Integrated Mental Health and Pain Care for Returning OEF/OIF Service Members

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Disclosures

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Objectives

1. Describe the prevalence of pain and emotional comorbidities among service members who have returned from deployment.

2. Review the characteristics of Post-deployment Multi-symptom Disorder (PMD) and the empirical and pragmatic rationale for this conceptualization.

3. Propose a new model of integrated physical and emotional health care for returning service members with PMD.
Collaborators

• Robyn L. Walker, Ph.D., CPRP Polytrauma Pain Psychologist, Tampa VA
• Ronald J. Gironda, Ph.D., Assistant Chief, Mental Health & Behavioral Sciences Service, Tampa VA
The CPRP: Who Are We?

- Opened as an inpatient interdisciplinary pain program in 1989
- Remain the VA’s largest comprehensive Pain Center and the only one accredited continually by CARF
- Received the VA Secretary’s Teague Award in 2004, multiple VA designations as a Clinical Center of Excellence, VA Model Team awards, and in 2007 the American Pain Society’s Clinical Center of Excellence award
- Approximately 50 clinical staff (including 13 FT psychologists)
- Since opening, the inpatient CPRP has titrated ALL participants off of opioids during treatment
Tampa VA Pain Services

Outpatient Interdisciplinary Services/Programs
- CPRP Screening and Follow Up Clinics
- Headache Clinics
- Pain Medical Fellowship Program
- Pain Executive and Facility Council Committee
- Opioid Management Consultation Committee
- Interventions Clinics
- Medical Pain Clinics
- Pain Psychology Residency Program
- Inpatient Hospital Consultation
- Funded Research Program

Transdisciplinary Services/Programs
- Inpatient CPRP
- Medical Pain Clinics
- Pain Psychology Residency Program
- Inpatient Hospital Consultation
- Funded Research Program

Integrated Care programs
- National Pain Team Training Program
- Inpatient Polytrauma Pain Services
- OEF/OIF Transitional Pain Program
- Post Deployment Clinic Pain Svcs
- Post Deployment Multi-symptom Disorder Program
Polytrauma Pain

**Pain prevalence = 96%**
Clark, Bair, Buckenmaier III, Gironda, & Walker, 2007

- Headaches and cervical pain from traumatic brain injuries and blast injuries (65%)
- Extremity pain from blast injuries (55%)
- Neuropathic pain from fasciotomies (30%)
- Phantom limb pain from amputations (20%)
- Back pain (20%)
- Burn pain from blast injuries (10%)
- Diffuse pain from numerous soft tissue shrapnel wounds (10%)

Walker & Clark, 2006
Polytrauma Pain Complexity

Otalgia

Hearing Loss & Tinnitus

Nerve Injury

Polytrauma Pain

Surgical revisions

SCI

Amputations

Orthopedic & Soft Tissue Trauma

Phantom Pain

Central Pain

Nociceptive Pain

Acute Pain

Headache

Neuropathic Pain

Adapted with permission from Steven G. Scott, 2008
Course of Pain - Pre-existing Back Pain

- Pre-deploy
- Blast
- 3 Months
- 6 Months
- 9 Months
- 12 Months

Back Pain
Course of Pain - Shrapnel Injury Pain

- Back Pain
- Shrapnel

Pre-deploy - Blast - 3 Months - 6 Months - 9 Months - 12 Months
Course of Pain - Blast-related Headache

Graph showing the course of pain over time:
- Pre-deploy: Baseline
- Blast: Immediately after blast event
- 3 Months, 6 Months, 9 Months, 12 Months: Follow-up periods

- Back Pain
- Shrapnel
- Headache

Graph indicates an increase in pain levels post-blast, with a peak around 3-6 months, followed by gradual improvement over 12 months.
Course of Pain - Surgical Revisions

- Back Pain
- Shrapnel
- Headache
- New Surgery

Pre-deploy, Blast, 3 Months, 6 Months, 9 Months, 12 Months
Polytrauma Pain Course

POST-ACUTE PAIN

Surgical Revision & Other Iatrogenic Pain

Breakthrough Pain

Transition to chronic pain via unremitting acute pain

Pain Associated with Prolonged Tissue Healing

Post-Traumatic Stress Reaction & Other Psychosocial Factors

ACUTE PAIN

CHAORNIC PAIN

Reprinted from Clark et al., 2007

CLARK -2010
Pain and combat injuries in soldiers returning from Operations Enduring Freedom and Iraqi Freedom: Implications for research and practice

Michael E. Clark, PhD, 1, 2, 3 Matthew J. Bair, MD, MS, 4 Chester C. Backenmair III, MD, 4 Ronald J. Gironda, PhD, 1, 2, 3 Robin L. Walker, PhD 1

1 James A. Haley Veterans Hospital, Tampa, FL; 2 University of South Florida, Tampa, FL; 3 Center of Excellence on Implementing Evidence-Based Practice, Richard L. Roudebush Department of Veterans Affairs Medical Center, Indianapolis, IN; 4 Department of Anesthesiology, Walter Reed Army Medical Center, Washington, DC

Abstract—Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) have resulted in a growing number of seriously injured soldiers who are evacuated to the United States for comprehensive medical care. Trauma-related pain is an almost universal problem among these wounded soldiers, and several military and Department of Veterans Affairs initiatives have been implemented to enhance pain care across the continuum of medical services. This article describes several innovative approaches for improving the pain care provided to OEF and OIF military personnel during acute stabilization, transport, medical evacuation, and rehabilitation and presents summary recommendations for providing comprehensive, pain management services provided, and associated outcomes. We also identify some of the pain assessment, classification, and treatment challenges emerging from work with this population and provide recommendations for future research and practice priorities.

Keywords: acute pain, chronic pain, combat injuries, pain assessment, polytrauma, posttraumatic, regional anesthesia, rehabilitation, trauma, traumatic brain injury

INTRODUCTION

Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) commenced in October 2001 and May 2003, respectively, as part of the global war on terror. To date, more than 1 million military personnel have been deployed to Afghanistan or Iraq. Approximately 21,000 of those deployed have been wounded in combat, and about 46 percent of these casualties have medically evacuated (http://www.icasualties.org). Blast-related injuries predominate, wounds from improvised explosive devices (IEDs), land mines, shrapnel, and other blast phenomena account for 65 percent of combat injuries [1]. Approximately 40 percent of these injured soldiers have symptoms of traumatic brain injury (TBI) (http://www.ahainc.org). Nevertheless, despite the number of casualties and the wounded severity, the U.S. military medical system has been remarkably successful in the management of combat trauma during these conflicts, as evidenced by the fact that more than 95 percent of wounded soldiers survive (1) and face additional challenges imposed by significant pain (1). Indeed, in one sample of individuals with polytrauma, defined as "3 or more injuries to physical organs or organ systems, one of which may be life threatening...", approximately 90% experienced pain problems during rehabilitation [2]. Because early intervention in both acute pain [3] and chronic pain [4] is associated with improved outcomes, there is a strong and aggressive treatment of these problems during the rehabilitation process may reduce the prevalence and severity of chronic pain and lead to enduring improvements in patients' quality of life. Approximately 65% of OEF/OIF combat injuries are caused by Improvised Explosive Devices (IEDs), landmines, shrapnel, and other blast phenomena [5]. The blast often result in multiple injuries (e.g., blast wounds) and hidden (e.g., lunging) damage [6] and at least 60% of
Polytrauma Emotional Comorbidities

65% received a mental Health Diagnosis:

- Adjustment Disorder: 47%
- PTSD: 29%
- Depressive Disorder: 24%
- Substance Abuse: 7%
- Acute Stress Disorder: 5%

Walker & Clark, 2006
## Treatment Outcomes

<table>
<thead>
<tr>
<th>Measure</th>
<th>Non-Combat (n=43) (^1)</th>
<th>Combat/Blast (n=51) (^1)</th>
<th>Combat/Non-Blast (n=34) (^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>FIM Score</td>
<td>84.0</td>
<td>111.9</td>
<td>82.9</td>
</tr>
<tr>
<td>Rancho Level</td>
<td>5.3</td>
<td>6.5</td>
<td>5.8</td>
</tr>
<tr>
<td>Opioid Dose(^2)</td>
<td>28.3</td>
<td>9.0</td>
<td><strong>125.5</strong></td>
</tr>
<tr>
<td>Pain Score(^3)</td>
<td>4.5</td>
<td>2.1</td>
<td><strong>5.4</strong></td>
</tr>
</tbody>
</table>

\(^1\)All pre to post changes were significant for all groups.

\(^2\)In morphine equivalent milligrams per day

\(^3\)Significant group X time interaction

Clark, Walker, Gironda, & Scholten, 2009
Pain Change

Clark, Walker, Gironda, & Scholten, 2009
Latest Data

- VA-funded multisite study examining polytrauma and OEF/OIF pain and emotional issues
- Participants recruited either from the polytrauma network of care or local OEF/OIF registries
- Follow all participants for 12 months
- Following data represent a “first look” at some results for 239 participants
## Most Recent Data - OEF/OIF

<table>
<thead>
<tr>
<th>Deployed from</th>
<th>Blast Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Active duty</td>
<td>53.1% IED</td>
<td>41.6%</td>
</tr>
<tr>
<td>Inactive reserve</td>
<td>33.1% Mortar</td>
<td>27.9%</td>
</tr>
<tr>
<td>Active reserve</td>
<td>13.4% RPG</td>
<td>4.9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deployed to</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All other</td>
<td></td>
<td>11.5%</td>
</tr>
<tr>
<td>OEF only</td>
<td>9.2% Mean # of blasts</td>
<td>97.8</td>
</tr>
<tr>
<td>OIF only</td>
<td>69.9% Adjusted mean # of blasts</td>
<td>21.0</td>
</tr>
<tr>
<td>Both OEF/OIF</td>
<td>16.7% LOC</td>
<td>18.4%</td>
</tr>
</tbody>
</table>

| Total deployment     |                   |                |
| time                 | 14.07             |                |
| Injuries from blast  |                   | 36.0%          |
| Mean time since      | 41.54             | Mean distance from blast | 365 feet |
| return               |                   | Polytrauma %   |
| Exposed to blast(s)  | 86.2%             | 58.6%          |
Pain

• Persistent pain present in 87%, average pain 4.1
  • Significant pain (4 or >) 50.6%
• Headache prevalence 63.2%
  • Days/week with headaches 3.6
• Most common primary pain locations:

<table>
<thead>
<tr>
<th>Location</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>19.7%</td>
</tr>
<tr>
<td>Shoulder</td>
<td>11.2%</td>
</tr>
<tr>
<td>Knee</td>
<td>7.5%</td>
</tr>
<tr>
<td>Neck</td>
<td>5.6%</td>
</tr>
<tr>
<td>Hand/wrist</td>
<td>4.7%</td>
</tr>
<tr>
<td>Ankle/foot</td>
<td>3.8%</td>
</tr>
<tr>
<td>Leg/Hip</td>
<td>2.8%</td>
</tr>
<tr>
<td>Arm/elbow</td>
<td>1.9%</td>
</tr>
<tr>
<td>DSM-IV Mental Health Diagnoses</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At least 1 M.I.N.I. Dx</th>
<th>58.6%</th>
<th>PTSD</th>
<th>29.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
<td>Mood disorder with psychotic features</td>
<td>3.1%</td>
</tr>
<tr>
<td>Major Depression</td>
<td>30.30%</td>
<td>Antisocial Personality Disorder</td>
<td>4.0%</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>1.60%</td>
<td>Substance Use Disorders</td>
<td></td>
</tr>
<tr>
<td>1 or more depressive disorders</td>
<td>36.9%</td>
<td>ETOH dependence</td>
<td>13.8%</td>
</tr>
<tr>
<td>Hypomania</td>
<td>24.9%</td>
<td>ETOH Abuse</td>
<td>9.80</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>Opioid Dependence</td>
<td>2.2%</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>20.4%</td>
<td>Opioid Abuse</td>
<td>0.9%</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>27.6%</td>
<td>Other Substance Dependence</td>
<td>1.8%</td>
</tr>
<tr>
<td>Social Phobia</td>
<td>9.80%</td>
<td>Other Substance Abuse</td>
<td>2.3%</td>
</tr>
<tr>
<td>Obsessive-compulsive disorder</td>
<td>16.4%</td>
<td>Polysubstance Abuse</td>
<td>0.5%</td>
</tr>
<tr>
<td>Generalized Anxiety Disorder</td>
<td>14.70%</td>
<td>1 or more substance use disorders</td>
<td>24.3%</td>
</tr>
<tr>
<td>1 or more anxiety disorders</td>
<td></td>
<td>(except PTSD)</td>
<td>49.4%</td>
</tr>
</tbody>
</table>
## Diagnostic Overlap (NRS >=4)

<table>
<thead>
<tr>
<th></th>
<th>Pain prevalence</th>
<th>Comorbidities for NRS &gt;=4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant pain (NRS &gt;=4)</td>
<td>53.8%</td>
<td>Pain and PTSD only</td>
</tr>
<tr>
<td>PTSD Dx</td>
<td>43.8%</td>
<td>Pain and mTBI only</td>
</tr>
<tr>
<td>mTBI Dx (based on LOC)</td>
<td>26.4%</td>
<td>PTSD and mTBI only</td>
</tr>
<tr>
<td>mTBI only (no pain or PTSD)</td>
<td>2.4%</td>
<td>Pain, PTSD, and mTBI</td>
</tr>
<tr>
<td>PTSD only (no pain or mTBI)</td>
<td>0.8%</td>
<td>Pain and Substance Abuse</td>
</tr>
<tr>
<td>Pain only (no PTSD or mTBI)</td>
<td>44.6 %</td>
<td></td>
</tr>
</tbody>
</table>

CLARK -2010
Symptom Burden 1

![Bar chart showing symptom burden across different conditions and measures](CLARK-2010)
Symptom Burden 2

CLARK -2010
Symptom Burden 3

![Symptom Burden 3 Chart]

CLARK -2010 25
Post-Deployment Multi-symptom Disorder

Post-deployment Multi-symptom Disorder

CLARK -2010
Lew, Otis, Tun, Kerns, Clark, & Cifu, 2009
Sample = 340 OEF/OIF outpatients at Boston VA

Overall prevalence:
Pain 81.5%
TBI 68.2%
PTSD 66.8%
Traumatic Brain Injury, Polytrauma, and Pain: Challenges and Treatment Strategies for the Polytrauma Rehabilitation

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Problems: Chronic pain conditions are common sequelae of traumatic brain injury (TBI). Unfortunately, the incidence of TBI among personnel deployed for Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) is significant, and there is growing evidence that ongoing pain, particularly headache, will be a primary concern for these individuals. Despite this, the current treatment for TBI is complex and includes medical management and pain medication. This article synthesizes empirical data from civilian and military populations and clinical experience with OEF/OIF personnel to provide recommendations for the assessment and treatment of chronic pain among those with TBI. Based on these recommendations, a new model of care is proposed for the treatment of chronic pain.

Keywords: pain, headache, polytrauma, traumatic brain injury, post-traumatic syndrome, posttraumatic stress disorder

Due to improvements in battlefield protection, medical care, and casualty evacuation, survival rates following combat injuries in Afghanistan and Iraq exceed 95% (Clark, Blair, Blankmeyer, Glesne, & Walker, 2010). As a result, many service members with combat-related diagnoses now return to active duty and require medical and rehabilitative care to facilitate tissue healing and maintain long-term functioning. Traumatic brain injuries (TBIs) are one of the most common sequelae of these polytrauma injuries, i.e., injuries that affect two or more body systems or organs, and their frequency appears to be increasing. Whereas the prevalence of TBIs among these underlying conditions for combat injuries during Desert Storm was about 20% (Casey, 1996; Lefebvre, Blood, & Nordin, 1993), initial injury data from Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) indicates that the prevalence of TBIs among those combat injuries during these operations is approximately 35% (Gleason, 2008). This suggests that TBIs are a common sequela.

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RUNNING TITLE: Post-Deployment Multi-Symptom Disorder Management
Integrated Stepped PMD Care

• **Step 1: Post-deployment Clinic**
  - MH orientation and brief screening (all patients)
  - Full screening and brief Tx for mild symptoms
  - Referral for moderate or severe problems

• **Step 2: P3+ Program**
  - Treatment focuses on maximizing QOL
  - Integrated, transdisciplinary care
  - Outcomes driven; eligibility based on adjustment issues rather than Dx

• **Step 3: Specialty Programs** (e.g., PTSD, Pain; TBI)
OEF/OIF PMD Treatment

Post-Deployment Behavioral Health Program

P3+

Substance Abuse
Sleep

Postconcussion

Pain

PTSD
P3+ Team

- **Staff with specialties in**
  - Pain
  - Medicine
  - PTSD
  - TBI
  - SUD
  - Rehabilitation therapies
Stepped Integrated Care Flow

**Step 1:** Post Deployment Clinic

**Step 2:** P3+
- Evaluation/Tx Planning
- Required Core Treatment: Life Needs (Sleep Hygiene, Relaxation Skills; Substance Use Tx)
- Optional Core Treatments: Anger Management, Affect Regulation, Cognitive Adaptation, Relationship Enhancement, Work Skills, Physical Conditioning

**Step 3:** Specialty Programs
- TBI Tx
- Pain Tx
- PTSD Tx
- Substance Abuse Tx
- Voc Rehab

PNS and DoD Referrals
Treatment Directions

• **Extend and refine PMD treatment components**
  - Are core components necessary or sufficient?
  - Enhance efficiency of Tx
    - Develop shared (PTSD and Pain) avoidance behavior inventory
    - Integrate PTSD, Sleep, and Pain treatment
    - Incorporate adaptive cognitive skills into Tx

• **Increase consumer focus**
  - Extended clinic hours (evenings & weekends)
  - Utilize technology and fitness (internet; Wii; gym)
  - Assess Tx outcomes and modify PMD Tx as needed