Drugs of Abuse: What Clinicians Need to Know

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In 2012, an estimated 23.1 million Americans (8.9 percent) needed treatment for a problem related to drugs or alcohol, but only about 2.5 million people (1 percent) received treatment at a specialty facility.

Basic Question:
Why do we, as a group of people, use alcohol/drugs and why do we engage in certain repetitive behaviors?

Basic Answer:
IT FEELS GOOD!!!

WHY DOES IT FEEL GOOD?
Because the effect of alcohol / drugs / certain behaviors can help decrease the influence of the rational brain (neo-cortex) and impulse control center (frontal lobe) from the primitive instinctual (pleasure-seeking) brain. Allowing us to feel better even when stressed, or to act in ways that we normally wouldn’t (social lubricant).

MEDICAL DEFINITION OF A DISEASE / DISORDER:
- Serious Medical Condition
- Clearly Recognizable Signs and Symptoms
- Chronic in Nature
- Progressive
- Relapsing
- Fatal if not Treated
- If Treated, Significant Numbers Recover
- Recovery Means Symptom Remission and Improved Quality of Life
Substance Abuse: A Spectrum of Disorders:

- Like all other illnesses, Substance-Related Disorders can be:
  1. mild, moderate, severe, intractable, terminal
  2. chronic, progressive, relapsing
  3. early, middle or late stage
  4. simple, straight-forward
  5. highly complex, multi-factorial
  6. co-occurring with other serious conditions —
     a. physical conditions - gastrointestinal, neurologic, cardiac, pain
     b. mental health - anxiety, depression, bipolar, factitious disorders
     c. psychosocial - poverty, abuse/trauma, inadequate medical care

ASAM: Definition of Addiction

- Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry.
- Dysfunction in these circuits leads to characteristic biologic, psychological, social and spiritual manifestations.
- This is reflected in an individual pathologically pursuing reward and/or other relief by substance use and other behaviors.

ASAM: Definition of Addiction (cont.)

- Addiction is characterized by inability to consistently abstain, impairment in behavioral control, craving, diminished recognition of significant problems with one’s behaviors and interpersonal relationships, and a dysfunctional emotional response.
- Like other chronic diseases, addiction often involves cycles of relapse and remission.
- Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death.

Where it all began:
- Earth is ~ 1 billion years old
- Anthropologists/Sociologist data (Paintings in caves > 40K years old)
- Fermentation 19,000 years ago
- Noah (Genesis) (got drunk drinking fermented grapes)
- Opium 7,000 years ago (Mummies buried with some opium to help them transition to the after life)

Clinical Populations:

Substance-Induced Disorders can effect anyone, regardless of age, race, color, creed, national origin, I.Q., religion, occupation or geographic location.
Process Addictions:
- Food – affects ~4 million; binge pattern most common; bulimia (binge-purge)
- Gambling – 2 million are pathologic; ~4-8 million are “problem gamblers”
- Shopping - ~10 million; both genders
- Sex - ~16 million: 60% abused in childhood
- Internet – emerging data; young people and “games”; goal is moderation
And Others

What to look for
- Personality changes
- Performance deterioration
- Spiritual, moral, physical deterioration
- Loss of interest on hobbies, sports
- Isolation
- Unexplained absenteeism
- Unusual or unexpected Symptoms (pain, weight changes, sleep disorders, mood issues, etc)
- Multiple ED visits

Recognizing Addiction:

Clinical Populations:
Nicotine:

Alcohol:

Marijuana:

Heroin:

Cocaine:

Crack Rock:
Ecstasy / XTC:

Pills:

Amphetamine/Methamphetamine

Crystal Meth:

Others: Designers:

Smokeable Marijuana Controversy:
- Is it a really a medicine?
- Beneficial vs adverse effects
- Should it be legalized?
- Is it just all about money?
Marijuana Controversy:

Adverse Effects:
1. Four times more potent than in the 60’s and 70’s
2. Impairs adolescent brain development and function
3. Impairs motor function
4. Smokeable form harms the airway

Potential Benefit:
1. Anti-inflammatory pain relief
2. Diminished intraocular pressure
3. Anti-seizure property
4. Marijuana plant contains multiple cannabinoids whose physiologic effects are not known
5. Controlled clinical studies needed

“Legal Marijuana:”

Marinol (Dronabinol) CIII capsules / tablets: 2.5, 10mg

Indications:
1. Anorexia associated with weight loss in pts with AIDS
2. N + V associated with cancer chemorx in pts who have not responded to conventional Rx

Great variability: tachycardia, conjunctival injection, orthostatic hypotension, syncope, reversible effect on appetite, mood, memory and perception

Energy Drinks

Bath Salts:

Polydrugs:

Spice:
Process Addictions:

Food, Gambling, Shopping, Sex, Internet

the neurobiologic activity of the brain is identical to that activated by alcohol / drugs

Food Addiction:

Food Binge:

Compulsive Gambling:

Casino  Cards
Computer Addiction:

Sex Addiction:

- Videos
- Strip Clubs
- Massage Parlors
- Prostitution

Pathognomonic face of sex addiction

When it becomes a problem, why don’t they stop?
IT FEELS GOOD!!!

and, at times, it feels better than anything else.

Basically, physical craving means MORE!!!!

The Neurobiological Basis of the Disease of Addiction:

All these, and many others, have one symptom in common: they cannot start drinking without developing the phenomenon of craving. This phenomenon, as we have suggested, may be the manifestation of an allergy which differentiates these people, and sets them apart as a distinct entity.

William D. Silkworth, M.D.
The Doctor's Opinion
Alcoholics Anonymous p. xxiv

The Neurobiological Basis of the Disease of Addiction:

- Complex Brain Disorder
- Addicted Brain is “Different”
- Study of Anthropology/Sociology
- Animal Studies
- Biogenetics (Gene Pool)
- Dopamine Reward System
- PET / SPECT Scans (NIDA Studies)

Site of Addiction:
Areas of the Brain & Function:
Nucleus Accumbens: pleasure ("reward center")
Pre-frontal cortex: judgment, concentration, impulse control, expressive language, organization/planning (executive function)
Temporal lobe: memory, temper control, mood stability, receptive language
Parietal lobe: integration of sensory information, direction, advanced calculations (math)
Limbic System: depression, obsessive negative thinking, libido
Occipital Lobe: visual reception and processing
Cerebellum: balance, coordination

The effect of alcohol / drugs / certain behaviors can detach the rational brain (neo-cortex) and impulse control center (frontal lobe) from the primitive instinctual (pleasure-seeking) brain...resulting in the development of physical craving and mental obsession.
PET Scans:
Normal v Alcoholic PET Scans

SPECT SCAN:
Normal – Side View
Normal – Underside View

Normal SPECT Scans

SPECT SCAN:
Teen Scan
Teen – Polydrugs & Alcohol

SPECT SCAN:
Teen Scan
Teen – Polydrugs & Alcohol

SPECT SCAN:
Cocaine – top view
Cocaine – underside view
Cases: young men; alc, drugs, L.D.; head trauma

SPECT Scan Data:

SPECT of Alzheimer’s Disease:

A Relapsing Disorder:

- Neuro-physiologic craving, compulsion and loss of behavioral control can be induced by internal and/or external stimuli.

The Memory of Drugs

- Amygdala not lit up
- Amygdala activated

Nature Video

Cocaine Video
Now The Diagnosis:
We are going to be looking and listening for signs and symptoms. We will use our education, experience, intuition --- maybe the laboratory and consultation. Never engagement in transference and counter-transference.

Importance of Proper Diagnosis:
- Use does not mean addiction
- Intoxication does not mean addiction
- Maladaptive use does not mean addiction
- Tolerance does not mean addiction
- Physical dependence is not addiction
- Solitary drinking does not mean addiction
- Need for “detox.” does not mean addiction

Proper Diagnosis:
- Appropriate Use
- Transient Misuse
- Transient/Episodic Abuse
- Physiologic Dependence
- Addictive Disorder
- Pseudo-addiction
Co-Occurring Disorders:

**Personality Disorders:**
- Paranoid
- Schizoid
- Antisocial
- Borderline
- Histrionic
- Narcissistic
- Avoidant
- Dependent
- Obsessive-Compulsive

**Mood Disorders:**
- Major Depressive Disorder
- Dysthmic Disorder
- Bipolar Disorder I & II
- Cyclothymic Disorder
- Substance-Induced Due to a General Medical Condition
- Problems related to abuse/neglect

**Anxiety Disorders:**
- Panic Disorder
- Agoraphobia
- Social Phobia
- Obsessive-Compulsive
- PTSD
- Acute Stress Disorder
- Generalized Anxiety Disorder
- Substance-induced

**Somatoform Disorders:**
- Somatization Disorder
- Conversion Disorder
- Pain Disorder
  - with psychological factors
  - with psychological and physical factors combined
  - Hypochondriasis
  - Body Dysmorphic Disorder

**Sleep Disorders:**

**Impulse-Control Disorders:**
- Criminal Behavior:
  - organic mental syndrome
  - scamming
  - dementia
  - drug dealing
  - Alzheimer's Disease
  - medication amnesia

**Neurologic:**
- Neuro-psychological: MMPI-II
  - Collaborative information
  - Laboratory: urine, oral fluid, hair
  - Most labs will now test for Synthetic Marijuana and Bath salts
  - In office testing kits are available (unexpensive and billable)

**Diagnostic “Tools” and Techniques:**
- 1:1 person interview; psycho-social history
- Multi-person intervention
- SBIRT, CAGE, AUDIT, MAST, SASSI
- Neuro-psychological; MMPI-II
- Collaborative information
- Laboratory: urine, oral fluid, hair
- Most labs will now test for Synthetic Marijuana and Bath salts
- In office testing kits are available (unexpensive and billable)

**Roadblocks to Diagnosis:**
- Pathological denial
- Innocent ignorance
- Guilt, shame, embarrassment, fear
- Insufficient information
- Lack of time
- Transference and counter-transference
- Money

**COMPREHENSIVE TREATMENT:**

**MUST ADDRESS:**
- Physical
- Mental/Emotional
- Social
- Spiritual
  - aspects of the patient's life.
Comprehensive Treatment:
- Proper Diagnosis
- Detoxification
- Education
- Medical Evaluation
- Psychosocial Evaluation
- Family History
- Occupation/Employer
- Counseling
- Group Therapy
- 12-Step Program
- Follow-up
- Placement
- Residential Treatment
- Toxicology (UDS/Hair)
- Relapse Rescue
- Dual Diagnosis

Non-Pharmacologic:
- Motivational Enhancement Therapy (MET)
- Brief Interventional Therapy (BIT)
- Behavioral Marital Therapy (BMT)
- Spiritual – Religious (with PET scanning)
  - Twelve Step Facilitation (TSF)
  - non-denominational prayer TM and Vipassana meditation (prison study)
- Gene alteration (free basing fruit fly)
- Physical therapy
- Alternative medicine

Pharmacologic:
- Naltrexone
- Revia
- Acamprosate
- Campral
- Depakote
- Valproic Acid
- Clonazepine
- Quetiapine
- Ibogaine
- Baclofen
- Buprenorphine
- GABA Inhibitor
- Vaccines
- Glutamate
- Antabuse
- Inhibitor

What Probably Won’t Work:
- “Don’t you realize that alcohol will destroy your liver if you keep this up”?
- “What do you think your daughter will think of you if she finds you passed out again”?
- “Why don’t you go out there and do some more cocaine with your buddies. Come back and tell me how it went.”
- “What is it going to take for you to wake up to what you are doing to your family?”

Old Ideas:
- “Sin” model
- Lobotomy
- Electro-shock
- Aversion therapy
- Hypnosis
- Imprisonment
- Hypnosis
- Psychoanalysis
- Pharmacotherapy

What Might Work:
- “Coming here took courage. My hat’s off to you for that.”
- “It would be normal to feel angry that you were forced to come here, but I see that you are here anyways. I’m proud of you for that.”
- “I can imagine that that drug made you feel better than anything else or you wouldn’t be using it”
- “Remember that YOU are my patient, not your family or employer”
You don’t have to do it all in one visit, just start the process, open the topic up.
Call the patient, show interest and care, not judgement.
Refer out to specialist/addiction treatment, but follow up, make an appt.
Local AA, NA, or even some of your “recovering” patients may be willing to help (12 step)
Patient’s insurance, a case manager maybe able to provide resources.

Neuroplasticity  New Cell Function

Is There Any Hope?

Solution:
• Awareness; education
• Early intervention
• Diagnostic assessment
• Longitudinal treatment
• Documentation of rehabilitation / stability
• Immediate intervention / “rescue” for relapse
  Structured treatment – appropriate to the diagnosis and severity of the disorder

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WHY DO WE USE AT ALL?

- "Normal"
- Experimentation
- Peer Pressure
- Doctor’s Advice
- Increase Productivity
- Cope (i.e.: Pain, Anxiety)
- Instinct, Proclivity
- Neuroadaptation
- Craving
- Compulsion
- Mental Obsession
- Addiction

Nicotine:

In addition to feeling good... they had developed the neuro-biologic phenomenon of craving
New Ideas:

- Fundamental change in thinking ("good" vs. "bad")
- The "human condition"
- 1784: Dr. Benjamin Rush – alcohol addiction is a disease
- 1849: Dr. Magnus Huss – first used term "alcoholism"
- 1937: Dr. Wm. Silkworth – published in Medical Record, Lancet
- 1930s: Oxford Movement/Washingtonians
- 1939: A.A. – "a new form of psychotherapy"
- 1951: American Public Health – alcoholism is a disease/disorder
- 1975: A.M.A. – alcoholism; a highly complex illness
- 1999: NIDA is appropriated $200 million to study the addicted brain
- 2009: PET Scan and neurobiologic data