Acute Stress Disorder (ASD) and Post Traumatic Stress Disorder (PTSD) in Patients with a Burn Injury

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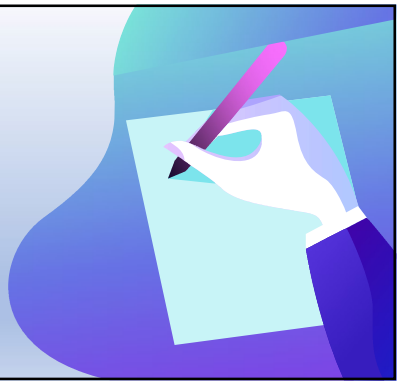
Objectives

- *Learners should be able to understand the difference between Acute Stress Disorder and Post Traumatic Stress Disorder*
- *Learners should understand the screening tools for ASD/PTSD*
- *Learners should understand the treatment for ASD/PTSD*



Statistics

- According to the American Burn Association there are approximately 486,000 burn injuries annually requiring medical treatment in the US.
- 40,000 burn injuries require hospitalization
- On average there are 3,275 deaths from fire/burn related injuries
  - This is just individuals who are seeking medical treatment!

Selected Statistics: American Burn Association
2005-2014 Burn Admissions to Burn Centers
(ABA National Burn Repository 2015)

Survival Rate: 96.8%
Gender: 68% Male, 32% Female
Ethnicity: 59% Caucasian, 20% African-American, 14% Hispanic, 7% Other
Admission Cause: 43% Fire/Flame, 34% Scald, 9% Contact, 4% Electrical, 3% Chemical, 7% Other
Place of Occurrence: 73% Home, 8% Occupational, 5% Street/Highway, 5% Recreational/Sport, 9% Other

Burn Injuries Then and Now

- Over the years the survivability of patients with a burn injury has significantly increased because of the advances in care and treatment modalities.
- Individuals who would have previously succumb to their injuries are now surviving, however, many not without ramifications.
- Many survivors struggle due to due to poor emotional and social outcomes after their injury.
  - Research has shown that 20% of individuals with a burn injury has some form of functional impairment five years post injury.
  - 21-50% have dome form of difficulties with employment

Smith MB, Wiechman SA, Mandell SP, Gibran NS, Vavilala MS, Rivara FP. Current Practices and Beliefs Regarding Screening Patients with Burns for Acute Stress Disorder and Posttraumatic Stress Disorder: A Survey of the American Burn Association Membership. *European Burn Journal*. 2021; 2(4):215-225. https://doi.org/10.3390/ebj2040016

IT'S NOT JUST A BURN INJURY

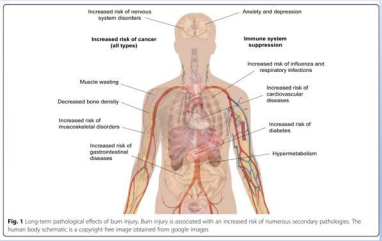


Fig. 1 Long-term pathological effects of burn injury. Burn injury is associated with an increased risk of numerous secondary pathologies. The human body schematic is a copyright free image obtained from google images

Keep in Mind

What lingers with many patients with burn injuries is the emotional and physical toll that the initial injury continues to take on those who survive.

- **Factors to consider:**
  - Severity of the injury/size
  - Changes in body Image
  - Quality of life post injury
  - Age
  - Gender
  - Socioeconomic status/Financial concerns
  - Interpersonal violence, abuse, resiliency, ability to cope

Why talk about it ????

Why do we talk about ASD and PTSD with patients with a burn injury?

- People who survive or witness a traumatic event such as a burn may experience challenges linked to the trauma of the injury or event.
- Some symptoms persist-they can interfere with their daily life as well as their recovery.

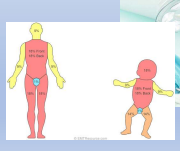
Why talk about it ????

- Burn injuries are life long
- Can be physically/mentally altering
- Increased pain
- Post burn substance abuse disorders
- Increased anxiety and depression

Burn injuries are not like other traumatic injuries

- Can require several inpatient surgeries prior to discharge
- Can have permanent physical alterations
- Often require on-going care at home
- Additional surgical interventions (i.e. contracture releases, laser therapy)
- Out patient clinic visits for up to a year or longer
- The need for garments

Risk Factors in Burn Patients

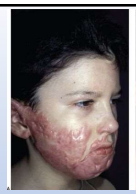


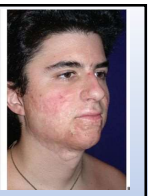
- Severity of Pain
- Life threat perception
- Intrusion symptoms during acute care
- Number of burn related surgeries
- Length of stay
- Total Body Surface Area
- Poor socioeconomic conditions
- Unmarried
- Previous mental health diagnosis
- Gender

McKibben et al. JBCR (2008) 29:22
Giannoni-Pastor et al. JBCR (2016) 37:e79

Other Unique Factors

- Scarring
- Distressed feeling about body image
- Disfigurement
- Disability
- Extensive rehabilitation





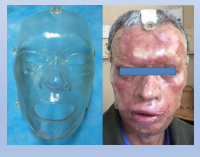
Breaking it Down-

Body Image

- Major burn injuries can alter how a persons body may look and function.
- Some may think that their burn scars are "ugly" and worry that others will reject them because of their scars.

Body Image Distress:

- Grief or sadness about changes in the appearance and physical abilities
- Anxiety about social or intimate settings where their scars may be visible
- Worrying about how others will react



I have learned to love the new me and my new normal

Breaking it Down - Psychological toll/Stress

Common Causes

- Survivors guilt
- Thinking about the event itself
- Stress of the family
- Worries about the future
- Concerns about finances
- Changes in appearance
- Physical discomfort
- Pain
- Itching
- Difficulty adhering to range of motion and Physical Therapy exercises
- Limitations in physical abilities
- Loss of independence
- Cant return to work

Effects

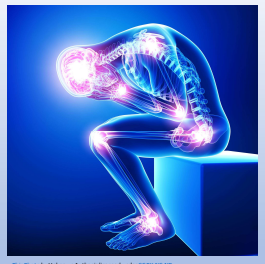
- Negative thoughts about one's self
- Isolation
- Difficulty sleeping
- Nightmares
- Loss of interest in previously enjoyed activities
- Flashbacks
- Avoidance
- And many more

Breaking it Down-Increased Pain/Anxiety

- Burn injury pain can be some of the most difficult pain to manage.
- Methods used in the treatment of burn injuries may exacerbate the difficulty of pain control.
  - Interventions associated with pain:
    - dressing changes
    - excision and grafting
    - Physical and Occupational therapy.
- These therapies can cause pain that is equivalent to or worse than the pain of an initial burn injury.
- Research has shown that there is a strong link between burn injuries and post mental health complications.

Pain and PTSD

- Pain has an association with acute arousal
- Influences the re-experiencing of the event
- Pain management is paramount in attempting to treat ASD and potentially prevent PTSD
- Children are also at an increased risk for PTSD related to the pain of the treatment for the injury.
  - This is why it is crucial to minimize pain and make treatment as least traumatizing as possible.



Giannoni-Pastor et al. JBCR (2016) 37:e79

Pain and PTSD con't

- Several research studies have been conducted on the relationship between chronic pain and PTSD.
- One survey of 358 burn survivors with severe burn injuries- **52%** of them responded that they have ongoing pain –most on average over 11 years post burn injury

Breaking it Down-

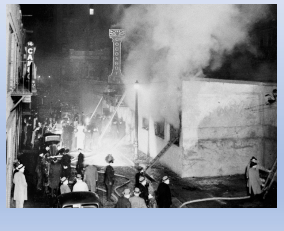
Post Discharge Substance Abuse Disorders

- Sensitivity to analgesics can fluctuate over the course of burn injury and recovery, with periods of increased sensitivity acutely followed by tolerance in the long term.
- Opioid-induced hyperalgesia is a complication that may result from the continuous administration of analgesics
- Patients may self medicate for pain/anxiety

Statistics

- 8.7% of the US population will experience PTSD at some time in their life. DSM-5
- Approximately 15 million adults have PTSD during a given year!
- Within a month of a trauma, research has shown that acute stress disorder occurs in approximately 6-33% of survivors.

Stress and Burn Injury



Cocoanut Grove Nightclub Fire 1942

Neuropsychiatric Observations

Cobb and Lindemann *Annals of Surgery (*1943)117:6

- Report of the problems of emotional adjustment of a patient to a disaster.
- Described a patient as "in a state of marked agitation, appearing preoccupied and unable to concentrate on any organized activity" with the feeling of the "inability to breathe, generalized weakness and exhaustion" with a "frantic fear that some terrible thing was going to happen"
- Of the 32 survivors admitted to Massachusetts General Hospital, 14 were noted to have neuropsychiatric problems
- They noted a history of psychiatric problems offered clues as to the development of neuroses under stress
- An important part of the care of disaster victims is identifying patient history and assisting with coping/readjustment after a crisis

So What Does All of This Mean?

- Not every individual who is subject to a traumatic event will experience ASD or PTSD
- Not every individual who was subject to a traumatic event wants help. Reasons vary among individuals:
  - Denial
  - Pride
  - Family/friends support
- Early identification and management of ASD can decrease the percentage of patients who develop PTSD

Acute Stress Disorder (ASD)

Definition:

- Acute stress reactions that occur with in 3 days to 1 month of a traumatic event.
  - Traumatic event:
    - Threatened death
    - Serious injury
    - Sexual violation
- Symptoms include:
  - Intrusion
  - Dissociation
  - Negative mood
  - Avoidance
  - Arousal

Acute Stress Disorder

- Prevalence is estimated to be between 5-20% following exposure to a traumatic event
  - MVC: 15-17%
  - Assault: 16-19%
  - Burn: 11-32%
  - Witnessing a mass shooting: 33%

Dia *et al. BMC Psychiatry (2018) 18:188*
McKibbin *et al. JBCR (2008) 29:22*
Saxe *et al. J Trauma*(2005) 59:946

Who gets ASD?

- Short answer: We don't really know.
- Long answer:
  - Risk factors:
    - History of pre-trauma psychiatric disorder
    - History of traumatic exposures prior to the recent incident
    - Female gender
    - Trauma severity
    - Neuroticism
    - Avoidant coping

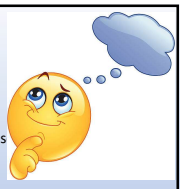
Who gets ASD?

- Panic may play a role in the development of the disorder.
- Elevated sympathetic arousal at the time of the event causes over-consolidation of trauma memories.

Symptoms of ASD

- Severe levels of re-experiencing the traumatic event
- Anxiety in response to reminders of the trauma
- Hypervigilance and generalized fear of further threats
- Active avoidance of any perceived threat or reminders of the threat
- Amnesia of core aspects of the event

How to Diagnose ASD?



DSM-5 Criteria

- Exposure to an actual or threatened death, serous injury, or s
  - Directly experiencing
  - Witnessing in person
  - Learning the even happened to a close family member or friend
  - Experiencing repeated or extreme exposure to aversive details of traumatic events
- Presence of 9 (or more) of the symptoms from any of the 5 categories:
  - Intrusion Symptoms
  - Negative Mood
  - Dissociative Symptoms
  - Avoidance Symptoms
  - Arousal Symptoms

American Psychiatric Association. (2013) Diagnostic and Statistical Manual of Mental disorders, (5th ed).

How to Diagnose ASD?

- Duration is 3 days to 1 month after experience
- Causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
- Not attributable to the physiological effects of a substance or another medical condition and is not explained by a brief psychotic disorder

American Psychiatric Association. (2013) Diagnostic and Statistical Manual of Mental disorders, (5th ed).

Diagnosis of ASD

- Intrusive symptoms:
  - Recurrent, involuntary and intrusive distressing memories of the traumatic event
  - Recurrent distressing dreams in which the content and/or affect of the dream are related to the event
  - Dissociative reactions (flashbacks) in which it is felt like the event is recurring.
  - Intense prolonged psychological distress or marked physiological reactions in response to internal or external cues that symbolize or resemble the event
- Negative mood:
  - Inability to experience happiness, satisfaction or loving feelings.
- Dissociative symptoms:
  - An altered sense of the reality of one's surroundings or oneself (seeing oneself from another's perspective, being in a daze, time slowing)
  - Inability to remember an important aspect of the traumatic event

Diagnosis of ASD

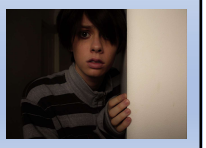
- Avoidance symptoms:
  - Efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event
  - Efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about the event.
- Arousal symptoms:
  - Sleep disturbance
  - Irritable behaviors and angry outbursts (with little or no provocation)
  - Hypervigilance
  - Problems with concentration
  - Exaggerated startle response

Diagnosis of ASD

- Delaying the diagnosis until 1 week after the traumatic event may better identify patients who can be effectively treated
  - Within 3 days the symptoms may be more of a transient stress disorder that could resolve within a week.
- Symptoms should be at a severe level to warrant diagnosis.

Problems with Assessments

- Often times individuals are not honest when responding to assessments-especially when asked asked questions vs completing independently.
  - Fearful of people knowing
  - Fearful of judgement
  - Not wanting to admit they are having issues
- May not fully understand what a question is asking.



Screening Tools

- Most are based on DSM-IV criteria.
- Tools for DSM-5 are not yet available.
  - Stanford Acute Stress Reactions Questionnaire
    - 30-item self-report measure
    - Measures dissociation, re-experiencing of the event, avoidance, hyperarousal, and anxiety, and impaired function.
  - Acute Stress Disorder Interview (ASDI)
    - Clinical Interview
    - Modified version—ASD scale (self-reported)
  - Brief Symptom Inventory (BSI)
    - 53 item self-report measure
    - Severity of general psychological distress

ASD to PTSD

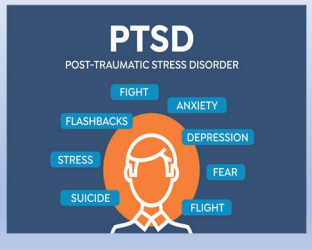
- There are more screening tools for PTSD, therefore some screening tools are used more to predict who will be high risk for PTSD
- Evidence does show that people who have ASD may develop PTSD
  - However a significant of number of patients who don't have ASD develop PTSD as well. As many as 50% of people who develop PTSD did not have an ASD diagnosis
  - Screening tools have a high positive predictive power but low sensitivity.
- PTSD prevalence in high risk populations is 15.4%
  - Hospitalized trauma patients 17.5%-42% 1 month to 6 months after injury
  - Burn patients: 7-45% 1 month to 1 year after injury
  - ICU survivors: 22% 10 years after discharge

Bryant *J Clin Psychiatry (2011)72:2*
Wright *et al. Translational Psychiatry (2019) 9:334*
Visser E *et al. J Trauma Acute Care Surg (2017) 82:1158*
McKibben *et al. BCN (2008)29:22*
Davydow DS *et al. Int Rev Psychiatry (2009) 21:531*

Post Traumatic Stress Disorder (PTSD)

Definition:

- Symptoms continuing more than **1 month** after a traumatic event.
  - Traumatic event:
    - Threatened death
    - Serious injury
    - Sexual violation
- Symptoms include:
  - Intrusion
  - Negative mood
  - Avoidance
  - Arousal



Risks for PTSD

- Female gender
- Lower income or financial problems
- Low social support
- Pre-existing disability
- Comorbid psychiatric disorders/family history of mental disorders
- Interpersonal violence
- Cumulative exposure to traumatic events

Visser, E *et al. J Trauma Acute Care Surg* (2017) 82:1158
Bryant, RA *World Psychiatry* (2019) 18:259

Symptoms of PTSD

- Intense, disturbing re-occurring thoughts related to the experience of the traumatic event
- Flashbacks or nightmares
- Sadness
- Anger
- Fear
- Intense avoidance of memories or external reminders of the event

How to Diagnose PTSD?

DSM-5 Criteria

- Exposure to an actual or threatened death, serous injury, or sexual violation
  - Directly experiencing
  - Witnessing in person
  - Learning the even happened to a close family member or friend
  - Experiencing repeated or extreme exposure to aversive details of traumatic events
- Presence of symptoms from each of the 4 categories:
  - Intrusion Symptoms
  - Negative Mood and alterations in cognition and mood
  - Avoidance Symptoms
  - Arousal Symptoms
- Duration is more than 1 month after experience
- Causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
- Not attributable to the physiological effects of a substance or another medical condition and is not explained by a brief psychotic disorder

American Psychiatric Association. (2013) Diagnostic and Statistical Manual of Mental disorders, (5th ed).

Diagnosis of PTSD

- Intrusive symptoms (at least 1):
  - Recurrent, involuntary and intrusive distressing memories of the traumatic event
    - Children over 6 years old repetitive play may occur
  - Recurrent distressing dreams in which the content and/or affect of the dream are related to the event
    - In children there might be frightening dreams without recognition of the content.
  - Dissociative reactions (flashbacks) in which it is felt like the event is recurring.
    - In children specific reenactment may occur in play
  - Intense prolonged psychological distress or marked physiological reactions in response to internal or external cues that symbolize or resemble the event
  - Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event
- Avoidance symptoms (at least 1):
  - Efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event
  - Efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about the event.

Diagnosis of PTSD

- Arousal symptoms (at least 1):
  - Sleep disturbance
  - Irritable behaviors and angry outbursts (with little or no provocation)
  - Hypervigilance
  - Problems with concentration
  - Exaggerated startle response
  - Reckless or self-destructive behavior
- Negative mood and alterations in cognition (at least 2):
  - Inability to experience happiness, satisfaction or loving feelings.
  - Inability to remember an important aspect of the event
  - Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world.
  - Persistent distorted cognitions about the cause of consequences of the traumatic event that lead to the individual to blame himself/herself or others.
  - Persistent negative emotional state (rear, horror, anger, guilt, or shame)
  - Feelings of detachment or estrangement from others

Screening for PTSD

- Structural Clinical Interview for DSM-IV (SCID)
- Clinician Administered PTSD scale (CAPS)
  - Structured interview
- Impact of Event Scale-Revised (IES-R)
  - Self-administered questionnaire
- Primary Care PTSD Screen-5
  - Structured interview questionnaire

ASD/PTSD in Burn Patients

- Prevalence is continued over time.
  - PTSD:
    - 22-33% at 3-6 months
    - 15-45% at 1 year
- Highly comorbid with obsessive compulsive disorder, agoraphobia, panic disorder and major depression
  - Those with chronic PTSD are more prone to suicide
  - Use more mental and medical health care services.

McKibben *et al. JBCR (2008) 29:22*

Treatment of ASD/PTSD

Treatment

- While treatments are often promising, a significant amount of patients with PTSD do not improve
- In one large study of Prolonged Exposure therapy only 50% of patients lost their PTSD diagnosis.

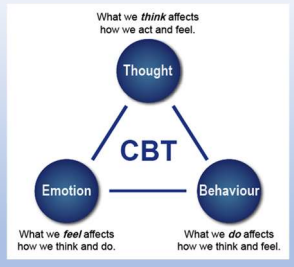
Metcalf O *et al. Clin Psychol Sci Pract (2019) 00:e12310*

Treatment—First Line

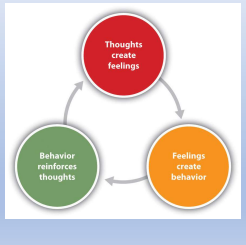
- Cognitive Behavioral Therapy (CBT)
- Prolonged Exposure Therapy
- Cognitive Therapy
- Cognitive Processing Therapy

Cognitive Therapy

- Patients are assisted in thinking about the event
- Correct erroneous cognitions
- Decrease symptoms through exposure to reminders of the event
  - Allows the patient to integrate the corrective information and modify the pathologic components
  - Change continued thoughts and feelings about an event
    - Patients are assisted in thinking differently about the event and thus changing the negative mood and cognitions.



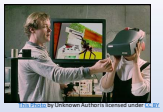
Cognitive Behavioral Therapy



- Involves both cognitive and behavioral components
- Based on premise that psychological problems are in part due to faulty or unhelpful ways of thinking and on learned patterns of unhelpful behavior
- Patients learn to recognize their distortions in thinking
  - Exposure to memories of the event
    - Writing detailed accounts of the event and then re-reading them multiple times
- Problem solving skill to cope with difficult situations
- Greater Sense of confidence in ones own abilities
- Facing ones own fears

https://www.apa.org/ptsd-guideline/patients-and-families/cognitive-behavioral

Exposure Therapy



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- Assists the patient in confronting the feared memories and situations surrounding the event
- Event is emotionally re-processed so it becomes less painful
  - Imaginal exposure
  - In vivo exposure
  - Virtual reality exposure
- Allows the patient to experience the trauma at decreasing levels of distress
- Homework between sessions

Cognitive Processing Therapy

- Focuses on the cognitions developed as a result of the event
- Encourage the expression of natural emotions and reduce manufactured emotions related to the event
- Identify and challenge dysfunctional cognitions and current thoughts about self, others, and the world
- Promote more balanced beliefs
- 4 main parts:
  - Processing the trauma
  - Learning to challenge thoughts about the trauma
  - Trauma themes

Benefits of Support Groups and Peer Support

- Sharing with someone who has had a similar experience
- Not feeling alone, isolated or judged.
- Reducing distress, depression, anxiety or fatigue.
- Talking openly and honestly about your feelings.
- Improving skills to cope with challenges.

Treatment—Second Line

- Pharmacologic:
  - **More to reduce symptoms**
  - SSRIs and SNRIs
    - Paroxetine, Fluoxetine, Venlafaxine, and Sertraline
  - Alpha blockers
    - Prazosin—mostly for sleep disturbances
  - Mood stabilizers, anticonvulsants, atypical antipsychotics
    - Used in specific case as adjunctive treatments for specific symptoms resistant to other therapies
  - Propranolol, Imipramine, and stress dose steroids have also been shown to be effective in some studies.
  - Benzodiazepines:
    - not recommended

- Should be combined with therapy

Protocol at Upstate

- **Patients are screened inpatient** using the Primary Care PTSD Screening Tool (PCPTSD-5) three days post injury (if alert and oriented) to identify patients at risk for PTSD in a consistent and reliable manner. The score will be documented in the patient's EMR.
  - Providers are notified of the scoring
  - Then work to identify what services/supports the patient may require
- **Patients in the outpatient** setting are also screened using the Primary Care PTSD Screening Tool (PCPTSD-5) on the patients' initial visit to the burn clinic. The score will be documented in the patient's EMR.
  - Patients screened meeting criteria are referred to the social worker in clinic who will provide referrals for mental health interventions.

Primary Care PTSD Screen for DSM-5

- Questions to ask each patient with a burn injury:
  - Sometimes things happen to people that are unusually or especially frightening, horrible, or traumatic.
  - For Example:
    - A serious accident of fire
    - A physical or sexual assault or abuse
    - An earthquake of flood
    - A war
    - Seeing someone be killed or seriously injured
    - Having a loved one die through homicide or suicide
  - Have you experience any event like those above?
    - If "yes" go one to further screening.

Primary Care PTSD Screen for DSM-5

- In the past month, have you…
  - Had nightmares about the event or thought about the event when you did not want to?
  - Tried hard not to think about the event or went out of your way to avoid situations that remind you of the event?
  - Been consistently on guard, watchful or easily startled?
  - Felt numb or detached from people, activities or your surroundings?
  - Felt Guilty or unable to stop blaming yourself or others for the events or any problems the events may have caused?
  - Answer all questions with a yes or a no

In summary

- ASD and PTSD affect a significant amount of people who have suffered traumatic events
- ASD is the acute stress response that occurs 3 days to I month after a traumatic event
- ASD involves: Severe levels of re-experiencing, anxiety about, hypervigilance, active avoidance, and amnesia of the traumatic event
- PTSD is the stress response to severe trauma that occurs/continues at least 1 month after the traumatic event.
- PTSD involves: Intense, re-occurring thoughts, flashbacks, sadness, fear, intense avoidance of memories or external reminders of the event.

Summary

- Screening for ASD and PTSD are done by both self-reported and structured interview questionnaires.
- Screening for ASD may identify patients prone to PTSD and therefore begin treatment sooner.
- Burn patients are particularly susceptible due to the pain involved with the recovery from a burn wound, the disfigurement and potential disability, and the perceived treat to life of many burn injuries.
- Treatment involves both therapy—Cognitive behavioral therapy and medications to help relieve symptoms.

Questions?

References

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