Substance Abuse and Brain Injury: A Toxic Mix

BIANJ Annual Seminar
May 18, 2017

Scott Peters MS, OTR/L
speters@remed.com
TBI and Substance Abuse
(Ohio Valley Center for Brain Injury Prevention and Treatment)

- 58% of patients treated in acute rehabilitation hospital for TBI had pre-morbid substance use disorders

- Individuals with TBI and Substance use disorders have significantly more problems than those with just a TBI

- Individuals’ substance use tends to decline following the injury but returns to pre-injury levels of use within two years

- 20% of light or abstinent users became high volume users
TBI and Substance Abuse

• In a review of six studies it was found that between 38% and 63% of substance abuse treatment clients reported brain injuries

• One study found that individuals who drank alcohol had a 4 times greater risk of brain injury than those who did not drink alcohol

• Other studies suggest that individuals with preinjury substance use disorders are likely to be heavy substance abuse users post injury
Many individuals who sustain a TBI incur damage to the orbital – frontal cortex which is critical for self regulation.

Individuals who have sustained orbital – frontal lesions tend to respond primarily to their immediate desires and lack the ability to modify their behavior to improve future outcomes (similar characteristics to individuals with disorders of addiction).

A body of research has suggested that impulsive decisions of substance abusers are due to their tendency to steeply devalue delayed positive and negative consequences.
Why Abstinence for BI Survivors?

1. Effects of drugs contribute to greater impairment of cognitive and motor skills
2. Potentially dangerous interactions between prescription and non-prescription drugs
3. Increases the likelihood of seizures
4. Increased sensitivity to the effects of alcohol and drugs
5. Legal, financial, interpersonal and vocational impact
Co–Occurring Disorders

• The term co-occurring disorders refers to an individual having one or more substance abuse disorders and one or more other disorders at the same time

• Brain injured survivors are often struggling with multiple issues including substance abuse
Risk Factors for Substance Abuse Relapse

(Drake, et al, 2005)

• Symptoms of a mental illness (particularly episodes of mania or severe anxiety)
• Dysphoria – depressive symptoms with mania
• Lack of protective housing
• Social pressures within drug using networks
• Interpersonal stressors
• Social isolation
• Lack of meaningful activities
• Lack of a trusting treatment relationship
Remission Maintenance Factors
(Davis, et al, 2005)

- Active use of behavioral strategies
  - Avoiding high risk situations
  - Focusing on healthy behaviors
- Using clinical and self help groups
  - Dual diagnosis and dual recovery groups
- Relying on spirituality
  - Invoking a higher power as used in AA / NA
- Developing meaningful goals and activities
  - Employment
Research Findings: Effective Treatment Models for Co–Occurring Disorders
(RachBeisel, et al, 1999)

• Integrated Treatment Models most effective
• Include harm reduction
• Stage – wise treatment
• Motivational Interviewing
• Cognitive – Behavioral Interventions
• Modified 12 Step Self Help Groups
Interventions for Substance Abuse and Co-Occurring Disorders

- Pharmacological Interventions
- Individual Psychotherapy
- Cognitive - Behavioral Interventions
- Contingency Management Interventions
- Relapse Prevention
- 12 Step Support Groups
- Case Management
- Life Skills Training
- Stable Activity Pattern Development
Why do People Use/Abuse Drugs and Alcohol?

It feels good!
The Basis of Addiction: 
The Neural Circuits of Pleasure

• There exists a neural circuit through which we appreciate things that feel good
• Guarantee’s survival of the species
• Causes us to enjoy activities or substances that are life sustaining
• Therefore it is more likely that we will engage again
• These activities and substances are natural reinforcers
• This system is called the reward pathway
The Basis of Addiction: The Neural Circuits of Pleasure

• When the reward pathway is destroyed, we lose interest in pleasurable things such as food, sex and exploring its environment
• Drugs are pleasurable and tap into the reward pathway (they are reinforcing)
• Specific drugs are potent reinforcers (cocaine, amphetamine, heroin, nicotine and alcohol)
• These drugs are highly addictive to humans
Vulnerability for Addiction

• Everybody with a brain can become an addict
• Abnormal pleasure/reward circuits that require drugs/alcohol to feel normal
• Premorbid personality types
• Genetic differences
• Children of addicts
• Environment
  ▪ Neglect, peer group
• Mental illness (Co-morbidity)
Risk Factors for Addiction

• Physiological predisposition (genetic)

• Age of first use

• Frequency of Use

• Stress History
Maintaining Factors for Addiction

- Continued exposure/access
- Rigid belief system (identity)
- Supportive environment (peer group)
- Pain/Discomfort
- Inadequate coping skills
- Inadequate sources of pleasure/esteem
- Limited understanding
- Ambivalence to change
- Inadequate support to change
What Happens When I Stop Using?

• May feel uncomfortable or experience detoxification or withdrawal symptoms

• May alienate your friends

• May take a while for your “head to clear”

• May experience cravings

• May have to face problems associated with your substance use
Behavior Change is Difficult!

• Long standing pattern of behavior – habits
• High frequency pattern of behavior
• Brain becomes predisposed to substance use
• Stress in your life
• Support may be lacking
• Rewards are not immediate
Behavior Change is Difficult
Brain Injury Sequelae

• Physical Changes
• Cognitive Changes
• Emotional / Behavioral Changes
• Personality Changes
• Language Changes
• Sensory Processing Changes
• Deficits in Self Awareness
Resistance to Change: Denial

- Denial is the inability to recognize a problem despite the evidence of its existence
  - Rationalization: providing excuses for problems caused by alcohol or drug use
  - Externalization: blaming drinking or drug use on forces or circumstances outside yourself
  - Minimizing: making problems seem less important than they are, and therefore not a subject of concern
  - Projection: projecting your thoughts, beliefs and feelings onto those around you
Treatment Philosophy:
Keys to Stability & Success

Medical Stability

Skills and Motivation

Stable Activity Plan

Integrated & Comprehensive
Medications in Substance Abuse Treatment

• **Opioid Dependency Medications**
  - Methadone
  - Buprenorphine (Subutex)
  - Buprenorphine with Naloxone (Suboxone)
  - Naltrexone

• **Alcohol Use Disorder Medications**
  - Disulfiram (Antabuse)
  - Acamprosate (Campral)
  - Naltrexone

• **Co–Occurring Disorders Medications**
  - Anxiety and Depression
  - Mood Disorders
  - Pain
  - Spasticity
Behavior Change Can Occur Best in the Presence of Two Essential Elements:

- Motivation to change
  - Have I made the decision to make the necessary changes in my life?

- Skills to change
  - Do I have the skills to implement these changes?
So How Do I Get Motivated to Change?

Most Enduring Changes Occur When Motivation is Self-Directed
Treatment: Stages of Change
Motivational Interviewing

• Client Stage
  ▪ Precontemplation
  ▪ Contemplation
  ▪ Preparation
  ▪ Action
  ▪ Maintenance

• Therapist
  ▪ Motivational Tasks
  ▪ Raise doubt/Tip
  ▪ Best course of action
  ▪ Take steps toward change
  ▪ Prevent Relapse
Motivational Interviewing:
Precontemplative Stage

• Unaware that the problem exists

• No intention of changing their behavior in the foreseeable future

• Others are aware of the existence of a problem

• In treatment because of coercion by someone in their environment
Motivational Interviewing: Contemplation Stage:

• Clients are becoming aware that a problem exists, they may be considering behavior change but have not made the commitment

• They may be weighing the pros and cons of the addictive behavior

• They may be either over-estimating the pros and underestimating the cons
Motivational Interviewing: Preparation Stage

• Clients have the intention to change but have not established a specific goal

• During this stage clients may reduce their addictive behavior, but not enough to have a qualitative effect on their life
Motivational Interviewing: 
Action Stage

• Clients in this stage make changes in their behavior and alter their environment in order to attain their goal of changing their addictive behavior.
Motivational Interviewing: Maintenance Stage

• Clients strive to consolidate the gains made during the Action Stage, in particular to prevent relapse in their addictive behavior.

• Authors of this treatment approach suggest that a person must be beyond 6 months of sobriety to be considered in the Maintenance versus Action Stage.
Behavioral Approaches

• Functional analysis of substance use

• Coping skills for managing the antecedents of substance use

• Contingency management
Antecedent Management Approaches

- **Social Antecedents**: Lifestyle changes, enhancing social support, refusal skills

- **Environmental Antecedents**: Cue exposure, decision making skills

- **Emotional Antecedents**: Change strategies (daily thought records), distraction, self soothing, relaxation

- **Cognitive Antecedents**: Modifying automatic thoughts and drug-related beliefs

- **Physical Antecedents**: Distraction, urge surfing, focus on consequences
Contingency Management Approaches

• Using principles of operant conditioning, implement reinforcement to strengthen the incentive to become abstinent and weaken the incentive to continue using drugs
  ▪ Money – based incentives: vouchers, access to jobs, etc.
  ▪ Community Reinforcement
  ▪ Community Access
  ▪ Substituting Alternative Behaviors
  ▪ Punishment: inducing nausea (Disulfiram/Antibuse)
What Are the Skills I Need to Make This Change?

How do I get the skills to change?
Individualized Skills

- Identified through assessment and in collaboration with the client
- May include:
  - Managing pain, anxiety, depression
  - Maintaining a relationship with a sponsor
  - Initiation and follow through (executive function)
  - Life skills (taking care of myself)
  - Healthy lifestyle elements
Advances in Treatment Interventions

Many advances in the past 30 years in Substance Abuse programming:

- Pharmacological improvements
- More targeted neuroanatomical assessment with targeted interventions
- Development of cognitive – behavioral therapies
- Expansion of 12 Step Models
- Contingency Management
Cognitive Behavioral Therapy (CBT)

- Psychotherapy that focus primarily on individual’s thoughts and behaviors

- There are many different CBT approaches

- A major goal of CBT is to teach coping skills to resist substance use and reduce problems associated with substance use

- CBT must be provided in the context of a warm, supportive, collaborative therapeutic relationship
Cognitive Therapy of Substance Abuse

• Based on the same basic principles as cognitive therapy for other problems such as depression, anxiety, personality disorders

• Focus on the complex behaviors that derive from substance-related beliefs, automatic thoughts and facilitating beliefs

• Complex behaviors involve the substance use and actions to avoid the negative consequences of substance use (lying about drinking to avoid conflict with your spouse)
Cognitive Therapy of Substance Abuse

• Substance related beliefs involve positive (anticipatory) beliefs about the effects of substance use (e.g., nothing feels as great as getting stoned!) as well as negative (relief oriented) beliefs about the effects of not using (e.g., if I quit now I will get the shakes)

• Automatic thoughts are brief ideas that spontaneously flash across a person’s mind

• Facilitating beliefs involve permission to use despite prior commitments to stop using (e.g., I’ll have just one drink)
Healthy Lifestyle Training
Life Skills Training

• Hygiene and Grooming
• Nutrition and Meal Management
• Money Management
• Organizational Systems
• Use of Computer
• Self Medication Approaches
• Use of Memory Devices
Healthy Lifestyle Training
Stable Activity Development

• Leisure Plan Development
• Vocational Programming
• 12 Step Programming
• Exercise/Working Out
• Structure for Life Skills Elements
• Rest
• Pace
• Routine and Predictable

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Immediate Relapse Prevention Plans

• Identify high-risk situations

• Help clients avoid high-risk situations

• Assist clients in finding more effective ways of thinking, managing feelings, and acting

• Assist clients in utilizing supports through gathering telephone numbers and supportive people
“Recovery Work”

- Written assignments (journal, life history)
- Recovery readings (big book, NA book)
- Fellowship meetings (processing)
- Sponsor
- Development of relapse prevention skills
- "Working the plan"
- Generalization to the community
Case Management

• Entrance into funding streams and appropriate programming
• Legal issues
• Housing issues
• Vocational opportunities
• Debt management
• Transportation
• Family Support
Sobriety Plan Includes:

- Medical intervention
- Residential responsibilities
- Work
- Play
- Relapse prevention skills
- Counseling/Support
- Fellowship/Friends
Guidelines For Intervention

- Use empirically-based treatment modalities
  - Motivational Enhancement
  - Cognitive – Behavioral Therapy
  - Cognitive Remediation / Compensation
  - Behavioral Therapy
  - Functional Behavior / Skills Training
  - Twelve Step Facilitation
  - Pharmacologic Interventions

- Environmental control – limit access

- Contract for abstinence

- Objective measures of compliance: UDS, etc.
Medical

1. **Pain:**
   - a. Mobic 15mg qam; Acetaminophen 1000mg twice a day; Flexeril 10mg as needed; Tramadol 50mg as needed
   - b. Manual Therapy with PT
   - c. Home Exercise Program

2. **Anxiety:**
   - a. Klonopin 1mg twice a day (Reduction to .5mg twice a day then discontinued)

3. **Mood:**
   - a. Viibryd 40mg daily; Doxepin 50mg once a day

4. **Sleep:**
   - a. Melatonin 3mg at bedtime

Skills Development

• Coherence Breathing
• eM Wave
• Distraction
• Escalation Chain
• Stretching / Strengthening Home Program
• Sleep Hygiene
• *Pacing* with Work Out Plan
• Life Skills Preparation

Healthy Activity Plan

• AA / NA
• Sponsor Relationship
• Work Out
• Home Exercise Program
• Work at Law Office
• Return to School
• Counseling
• Effective Pacing of Schedule
• Free Time Plan
Summary Points

• Brain injury recovery is a complicated issue

• The nature of neurologic injury post ABI creates a risk factor for depression and anxiety disorders (co-occurring disorders)

• The nature of injury associated with ABI creates a risk factor for ongoing substance abuse

• Long standing habits reinforced by direct impact on pleasure centers are difficult to break

• Integrated program approaches have been found to be most effective

• Must have motivation and skills to make enduring commitment to sobriety

• Safe / structured environment is important to gain motivation and skills

• Support systems should be established to help maintain your commitment
Questions?