Depression and PTSD in Orthopedic Trauma

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Created September 2017
PTSD and Depression

• Objectives

• What is PTSD and depression and how are they distinguished?

• How prevalent is post-traumatic stress disorder and depression after acute trauma in the orthopedic trauma population?

• What resources are available for patients with suspicion of either PTSD or depression?
Orthopedic injuries play a significant impact on society

- Year 2000, productivity losses from lower extremity injuries alone was $17.5 billion
- 75% more than the losses of nonfatal traumatic brain injuries
- 50% more than the losses from nonfatal upper extremity injuries
- 6 times more than losses from nonfatal spinal cord injuries.¹

Question

- What is PTSD and depression and how are they distinguished?
Depression

- Persistent sadness, decreased ability to experience pleasure and decreased interest in usual activities.
- May result from the traumatic experience or from the chronic disability as a result of injury.
PTSD

- (DSM-IV-TR) require
  - Development of symptoms as a result of an identifiable trauma with these three symptoms present:
    1. Re-experiencing the event
    2. Avoidance and emotional numbing
    3. Hyperarousal for a duration greater than 1 month and must affect behavior.
PTSD-Risk Factors

• Young age
• Female gender
• Poor education
  • Not graduating highschool
• Lower socioeconomic class
• Alcohol abuse
• Drug abuse
• Pain
• Cognitive deficit
PTSD-Risk Factors

- Identified a recurring relationship between pain and associated psychological distress
  - pain and psychological stress can exacerbate each other during the chronic stage of trauma
PTSD and Depression-Risk Factors

- Cognitive Deficit
- Prospective study
  - 55% of patients with ISS score >15 had cognitive deficit
  - Clinically significant symptoms of depression and PTSD occurred in 40% and 26% of patients, respectively in patients with cognitive deficit
PTSD-Stressors

• A lack of control of the situation leading up to the traumatic event and/or death of a family member at the scene
PTSD-Risk Factors

- 115 patients evaluated using the Visual Analog Scale (VAS) at a level one trauma center
  - identified pain as a risk factor for the development of PTSD
  - An increase of \( \frac{1}{2} \) of a standard deviation on the VAS was found to have a 5 fold increase at 4 months and 7 fold increase at 8 months post-discharge
PTSD-Time of Presentation

- Variable
- Present with PTSD symptoms as early as the initial hospital stay.
- At one to 6 months post discharge
  - Some developed worsening symptoms
  - Others symptoms will improve
  - Some will have the same severity throughout.
Outcomes

- Orthopedic trauma patients were one standard deviation below the healthy population
  - almost one third of these patients having a diagnosis of PTSD
Outcome

• 101 trauma patients
  • evaluated at admission and again at 1 year.
• PTSD had the strongest association with outcome.
  • demonstrated adverse outcomes in 7 of 8 domains of the SF-36 compared to patients without PTSD.
Outcome

• Measured extent and severity of functional impairment at 12 months through the use of the Form-36 (SF-36) work questionnaire.
  • significantly increased impairments in all functional domains, associated with elevated odds of one or more ADL impairments
  • 3X increase of PTSD and five to six fold increase of PTSD plus depression.
Question

• How prevalent is post-traumatic stress disorder and depression after acute trauma in the orthopedic trauma population?
Prevalence

• 32/106 qualified for PTSD (30%)
• 19 for depression
• 16 qualified for both PTSD and depression.
  • association between PTSD and depression was significant (p<.01).
Prevalence

• 32/106 qualified for PTSD (30%)
  • SF-36
    • Patients with PTSD had significantly lower scores on the SF-36 subscales.
    • Those with both PTSD and depression had significantly lower scores than patients who had neither PTSD or Depression.
Prevalence

• Patients reported elevated levels of psychological distress compared to age and sex matched cohorts.
  • **17-20%** of the patients reported severe levels of depression, phobia and anxiety
Prevalence

• Used a Revised Civilian Mississippi Scale for Posttraumatic stress disorder on 580 persons at two level one trauma centers.
  • 51% of these patients met the criteria for PTSD including 57% of those involved in motor vehicle accidents and 65% of the pedestrians struck by a motor vehicle.
Prevalence

- Korean study on 148 men who had one or more long bone fractures
- Used Korean version of the PTSD scale
  - 27% met the criteria for the diagnosis of PTSD
  - Lower extremity fracture, multiple extremity fracture and higher pain visual analog scale were significantly related to the occurrence of PTSD
• During the early post traumatic period
  • 36.3% of patients were being treated for PTSD
• By year five, the percentage drastically rose to 77.2%.
Lower Extremity Injuries

• Lower extremity injuries have a high incidence of PTSD.
• 161 patients 3 to 12 months post discharge
• A subset of 99 patients with lower extremity injuries
  • 57% of patients had a minimal level of depression
  • 26% moderate level of depression
  • 6% had severe levels of depression
MVC`s

- More than **25%** of survivors experienced PTSD with even more meeting the subthreshold criteria.
- **> 50%** of the motor vehicle crash survivors with PTSD at 1 year still had the diagnosis 2 years later.
Depression

• 116 patients found a relationship between injury severity and level of depression.
  • 55% of patients minimal depression
  • 28% experienced moderate depression
  • 13% experienced severe depression.
• Patients with open fractures were 4.6 times more likely to experience depression.
Question

• What resources are available for patients with suspicion of either PTSD or depression?
Treatment

- PTSD and Depression-Nonpharmacologic
  - Cognitive behavioral therapy (CBT)
    - focus on changing perception after trauma along with exposure to provocative stimuli in a controlled manner.
  - Immediate one time cognitive behavioral therapy not effective
  - Long term therapy needed
Treatment

- PTSD and Depression-Nonpharmacologic
  - Cognitive behavioral therapy (CBT)
Treatment

- PTSD and Depression-Nonpharmacologic
- Randomized control trial on 152 patients by
  - four sessions of CBT 5-10 weeks after injury
  - significantly lower total impact of event scores compared to those not receiving any intervention.
Treatment

• PTSD and Depression-Pharmacologic
  • antidepressants
    • Selective serotonin reuptake inhibitors (SSRI)
    • Sertraline and Fluoxetine are the SSRIs that are most commonly used.
  • Tricyclic antidepressants, monoamine oxidase inhibitors and anticonvulsants are also used
  • Benzodiazepines for PTSD has fallen out of favor due to the vulnerability of this patient population to develop addiction.\textsuperscript{34}
Treatment

- **Trauma Collaborative Network**
  - focus on the relationship between a patient and physician.
  - coordinates resources to patients addressing psychosocial sequelae after trauma.
  - focuses on the need to empower patients and assume more responsibility for recovery and the need to be proactive.
  - implemented by creating proactive practice teams which are molded by training providers to facilitate patient engagement
Treatment

- Trauma Survivors Network

- Developed by the American Trauma Society in conjunction with John Hopkins University

- Standardized program used in multiple trauma centers throughout the United States (www.traumasurvivorsnetwork.org)

- Shown to be effective in improving functional outcomes and quality of life.
Treatment

- **Trauma Survivors Network**
  - consists of
    - Timely access to information for patients and families through access to the TSN website, and Trauma Patient and Family Handbook
    - Peer support provided by visitation of experienced trauma survivors and regular support groups and an online social networking website
    - Family education classes
Treatment

- **Trauma Survivors Network**
  - consists of
    - A self-management class:
      - NextSteps, offered both online and in person
    - The goal of components is to increase patient self-efficacy, support network, and capacity to actively engage in the recovery process
SUMMARY

★ Depression and PTSD are common and unseen complications

★ During the post-operative period, orthopedic surgeon often only physician patients visit

★ The orthopedic surgeon needs to be able to identify PTSD and depression early in the postoperative process

▲ Acknowledge to patient that this is normal

▲ Refer patient to PCP, counselor or psychiatrist