PTSD and TBI

Identification, Assessment and Treatment in Returning Veterans

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Posttraumatic Stress Disorder in Returning Veterans

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A Special Thank You

Some content courtesy of:

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Combat/Operational stress

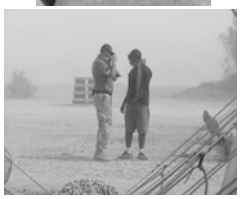
- No real safe area
- Unpredictable threat level
- Periodic unpredictable re-exposure to high stress moments

Relationship Stress

- Long and/or multiple deployments
- Rushed marriages/pregnancies
- Irritability & numbing
- New communication styles
- Pre-existing strains
- Helpless to assist with crises
- People do crazy stuff (wrong things/time/person)

Situational Stress

- Financial problems
- Guard and Reserve with employment and business problems
- Physical/environmental conditions
- General case of helplessness and/or hopelessness
- Disconnect from established support systems, faith communities



PTSD Assessment (DSM-IV)

- Criterion A: Traumatic Stressor
  - Actual/threatened death/serious injury, threat to physical integrity of self/others

PTSD Assessment (DSM-IV)

- Criterion B: Persistent Reexperiencing (1)
  - Intrusive thoughts, images, perceptions
  - Nightmares/distressing dreams
  - Event recur/flashbacks
  - Intense psychological distress with cue exposure
  - Physiological reactivity upon cue exposure

PTSD Assessment: DSM-IV

- Criterion C: Persistent Avoidance, Numbing of Responsiveness (3)
  - Avoid thoughts, feelings, conversations
  - Avoid activities, places, people
  - Inability to recall important aspect of trauma
  - Diminished interest/participation in activities
  - Feeling detached/estranged from others
  - Restricted range of affect
  - Foreshortened future

PTSD Assessment: DSM-IV

- Criterion D: Persistent Increased Arousal (Hyperarousal) (2)
  - Difficulty falling/staying asleep
  - Irritability/anger outbursts
  - Difficulty concentrating
  - Hypervigilance
  - Exaggerated startle

PTSD Assessment: DSM-IV

- Criterion E: Duration of symptoms >= 1 month

PTSD Assessment: DSM-IV

- Criterion F: Clinically significant distress or impairment
- Specify if:
  - Acute: Duration of symptoms < 3 months
  - Chronic: Duration of symptoms is >= 3 months
- Specify if:
  - With Delayed Onset: Symptom onset is at least 6 months after trauma

PTSD: Risk Factors

Kennedy et al, JRRD 44:7, 2007

- Pre-trauma: Previous trauma, psychiatric hx, high hostility, low self efficacy, family hx / genetics
- Peri and post trauma: Trauma severity, social support, life stress, severity of injury, acute symptoms

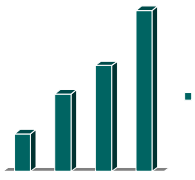
PTSD: Combat Exposure

from Hoge et al, NEJM 351:1, 2004

Combat experience (Army)	Iraq	Afghanistan
Attacked / ambushed	789/883 (89%)	1139/1961 (58%)
Received incoming artillery, rocket, or mortar fire	753/872 (86%)	1648/1960 (84%)
Shot at or received small arms fire	826/886 (93%)	1302/1962 (66%)
Responsible for the death of an enemy combatant	414/871 (48%)	229/1961 (12%)
Knowing someone seriously injured or killed	751/878 (86%)	850/1962 (43%)
Clearing or searching homes or buildings	705/884 (80%)	1108/1961 (57%)

PTSD: Combat Exposure

- Among soldiers deployed to Iraq, PTSD prevalence increased linearly with the number of firefights during deployment.



- Hoge et al, NEJM 351:1, 2004

PTSD in Returning Vets

- 3-4 months after return from Iraq:
- Depression (PHQ): 66/840 (7.9)
- Anxiety (PHQ): 66/839 (7.9)
- PTSD (PCL): 114/881 (12.9)
- Any of the above: 151/882 (17.1)
- 20-24% reported alcohol misuse.
- 38-45% of vets with positive screens were interested in receiving help. 23-40% received help in the past year.
- Hoge et al, NEJM 351:1, 2004.

Perceived Barriers to Care

Hoge et al, NEJM 351:1, 2004

Perceived Barrier	Positive screen for mental disorder (N=731)
Getting time off work for treatment would be difficult	354/643 (55%)
Too embarrassing	260/641 (41%)
It would harm my career	319/640 (50%)
Members of my unit would have less confidence in me	377/642 (59%)
My unit leadership might treat me differently	403/637 (63%)
My leaders would blame me for the problem	328/642 (51%)
I would be seen as weak	413/640 (65%)

Screening Returning Vets

Milliken, Auchterlonie, Hoge, JAMA 298:18, 2007

Outcome	Active PDHA (n = 56350)	Active PDHRA (6 mo)	Guard or Reserve PDHA (n = 31885)	Guard or Reserve PDHRA
PHQ-2, ≥ 1	2674 (4.7)	5831 (10.3)	1210 (3.8)	4133 (13.0)
PTSD screen, ≥ 2	6634 (11.8)	9424 (16.7)	4052 (12.7)	7815 (24.5)
Interpersonal conflict	1975 (3.5)	7893 (14.0)	1342 (4.2)	6724 (21.1)
Mental health referral, EAP referral, or under care for MH		11,429 (20.3)		13515 (42.4)

Assessment: Issues

- Applying for VA disability
- Multiple appointments
- VA OIF/OEF coordinators
- Non-VA service officers
- Military to VA transition
- Importance of social support
- Comorbidities

Evidence: Psychotherapy

IOM 2008 (http://www.nap.edu/catalog.php?record_id=11955) and VA/DOD 2004 (www.ncptsd.va.gov/ncmain/ncdocs/nc_prod/VAPracticeGuidelines1_2004.pdf)

- Best evidence: Exposure therapies
  (However, evidence for veterans, especially males with chronic PTSD, is less consistent.)
- Less evidence: EMDR, Cognitive restructuring, Coping skills (including Stress inoculation therapy)
- Least evidence: Eclectic, Hypnotherapy, Psychodynamic, Neurofeedback, group therapies
- Other and New therapies: Mindfulness, Acceptance and Commitment, Seeking Safety (for comorbid D/A), Behavioral Activation, Imagery Rehearsal, Acupuncture, Dialectical Behavior Therapy, Spiritual counseling, etc.

Evidence: Pharmacotherapy

IOM 2008 (http://www.nap.edu/catalog.php?record_id=11955) and VA/DOD 2004 (www.ncptsd.va.gov/ncmain/ncdocs/nc_prod/VAPracticeGuidelines1_2004.pdf)

- Best evidence: selective serotonin reuptake inhibitors (sertraline, fluoxetine, paroxetine, citalopram)?
- Less evidence: alpha adrenergic blockers (prazosin), anticonvulsants (topiramate, tiagabine, lamotrigine), novel antipsychotics (olanzapine, risperidone), benzodiazepines (alprazolam), MAOIs (phenelzine, brofaromine), other antidepressants (imipramine, desipramine, amitriptyline, mirtazapine, nefazodone, venlafaxine), naltrexone, D-cycloserine
- Least evidence: mood stabilizers, buspirone, non-benzodiazepine hypnotics
- Potentially harmful? Benzodiazepines, older antipsychotics.

"Stages" of Treatment

- Stage I: Current Focus
  - Skills to manage symptoms
  - Establish safety
- Stage II: Trauma Focus
  - Process effects of trauma on beliefs, feelings, and behaviors
- Stage III: Integration and Meaning
  - Reintegration into community
  - Moving forward; "AND"

PTSD Treatment: Current Focus

- Symptom management approach
  - Relaxation
  - Support
  - Crisis management
  - Skills for coping
  - Might include behavioral activation, mindfulness practices, DBT

PTSD treatment: Trauma focus

- Prolonged Exposure (Foa et al, 2007)
  - 10 sessions
  - Common Reactions to Trauma: psychoeduation about PTSD
  - Breathing retraining
  - In Vivo Exposure: reduce avoidance
  - Imaginal Exposure: habituation and emotional processing

PTSD treatment: Trauma focus

- Cognitive Processing Therapy (Resick & Schnicke, 1992, 1993)
  - 12 sessions
    - Psychoeducation
    - Cognitive therapy – challenging negative beliefs about self or world
    - Disclosure of the trauma - written
    - Explore impact of trauma and negative beliefs in areas of safety, trust, power, self-esteem, and intimacy

PTSD treatment: Reintegration

- Couples and family education / therapy
- Spiritual counseling
- Vocational rehabilitation
- Recreational therapy
- Community service

PTSD: Course

Kennedy et al, JRRD 44:7, 2007, Milliken et al, JAMA 298:18, 2007

- Community sample: 52% with PTSD at baseline remitted 34-50 months later
- Returning veterans: 59% (2058/3474) with PTSD positive screen at PDHA were negative on PDHRA (approx 6 months later)
- However, 7% with negative screen on PDHA were positive at PDHRA (3697/52876)
  - Delayed PTSD?
  - Initial underreporting of symptoms?

Returning to Work

- Encourage use of all re-constitution time
- Transition back slowly, if possible
- May feel job has become boring
- Work was “simpler” while deployed
- Re-define fulfillment in employment stateside
- Easily frustrated, irritated, or annoyed with work, co-workers, supervisors
- Be realistic and patient…use the same principles used with family/spouse

Returning to Work

- Many co-workers/supervisors may not relate to combat experiences
- Some will not even realize the soldier was deployed!
- Co-workers may resent soldier's absence
- Re-frame co-workers' reactions in terms of their frame of reference
- Those left behind may have worked extremely hard as well

PTSD with co-occurring TBI

Kennedy et al, JRRD 44:7, 2007

- Clinical guidelines not yet available.
- CBT-based treatment may be effective in individuals with mild TBI.
- TBI may predispose to medication side effects, main effects, drug interactions, and effects of alcohol or other substances.

PTSD Resources

- National Center for PTSD: www.ncptsd.org/
- Portland Vet Center: 503-273-5370
- Portland VA: 503-220-8262
  - Darla Darville, LCSW, Transition Patient Advocate, Ext. 57049
  - Victoria Koehler, LCSW OEF/OIF Program Manger, Ext. 57044
  - Jeanette Morrison, MSW, LCSW, OEF/OIF Social Work Case Manager, Ext. 57460
- Returning Veterans Project: free counseling and other health services for returning veterans and their families (OR and SW WA) http://returningveterans.org/

Traumatic Brain Injury in OEF/OIF Veterans

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What is a TBI?

"A traumatic brain injury (TBI) is caused by a blow or jolt to the head or a penetrating head injury that disrupts the normal function of the brain. Not all blows or jolts to the head result in a TBI. The severity of a TBI may range from "mild" (a brief change in mental status or consciousness) to "severe" (an extended period of unconsciousness or amnesia after the injury)." DVBIC, 2008

Ways to Get a Brain Injury

- Acceleration/Deceleration injuries
  - MVA, Non-ground level falls
  - Diffuse axonal injury
  - Often widespread deficits
- Focal injuries
  - Assaults, GSW, ground level falls
  - Contusions and bleeding
  - Focal deficits

Blast Injuries

Primary Injury: Direct exposure to over/under pressurization wave. Air-filled organs especially vulnerable: ear, lung, and GI tract

- Relevant factors: charge strength, proximity to blast, closed vs. open space
- Animal studies and mathematical models suggest that blast waves can cause central nervous system damage; however, we are far from understanding the conditions under which this may occur when there is not acute diagnosable concussion.

Secondary, Tertiary Blast Injuries:

- Also vulnerable to focal and diffuse injuries from contact with debris/shrapnel and displacement from injury

Signature Wound

- Around 15-20% OIF/OEF veterans meeting criteria for TBI (WRAMC, 2006; Hoge et al., 2008)
- Between January 2003 and March 31, 2008 DVBIC military, VA and civilian sites combined have seen a total of 6,602 patients with TBI. (DVBIC, 2008)

Classifying Severity of Injury

Severity	LOC	PTA	GCS
Mild	<30 min	<6 hrs	13-15
Moderate	<6 hrs	<7 days	9-12
Severe	>6 hrs	>7 days	3-8

LOC=loss of consciousness
PTA=post traumatic amnesia
GCS=Glasgow Coma Scale

VA TBI publication, 2004

Identification at the VA

- Primary Screening
  - All VA providers mandated to screen
  - Positive initial screens go to…
- Secondary Screening
  - Multi-disciplinary treatment team
  - PC, Rehab Med, MH, SW
  - Referred for further specialty evaluation and treatment
    - Neurology, Neuropsychology, Audiology, ENT
- Vast majority present with mild TBI
  - >95% of my referrals mild
  - Moderate and severe cases have obvious LOC and subsequent confusion
  - Easier to catch in field
  - Sent to major VA TBI inpatient treatment sites (4 nationwide)

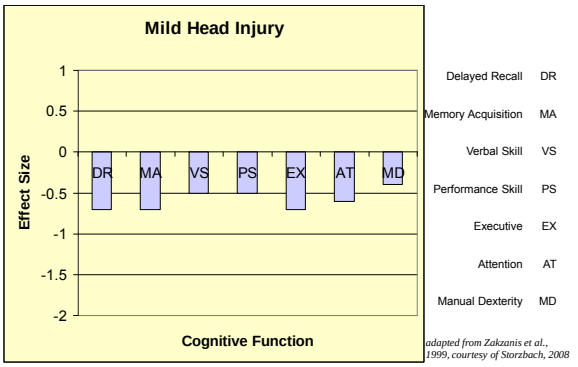
Challenges of Identification

- Self report, often years later
- Impossible to know if LOC without witness (could be conscious with PTA)
- "Dazed and confused"
- Concussion often without obvious sign of injury
- Unlikely to report concussion to medic

Challenges of Diagnosis

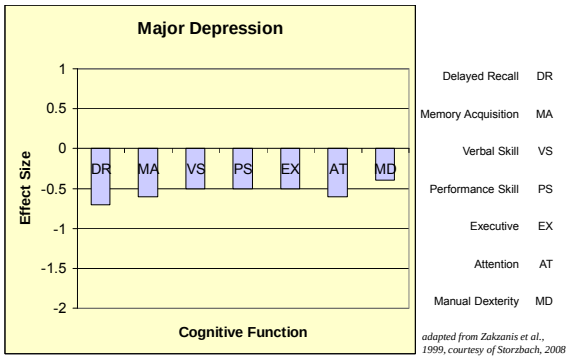
- **Symptom overlap**
  - Deployment is associated with cognitive changes (Storzbach et al., 2000; Vasterling et al., 2006)
  - PTSD is associated with cognitive changes (Vasterling & Brailey, 2005)
  - Depression is associated with cognitive changes (Zakzanis et al., 1999)
  - Somatic complaints secondary to physical trauma often identical to "post-concussive" symptoms (Meares et al., 2008)

Neuropsychological Effect Sizes
for Mild Head Injury



adapted from Zakzanis et al., 1999, courtesy of Storzbach, 2008

Neuropsychological Effect Sizes
for Major Depression



adapted from Zakzanis et al., 1999, courtesy of Storzbach, 2008

Identification

- Given symptom overlap…
- Best way to identify continues to be symptoms present at injury:
  - Acute mental status change, acute post-concussive symptoms
- Persistent PCS are present in other conditions

Neuropsychological Assessment

- History
  - Presenting problem, developmental, educational, medical, psychiatric, social, substance use, coping with past adversity
  - Interview spouse or other family members
- Test behavior
  - Motivation/effort, pain, fatigue, mood, vision, hearing

Neuropsychological Assessment

- Cognitive testing
  - Intellectual functioning, attention, memory, language, motor skills, executive functioning
  - Compare with expected range of performance for this individual based on demographics (age, ed)
  - Look for patterns consistent with brain injury

Neuropsychological Assessment

- Impressions
  - Is there evidence of TBI?
  - If so, is there evidence of a cognitive disorder or mood/personality change?
  - If so, is the cognitive disorder or mood/personality change likely due to TBI?
- Recommendations
  - Any further workup recommended?
  - Cognitive recommendations: Rrehab candidate?
  - Mental Health: Are they treating co-morbid psychiatric symptoms?
  - Pain, sleep management: Are these optimized?
  - Reassessment?

Recovery

- The majority (80-90%) of individuals in civilian studies recover from a concussion (mild TBI) but…
- Not a reasonable comparison to deployment
  - Mental stress (always on guard, combat trauma)
  - Physical stress (100+ lbs pack, heat, dehydration)
  - Lack of rest
  - Increased vulnerability to more concussion
- Factors associated with delayed recovery

  -Prior psychiatric history, co-morbid depression/anxiety, pain, sleep disorder, substance abuse

  -Coping style + natural recovery = fx

Common symptoms associated with TBI

<u>Physical</u>

- Headaches
- Dizziness
- Balance/coordination changes
- Pain (co-morbid in majority of my patients)
- Low energy
- Fatigue
- Sleep disturbance (high rate sleep disorders)

However, very likely to see these symptoms in trauma victims without TBI. Not specific to concussion.

Common symptoms associated with TBI

Emotional

ADJUSTMENT TO INJURY
+
ORGANIC BRAIN CHANGES

- Anxiety (including PTS)
- Depression
- Irritability
- Emotional dysregulation
- Less range of emotion
- Less sensitive to others' emotions

Common symptoms associated with TBI

Cognitive

- Memory (short-term)
- Attention (complex tasks, distraction)
- Information processing efficiency
- Word finding
- Executive functions (e.g. planning, organizing, multi-tasking, strategizing)

Common symptoms associated with TBI

Behavioral

- Impulsivity
- Disinhibition (less filter)

  or
- Apathy
- Lack of initiation
- Lack of spontaneity

Consequences on Daily Functioning

- Social
  - Spouses/Life partners: Person may seem different (in any of previously mentioned domains)
  - Family: May have different role in family now
  - Friends: May not enjoy, or be able to perform, same activities as before

Consequences on Daily Functioning

- Occupational
  - Returning to work often a challenge
  - Often early in careers with many earning years ahead
  - Role change as "provider"
  - May not have received compensation for injury
  - May require assistance with ADL/IADL

Treatment

- No FDA approved medications specifically for TBI symptom management
- Stimulants, SSRI's, cholinesterase inhibitors used at discretion of prescriber
- Snell et al., (2009) Jour Clin Exp Neuropsych 31(1) 20-38
  - Review of psychological treatments for civilian m-TBI
  - Some evidence for early education intervention (when? What? How much?)
  - **No clear empirically supported treatment for veterans with *m*-TBI**
- Symptom-based practical interventions:
  - Evidence from moderate-to-severe TBI that Cognitive Rehabilitation Groups are helpful (Vanderploeg et al., 2008; Cicerone et al., 2002)
  - Individualized cognitive rehab for those with attention disorders (Sohlberg & Mateer, 1989)
  - Pain management
  - MH treatment
  - Vocational Rehabilitation
  - Social/Family/Community support

Hoge et al., 2008

- NEJM 358; 5
- Based on 2006 anonymous survey of 4618 soldiers from two U.S. Army combat infantry brigades
- N= 2,525 U.S. Army infantry soldiers 3-4 mo. After year-long deployment to Iraq
  - 95.5% male
  - 55.5 % under age 30
  - 47.5% of junior rank

Hoge et al., 2008 cont.

	Injury with LOC N=124 (5%)	Injury with altered MS N=260 (10%)	Injury without concussion N=435	No injury N=1706	P value LOC v. Other injury
% with PTSD	43.9	27.3	16.2	9.1	<.001
% with DEP	22.9	8.4	6.6	3.3	<.001

Hoge et al., 2008

- Poor health, missed work, medical visits, PCS complaints endorsed more by those with TBI than without
- However…TBI no longer significantly associated with these variables (except headache) after controlling for PTSD and depression

Resources

- DVBIC
  dvbic.com
  1.800.870.9244
- Portland VA Medical Center
  503.220.8262
- Brain Injury Association of Oregon
  http://www.biaoregon.org/
  503.740.3155
  1.800.544.5243
- Brain Injury Association of Washington
  http://www.biawa.org/contact.htm
  1.800.523.5438