MANAGING PROBLEM BEHAVIORS AFTER BRAIN INJURY

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LEARNING OBJECTIVES

- Describe methods to identify and manage the stimulus environment's contribution to problem behaviors
- Describe managing the consequences to manage the behavior
- Be able to screen for common behavioral problems after brain injury (e.g., depression, anxiety, substance abuse, and family issues)
- Know when to request specialty consultation
ACUTE CONFUSION: DELIRIUM AKA POST-TRAUMATIC AMNESIA

- Disturbed arousal
- Disturbed sleep/wake cycle
- Motor restlessness
- Impaired cognition/memory
- Emotional lability
- Disinhibition/agitation/aggression OR lack of initiation (abulia)
- Variability in behavior
As simple (and hard) as figuring out what sets the person off and changing that.

Technically may be either an operant (reinforcement) or classically (stimulus pairing) conditioned response.
COMMON ANTECEDENTS TO PROBLEM BEHAVIORS

- Temperature
  - Regulate

- Bright lights, noisy environment
  - Regulate; remove

- Particular people
  - Avoid

- Time of day
  - Anticipate and plan for alternative activity or rest

- Confusion
  - Orientation; familiar pictures, items, activities
If the behavior doesn’t appear to be under stimulus control—what’s reinforcing it?

Common reinforcement patterns:
- The behavior is rewarded every time
- The behavior is rewarded intermittently or unpredictably
  - Very resilient to change

Common reinforcers:
- Attention
- Preferred activity (e.g., getting out of doing something)
MANAGING BEHAVIORAL CONSEQUENCES

- Identify what’s reinforcing the problem behavior
  - Examine your own and other staff’s behavior/reactions
- Eliminate the reinforcer
- Differential reinforcement of other behavior
- Beware the extinction burst!
- Contrary to the movies, punishment doesn’t work.
  - Usually just makes them madder.
PHARMACOLOGIC TREATMENT DURING ACUTE RECOVERY SHOULD BE OFFERED CAUTIOUSLY WITH SUBSPECIALTY CONSULTATION
SELF-AWARENESS AND PRE-INJURY PERSONALITY
PREINJURY PERSONALITY

“Brain injury makes people more like who they are.”

Not everyone without a brain injury has excellent self-awareness...
PERSONALITY THEORY IN A NUTSHELL

High Neuroticism (Active)

Avoidant Compulsive

Histrionic Antisocial

Introversion (shy, pain avoidant)

Extroversion (gregarious, pleasure seeking)

Low Neuroticism (Passive)

Severe Disorders:
• Paranoid
• Schizotypal
• Borderline

Other important characteristics:
• Openness
• Conscientiousness
• Agreeableness

Other important characteristics:

Openness
Conscientiousness
Agreeableness

Schizoidal Passive-Agg.

Dependent Narcissistic

Other important characteristics:

Openness
Conscientiousness
Agreeableness

High Neuroticism (Passive)
Awareness Training
[Goverober et al, 2007]

- Define performance goals
- Predict task performance
- Anticipate difficulties
- Select a strategy to circumvent difficulties
- Assess the amount of assistance required to successfully perform the task
- Self-evaluate performance

Same procedures work very well in groups
COMMON EMOTIONAL DISORDERS AFTER TBI

- Anxiety/PTSD
  - Relaxation training + Cognitive-Behavioral Therapy (CBT)
- Depression
  - CBT + ?Medication
- Irritability/Aggression
  - CBT (Anger Management) + ?Medication
DEPRESSION AFTER BRAIN INJURY

- A large proportion of individuals with moderate-severe TBI experience depression within first two years of injury
  - Most will meet criteria for Major Depressive Disorder (but may be more correctly classified as “Mood Disorder due to Brain Injury”)
BOMBARDIER ET AL. 2010

- Studied 559 individuals with complicated mild to severe TBI
- Surveyed with PHQ-9
From: Rates of Major Depressive Disorder and Clinical Outcomes Following Traumatic Brain Injury


Figure Legend:
Postinjury rate is the proportion of cases ascertained with major depressive disorder for the first time after traumatic brain injury at each assessment. The values underestimate the true rates because not all participants were assessed at each time. Error bars indicate 95% confidence intervals.
Risk factors for MDD:
- Pre-injury history of depression
- Alcohol dependence
- Age

Only 44% with MDD received antidepressant or psychotherapy
SCREENING FOR DEPRESSION:

PHQ-9

http://www.depression-primarycare.org/clinicians/toolkits/materials/forms/phq9/
PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems?

1. Little interest or pleasure in doing things.
2. Feeling down, depressed, or hopeless.
3. Trouble falling or staying asleep, or sleeping too much.
4. Feeling tired or having little energy.
5. Poor appetite or overeating.
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down.

7. Trouble concentrating on things, such as reading the newspaper or watching television.

8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual.

9. Thoughts that you would be better off dead, or of hurting yourself in some way.
Patient rates on 4 point scale

0 = not at all
1 = several days
2 = more than half the days
3 = nearly every day
**PATIENT HEALTH QUESTIONNAIRE (PHQ-9)**

- **Total Score Depression Severity**
  - 1-4 Minimal depression
  - 5-9 Mild depression
  - 10-14 Moderate depression
  - 15-19 Moderately severe depression
  - 20-27 Severe depression

- **Consider other sources for symptoms in BI**
  - However, Cook et al. (Arch Phys Med Rehabil, 2011;92:818) found no evidence that PHQ-9 depressive symptoms were affected significantly by BI
TREATING DEPRESSION

Best treatment in individuals without BI = Pharmacology + Cognitive-Behavioral Therapy (CBT)
COGNITIVE-BEHAVIORAL THERAPY
[MIND OVER MOOD, GREENBERGER & PADESKY 1995]

Cognitive:
- Identify, monitor and challenge
  - Negative self-talk
  - Maladaptive beliefs
- Record and monitor progress

Behavioral:
- Increase activities that are appropriate, valued, adaptive
- That challenge or compete with maladaptive thoughts and behaviors
SPECIFIC VARIATIONS OF CBT

- Depression
- PTSD
- Other anxiety disorders
- Irritability, anger, aggression
- Insomnia
- Fatigue
PHARMACOLOGIC TREATMENT FOR MAJOR DEPRESSIVE DISORDER

- Systematic reviews (Fann et al, Waldron et al) document a lack of rigorous research of treatment of post-TBI depression
  - Best preliminary evidence supported used of serotonergic antidepressants and CBT
PHARMACOLOGIC TREATMENT: SPECIAL CONSIDERATIONS FOR BI

- Antidepressants with both serotonergic and adrenergic effects may be most beneficial in enhancing mood and cognition
- Increased sensitivity after BI: gradual titration
- Pharmacologic + CBT = Best Treatment for severe depression
  - Pharmacology believed to activate and improve executive function
  - CBT learning sustains gains and prevents reoccurrence
ROLE OF THE TEAM

- Early identification
- Treatment for emotional and behaviors problems is often best delivered in context of rehabilitation program
- Therapeutic alliance
- Team reinforcement for self challenges to negative self-appraisals, maladaptive thinking
- Rehabilitation therapy to increase valued activities and participation
- Family and social network engagement
RECOMMENDATIONS BASED ON CURRENT KNOWLEDGE AND EVIDENCE

- Early identification, treatment, and follow along
  - Symptoms are often present during acute hospitalization, inpatient rehabilitation
  - Attention to pre-injury psychological history
  - Symptoms may be persistent and recurrent
RECOMMENDATIONS BASED ON CURRENT KNOWLEDGE AND EVIDENCE

- Thorough psychological/psychiatric history, evaluation and treatment for symptomatic cases
  - Adapted Cognitive-Behavioral Treatment (CBT)
  - Pharmacologic treatment
  - Available research suggests that what works for those without BI will work for those with BI

- Treatment in the context of rehabilitation program

- Importance of therapeutic alliance
ANXIETY

- Screening with GAD-7
  - Similar to PHQ9
- Cognitive-Behavior Therapy
- Pharmacologic treatment?
  - Some antidepressants may be effective and nonaddictive
Only 6 Randomized Controlled Trials
- Beta blockers (4)
- Methylphenidate (1)
- Amantadine (1)

Evidence limitations: small numbers, short f/u duration, lack of global measures
GUIDELINES FOR THE PHARMACOLOGIC TX OF NEUROBEHAVIORAL TBI SEQUELAE
WARDEN, ET AL 2006

- Standards
  - Insufficient evidence
- Guidelines
  - Beta-blockers
- Options (expert opinion, case report, case series)
  - Methylphenidate, serotonin reuptake inhibitors, valproate, lithium, tricyclic antidepressants, buspirone
Dr. Hammond’s RCTs in press / completing
- Amantadine single & multisite
- Carbamazepine single-site

Buspirone
- Buspirone (Buspar, Vanspar)
- Primarily prescribed to treat anxiety disorders or short-term symptoms of anxiety
- Level III evidence in TBI
  - 6 case studies/series
- First RCT
  - 74 participants
BRAIN INJURY & FAMILY STRESS

- Families with TBI experience:
  - ↑ depression and anxiety
  - ↑ family system and family role disruption
  - ↑ marital dissatisfaction and divorce
  - ↑ social isolation
  - ↑ use of mental health services
  - ↑ alcohol and drug (including prescription drug) abuse
BRAIN INJURY & FAMILY STRESS

- 25-30% of families are distressed at time of injury
- Family distress negatively affects adjustment, adaptation, caregiver burden, and outcome
  - Better documented in children than in adults
FAMILY INTERVENTIONS

- Education
- Peer support
- Professional support
- Family therapy
ETOH SCREENING: CAGE QUESTIONS

- Have you ever felt you needed to Cut down on your drinking?
- Have people Annoyed you by criticizing your drinking?
- Have you ever felt Guilty about drinking?
- Have you ever felt you needed a drink first thing in the morning (Eye-opener) to steady your nerves or to get rid of a hangover?
KEEP CALM AND CALL FOR BACKUP
SPECIALTY CONSULTATION

- Neuropsychiatry
- Physiatry (PM&R)
- Neuropsychology/ Rehabilitation Psychology
- Family specialists
- Substance abuse specialists
REFERENCES

- Model Systems Knowledge Translation Center. www.msktc.org