
- Combines both into Substance Use Disorder.
- Mild (2-3), moderate (4-5), or severe (6 or more)
- 11 criteria

Substance Use Disorder

- Larger amounts/longer time
- Unsuccessful cut down/control
- Time spent-obtain, use, recover
- Craving
- Role obligations failed
- Social/interpersonal problems

Substance Use Disorder

- Social, occupational, recreational given up or reduced
- Physically hazardous
- Physical or psychological problem
- Tolerance
- Withdrawal

Types of Addiction (They run in packs)

- **Chemical**
- Alcohol
- Stimulants
- Sedatives
- Opiates
- Hallucinogens
- Cannabis

Process

Gambling

Eating

Sex

Spending

Relationships

Work

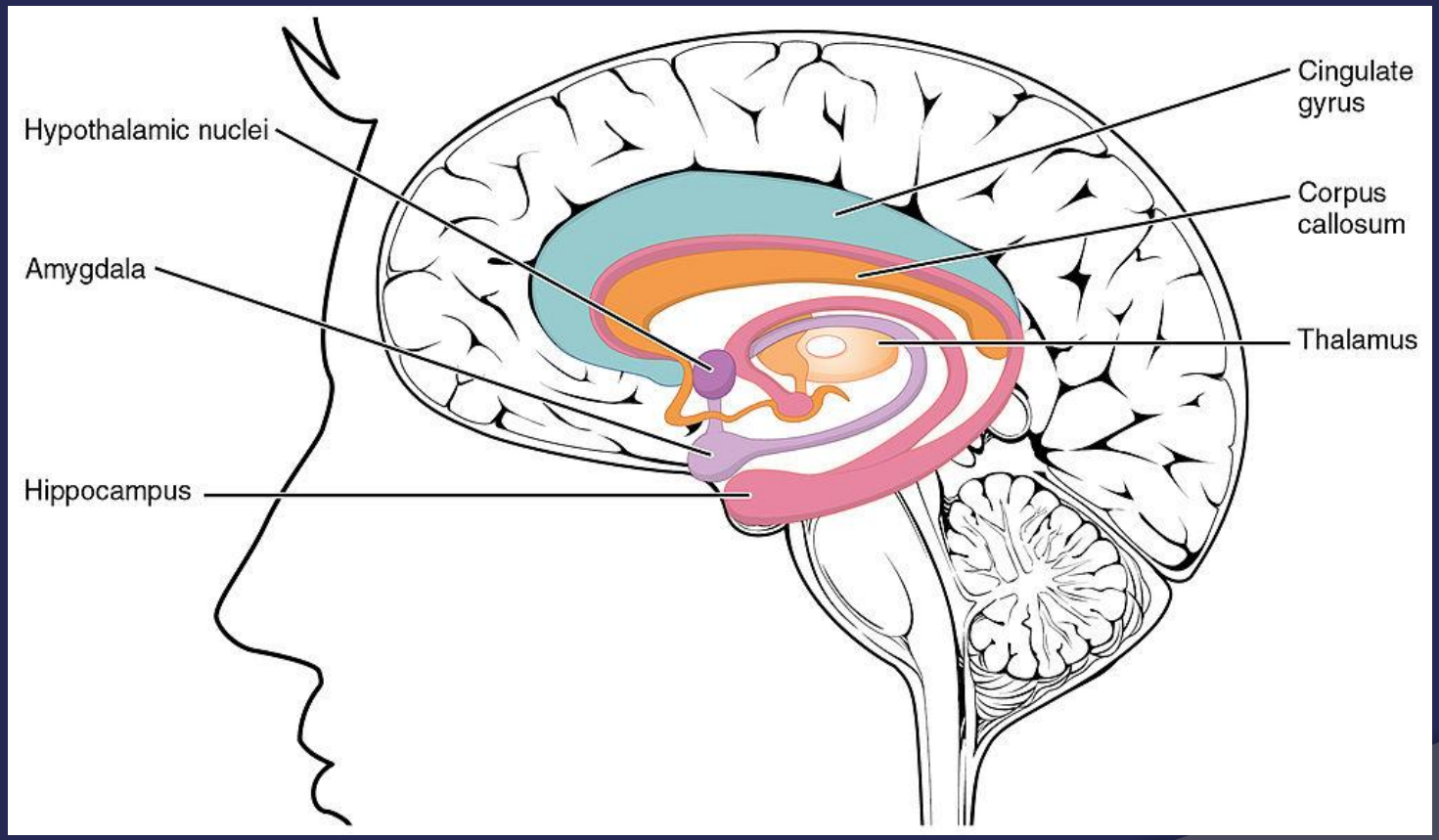
Disease Concept

- Mechanism of action
- Target tissue/organ
- Predictable course
- Treatment options
- Management
- Acute or chronic process
- Toxins

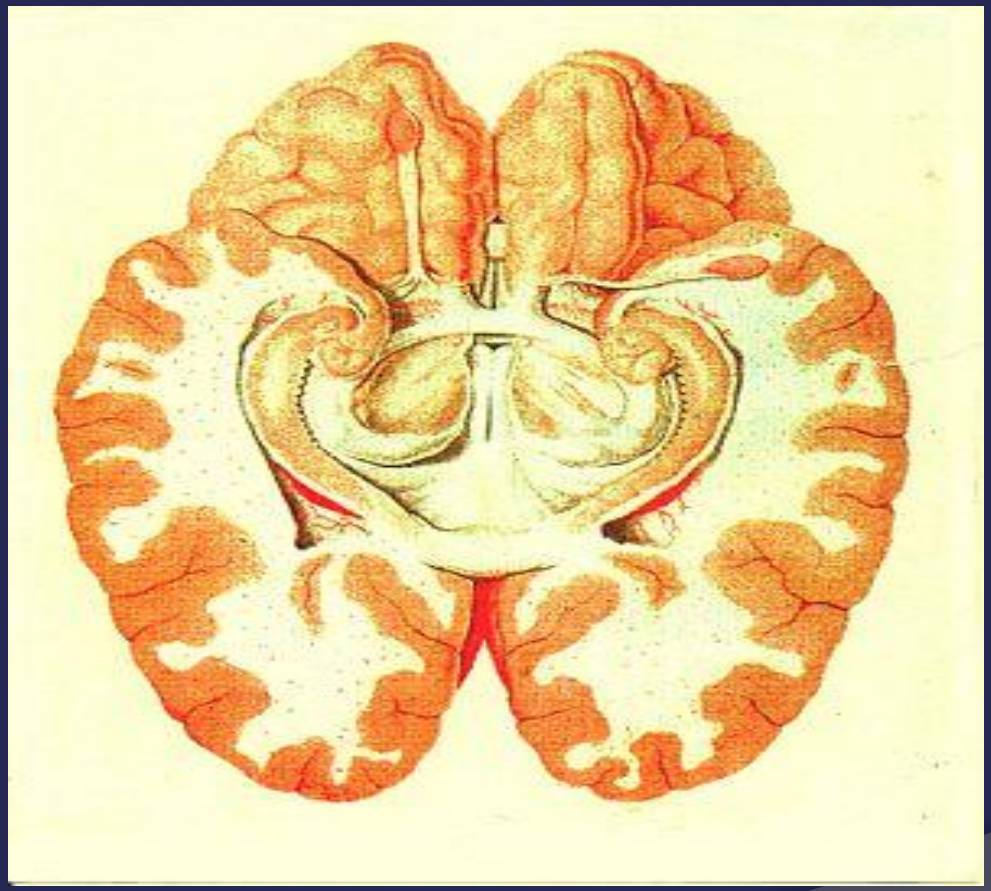
Neuroanatomy

- Limbic system
- Nucleus accumbens
- Ventral Tegmental Nuclei
- Reward Circuitry
- Dopamine, Survival
- Reptilian brain

Limbic System



Limbic System



Anatomy

- Limbic system fully developed in adolescence by age 15
- Frontal lobes not fully developed until age 22-25
- Limbic system is reptile brain, animal drives, pleasure and reward, emotions, Freud's Id,
- Frontal lobes are limitations, right and wrong, Freud's Superego
- Addiction hijacks pleasure/reward pathways

Stop and Go

- Limbic system is go for food, sex, thirst, safety, fight or flight, survival.
- Five F activity. Survival
- Frontal and prefrontal cortex are stop, fear of consequences, limits
- Drugs crank up go and inhibit stop
- Dopamine sits at the junction of reward and addiction

Neurochemistry

- Dopamine
- Norepinephrine
- Serotonin
- Endorphins
- Enkephalins
- GABA

Neurotransmitters

- Alcohol-GABA
- Amphetamines and Cocaine-Dopamine
- Benzodiazepines and GHB-GABA
- Cannabis-Anandamide
- Hallucinogens and MDMA- Serotonin
- Nicotine-Acetylcholine
- Opioids- Endorphins
- PCP and Ketamine- Glutamate

Dopamine

- Key neurotransmitter
- Increases hallucinations and delusions in schizophrenia
- All drugs of abuse increase dopamine
- All antipsychotics block dopamine receptors
- Addictive behavior resembles psychosis

Dopamine 1

- Dopamine sits at junction of reward, mood, pleasure, psychosis, and addiction
- Nigrostriatal pathway: movement, Parkinson's
- Mesolimbic pathway: reward and pleasure
- Tuberoinfundibular pathways: Pituitary hormones, mostly prolactin
- Multiple issues: cognition, thought, emotion, pain

Dopamine 2

- Multiple issues: Pain, insomnia, mood
- Reward, reinforcement, learning, memory
- Food, food cravings, music, risk taking and well being, exercise, locomotion
- Connector. Interacts with other neurotransmitters
- Balance: Acetylcholine/Dopamine
- Dopaminergics and Anticholinergics

Dopamine 3

- Too much dopamine: Psychosis. Crazy behavior. Hallucinations. Delusions. Give antipsychotics. (All antipsychotics block dopamine)
- Too little dopamine: Parkinson's. Give Levodopa
- All drugs of abuse boost dopamine levels
- Amphetamine worst
- Cocaine next worst
- Five-F activity boosts dopamine

Dopamine/Acetylcholine Balance

- Dopamine high
- Acetylcholine low

Dopamine low
Acetylcholine high

- Psychosis

Parkinson's,
Dystonias
Nerve gas

- Antipsychotics

Anticholinergics
Dopaminergics

Effects of All Addictive Drugs

- Stimulate limbic system
- Must have drug to survive
- Shut down cortex
- Destroy judgment, values, will
- Smart people do stupid things
- Id, Superego, Ego

Addictive Defenses

- Denial
- Rationalization
- Projection
- Passive-Aggressive
- Distortion
- Acting out
- Paranoia

Addictive Behaviors

- Lying and denying
- Web of lies
- Wall of deceipt
- Externalization of blame
- Victimization
- Craving and drug seeking
- Doctor shopping

More Behaviors

- Stealing
- Fights
- Confusion
- Minimization of difficulties
- Irrational
- Labile
- Unpredictable

Risk Factors

- AGENT: Availability, Cost, Rapidity of onset, Efficacy as a tranquilizer
- ENVIRONMENT: Occupation, Peer Group, Culture, Social Instability
- HOST: Genetic predisposition, Multiproblem family, Comorbid Psychiatric Disorder

Statistics

- Alcohol Dependence Lifetime Risk is 15% in western societies
- Drug Dependence and Abuse Lifetime Risk is between 6 and 7%
- Nicotine Dependence is 25% of US population

Dual Diagnosis

- Addiction and Psychiatric Problem in the Same Patient
- Very Common
- Interrelated
- Dual DX needs Dual TX
- Chicken or Egg
- Treat Both

Comorbidity

- If you have a drug disorder, lifetime prevalence of alcohol disorder is 47% and of a psychiatric disorder 53%
- If you have an alcohol disorder, your chances of a current or prior psychiatric disorder are 37% and life time prevalence of a drug disorder is 21%

What Works?

- Identify
- Intervene
- Evaluate
- Detoxify
- Treatment-AA based
- Aftercare
- Monitoring and accountability

Identify

- Difficult
- Enabling behavior
- Protection
- Denial
- Resistance

Intervention

- Also difficult
- Coordinate
- Family, friends, supervisor, boss
- Unanimous
- Immediate treatment

Detoxification

- First step only
- Insufficient for recovery
- Best done inpatient
- AA/Education starts here
- No quick cure
- Off all controlled meds
- Lifelong management

Treatment

- Inpatient most effective
- 12 step AA/NA works best
- Inpatient Hospital CD
- Residential
- Intensive Outpatient
- Outpatient
- Attend AA on own

Treatment Success

- AA and meetings 10-15%
- 30 day inpatient 30%
- 60 day inpatient 60%
- 90 day inpatient 90%
- Monitor, test, contract
- Accountability
- AA based

Treatment Success

- 90 days inpatient best. Why?
- College semester
- Military basic training
- Internalization of learning
- Sets up permanent behavior change
- Sets up lifelong management

Results

- 80-95% sober at one year
- 85% with 5 and 10 years monitoring
- 30 day inpatient treatment with no follow up yields 80% relapse at one year
- Not an acute problem
- Chronic disease
- Lifelong management

Chronic Pain

- Opiates, Sedatives, Alcohol
- Work well at first
- Tolerance and withdrawal
- One week rule
- Occasional rule
- Surgery on addicts

All Treatment Programs

- Identification
- Detoxification and evaluation
- Treatment and Monitoring
- Accountability and Supervision
- Long term Management
- Contract
- Licensing action?

Summary

- Widespread Problem
- No Social Boundaries
- High Cost, High Mortality
- No Quick Recovery
- Chronic Disease Model
- Lifelong Management, Monitoring
- Professional programs work