

CBT and Concussion Management

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Objectives

- Learn about expectations for recovery following concussion and factors which contribute to prolonged recovery
- Learn about effective interventions in the acute and chronic stages of recovery

Traumatic Brain Injury

- Defined as a traumatically induced structural injury and/or physiological disruption of brain function as a result of an external force that is indicated by new onset of at least one of the following clinical signs, immediately following the event:
 - Any period of loss of or a decreased level of consciousness
 - Any loss of memory for events immediately before or after the injury
 - Any alteration in mental state at the time of injury (confusion, disorientation, slowed thinking)
 - Neurological deficits (weakness, loss of balance, change in vision, sensory loss, aphasia)
 - Intracranial lesion or hemorrhage

Range of severity

Mild/Concussion

- LOC: 0-30 minutes
- AOC: A moment up to 24 hours
- PTA: \leq 24 hours
- GCS: 13-15
- Imaging: Normal

Moderate

- LOC: >30 minutes and <24 hours
- AOC: >24 hours
- PTA: >1 day & <7 days
- GCS: 9-12
- Imaging: Normal or abnormal

Severe

- LOC: >24 hours
- PTA: >7 days
- GCS: 3-8
- Imaging: Normal or abnormal

Concussion

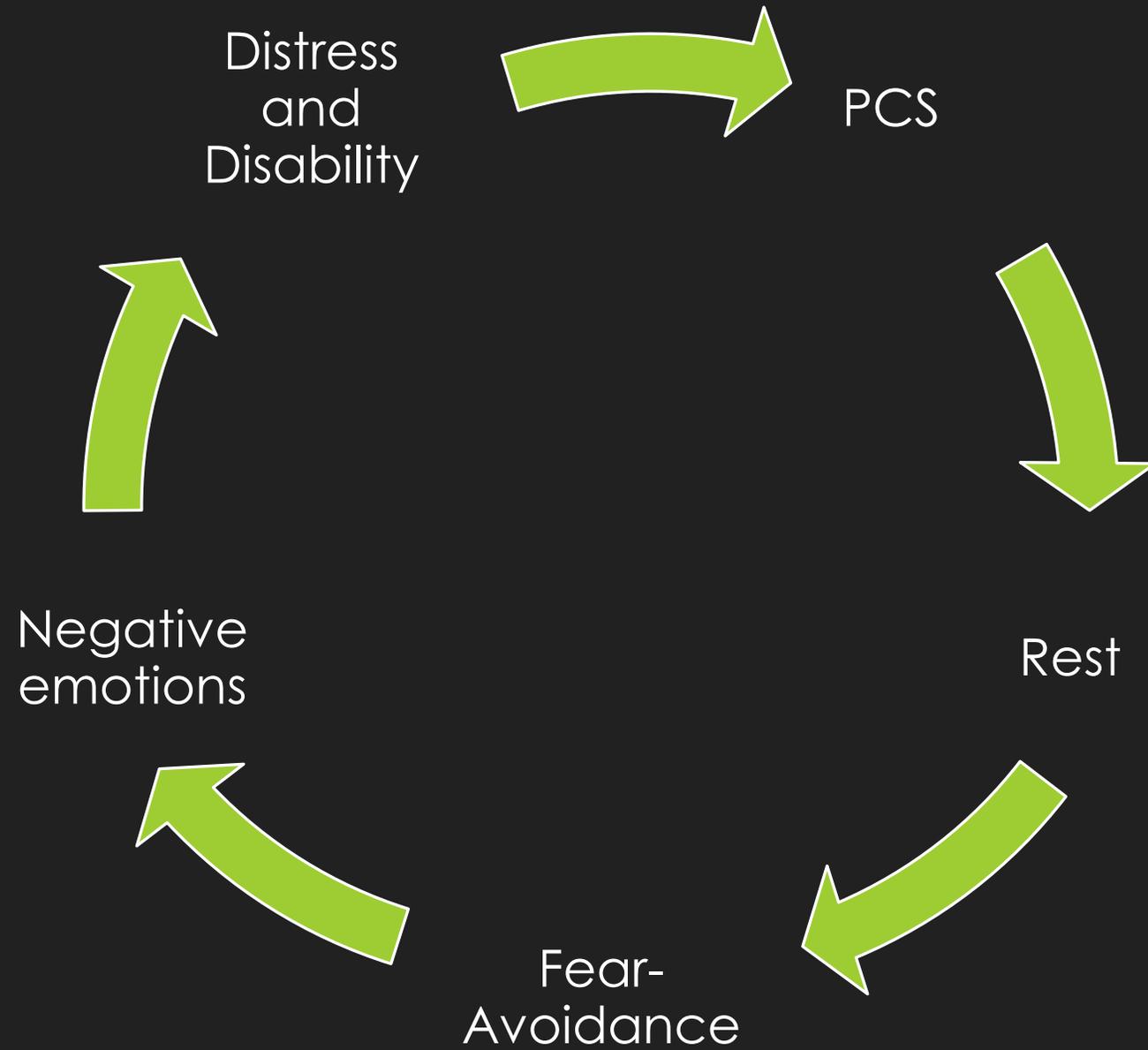
- Impacts 3.8 million people every year in the US
- Number of reported concussions has doubled in the last decade
- Symptoms resolve within hours to weeks for a most
- Patients are advised to rest and gradually return to activities
- A significant minority of individuals report chronic post-concussive symptoms for months to years postinjury (10-50%)

Post-Concussion Symptoms/Syndrome

- Headaches
- Irritability
- Depression
- Sleep disturbance
- Poor attention/concentration
- Forgetfulness
- Difficulties with word finding/stuttering
- Slowed thinking
- Dizziness
- Balance problems
- Fatigue
- Photophobia
- Phonophobia
- Double or blurred vision

Prolonged recovery

- Psychological factors are among the most robust predictors of unfavorable outcome after concussion
 - Mental health disorders, such as anxiety, depression, and PTSD
 - Psychological inflexibility/Experiential avoidance
 - Anxiety sensitivity
 - Alexithymia
 - “Good-old-days bias”
 - Expectation as etiology (iatrogenic effects)
 - Illness identity



TBI Clinic

- Serve individuals with mild-severe TBI's
- Multidisciplinary
 - Medical providers
 - Rehabilitation Therapies – OT, PT, SLP
 - Psychology
 - Social Work
 - Additional services; Chiropractor, Acupuncture, Psychiatry, Support group
- Goals are to help patients return to activity and learn how to self-manage their conditions

Case 1

Sean is a 45 year old male with a history of depression and PTSD who sustained a concussion during a motor vehicle accident. There was no LOC and he remembers the entire accident, although felt dazed and confused for about an hour afterward. He was taken to a local ED where CT was negative and neurologic exam was normal. GCS was 15. A day after the accident, he developed headaches, blurry vision, photophobia, phonophobia, slowed processing speed, and acute stress symptoms. He was referred to his PCP, who advised the patient to rest and gradually resume activities as able. When his symptoms did not improve after a few months, he was referred to the TBI Clinic for ongoing management. At this point, he was quite depressed because he was struggling to engage in any of his normal activities. He also had went on to develop PTSD, which impacted his driving, sleep, and concentration. He was referred to Rehab Psych and Speech Therapy.

Case 2

Martha is a 40-year-old female with a history of MDD and trauma who sustained a concussion when she fell at work. There was no LOC and she remembers the entire fall, but reports feeling confused for a while. She went home that night and woke the next day with a headache, blurry vision, and balance issues and thus sought evaluation at a local ED. Work-up was normal and she was discharged with directions to rest and f/u with her PCP. When her symptoms did not improve after several months, her PCP referred her to the TBI Clinic. At that point, she had not been back to work and was very depressed and developed panic-like symptoms due to fear of falling. She stopped engaging in many of her normal daily activities due to fear of falling and of triggering headaches and dizziness. Financially she was very stressed due to being out of work. Her TBI provider referred her to PT, OT, SLP, SW, and psychology.

So now what?

- Interventions differ depending on the stage of recovery: acute vs chronic
- We are still learning!

Acute stage intervention

- Brief psychoeducational interventions have resulted in significantly fewer symptoms and shorter symptoms duration at 6 month follow-up
- Several critical components have emerged:
 - Creating positive expectations for recovery
 - Providing education about strategies for symptom management and empower self-management
 - Sleep hygiene
 - Teach relaxation
 - Limit use of caffeine/tobacco/alcohol
 - Encouraging a progressive return to normal activities/work/exercise

Chronic stage intervention

- Psychoeducational interventions have not been beneficial for individuals reporting PCS chronically
 - It has been suggested that these interventions may “neurologize” difficulties that are attributable to non-concussion factors such as psychological stress or chronic pain
- Treatments targeting the underlying disorders driving post-concussive-like symptoms seem to be the most effective (e.g., depression, PTSD, fear-avoidance, catastrophizing)
 - CPT and PE have shown to significantly improve PTSD, PCS, self-reported day-to-day function, and self-efficacy
 - CBT has shown some benefit in improving depression, anxiety, and PCS, but evidence is weak/limited
 - Acceptance and commitment therapy has shown efficacy with neurologic populations, although no known studies exist specifically with concussion

My approach

- Psychoeducation
- Rapport building
- Cognitive behavioral therapies
- Acceptance and commitment therapy
- Cognitive Processing Therapy
- Prolonged Exposure Therapy

Treatment planning

- Clinical interview and assessment
 - Hearing patient's story and understanding their response to their injury and how they are making sense of their symptoms
 - Screeners, including symptom inventories (e.g., GAD-7, PHQ-9, pain catastrophizing)
 - Psychoeducation and goal-setting
 - Choose treatment modality (e.g., CBT, ACT, PE, CPT)

CBT basics

- Physical activation
 - Explore patient's interests and values
 - Start moving despite symptoms (sometimes a graded exposure approach is needed)
 - Pacing
- Relaxation
 - Many people are experiencing fear of symptoms
 - Decreasing muscle tension and managing the breath can help reduce the stress response, and reduce problems with dizziness, balance, attention, etc (e.g., deep breathing, PMR, guided imagery)

CBT basics

- Cognitive restructuring
 - Increasing awareness of automatic thoughts and self-appraisals
 - Reducing catastrophizing, increase positive coping statements, addressing harm vs hurt
- Sleep
 - Sleep is a common issue following concussion, which can also contribute greatly to the maintenance of symptoms
 - Sleep hygiene education

ACT basics

- Focus on coping with and learning to tolerate unpleasant thoughts, feelings, and sensations (as opposed to trying to challenge or fix them)
 - Understanding values and the ways in which they are NOT living in accordance with those values
 - Facilitating a sense of “openness” to having symptoms and re-connecting with what’s important in life (shifting expectations that symptoms will be “cured”)
 - Committing to actions consistent with their values (while symptoms may continue), which can restore a sense of normality and purpose
 - Suffering comes into play when we fight a natural, normal, human process

Case 1

- Patient engaged with SLP for a brief time, where he learned strategies to help mitigate problems with attention and memory. He engaged with me for over a year, focusing first on CPT and PE interventions for PTSD. We then shifted towards ACT. He was able to resume full-time work and also enhance other areas of life which had been neglected for years (e.g., marriage, spending quality time with children, hobbies). At discharge his PCS symptoms were still present, but minimal and not functionally impactful.

Case 2

- The patient worked with rehab therapies, where she learned strategies to manage some of her PCS symptoms. Our work focused on managing panic attacks related to falling, as this was a primary barrier to her returning to work. Both CBT and ACT were utilized. She got to the point where she returned to work with some restrictions (limited hours) and was managing anxiety fairly well. Her mood naturally improved as she resumed work and started re-engaging with her family and making new friends. Her PCS remained fairly significant although less functional impactful

Takeaways

- Early intervention is ideal, as it can help prevent development of post-concussive syndrome
- Mental health factors consistently have been shown to predict prolonged symptoms. Getting an early assessment of mental health history and current adjustment is a good idea.
- For those dealing with prolonged symptoms, involving a psychologist with a good understanding of concussion is recommended
- Treating the underlying psychological mechanisms which are contributing to symptoms is key

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