Prehospital Combat Wound Medication Pack Administration in Iraq and Afghanistan: Department of Defense Trauma Registry Analysis

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Background

• Pain and open wounds common with war injuries
• Lack of analgesia associated with negative outcomes
• Wound prophylaxis for penetrating injury associated with decreased infection rates
Current TCCC Guidance

- For analgesia
  - Mild – mod pain + “still able to fight” = Combat Wound Medication Packet (CWMP)
  - Acetaminophen (Tylenol) 650 mg 2 PO every 8 hours
  - Meloxicam (Mobic) 15 mg 1 PO each day
  - Mod – severe pain = Ketamine, OTC, Morphine

- For “all open wounds”
  - If PO tolerant = CWMP
  - Moxifloxacin 400 mg PO each day
  - If not = Ertapenem

CWMP

- 1996: TCCC guidelines first published
- 2003: Tylenol, Rofecoxib (Vioxx), Gatifloxacin
- 2006: Tylenol, Mobic, Moxifloxacin
  - Rofecoxib withdrawn from market for cardiovascular effects
  - Gatifloxacin withdrawn from market for dysglycemic effects
- 2014: Combat Pill Pack (CPP)
  - Option 1 of the Triple Analgesia Option
- 2017: CWMP
  - Limited published data for administration

Goals of this Study

First, describe casualties that received the CWMP.

Second, evaluate the proportion of casualties who met criteria for CWMP administration that received the intervention.
Methods

- Department of Defense Trauma Registry (DODTR)
- Jan 2007 – Aug 2016
- U.S. service members only
- CWMP or any of its components
- TCCC-based indications for CWMP administration
  - Gunshot wound
  - Tourniquet application
  - Major amputation
  - Open fractures
  - Serious injury to thorax, abdomen or extremities (AISBR >=3)
- USAISR approved (Protocol IH-16-005)

Results

<table>
<thead>
<tr>
<th>DODTR Subjects</th>
<th>38,769</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-defined ED</td>
<td>28,222</td>
</tr>
<tr>
<td>U.S. Military</td>
<td>11,655</td>
</tr>
<tr>
<td>CWMP</td>
<td>84</td>
</tr>
<tr>
<td>No CWMP</td>
<td>11,571</td>
</tr>
</tbody>
</table>

- 1,805 Gunshot Wound
- 14 CWMP
- 1,122 Thoracic Injury
- 3 CWMP
- 803 Amputation
- 5 CWMP
- 2,699 Extremity Injury
- 11 CWMP
- 2,425 Head/Trunk
- 10 CWMP
- 1,912 Lower Extremity
- 11 CWMP
- 796 Abdominal
- 3 CWMP
- 13 U.S. Military
- 1 CWMP

- <1% of subjects with TCCC-based indications for CWMP administration received the intervention
Discussion

- CWMP administration was rare
- Recipients less severely injured
- Consistent with analgesia
- Not antibiotic though
  - >33% non-recipients with blast/GSW to extremities and thorax
  - Perhaps not PO tolerant
  - CWMP subordinated to other life-saving interventions

Discussion

- Pill pack data derived from surveys
  - 96% of 26 Role 1s in Afghanistan did not issue CWMP
  - CWMP limited to Special Operations and Marine Corps forces
  - Previous reports cite theater logistical supply issues and inadequate pre-deployment training as factors

Discussion

- 2 studies of 75th Ranger Regiment only for antibiotic of CWMP
  - 19-21% received antibiotic
  - 75th uniquely high TCCC adherence rates
  - <1% in our study and 7 of 84 (8.3%) were the antibiotic
  - Conventional forces, all services
  - Logistical issues partly responsible
  - Significantly larger data set
Discussion

• Recommend CWMP not individually issued, but supplied to CLS and medics
  • Infrequently utilized
  • Difficult to maintain: field degradation, medication expiration, logistical limitations
  • $11.45 each x millions deployed = tens of millions of dollars

Limitations

• Selection bias—DODTR comprises casualties admitted to surgical MTFs
• Unable to report self, buddy, medic, SOF, conventional, etc administrations
• Available pain scores not reported before or after CWMP
• No wound infection rates available
• Retrospective design reliant on data susceptible to failures of entry, retrieval, and inclusion

Conclusion

• Subjects receiving the CWMP were less severely injured
• CWMP was infrequently administered among the study population

*Note: Pending publication in JSOM*
Questions?

Acknowledgement

• We would like to thank the Joint Trauma System Data Analysis Branch for their efforts with data acquisition

References

References


References


References

24. Goldberg, M.S. Updated death and injury rates of US military personnel during the conflicts in Iraq and Afghanistan. 2014 CONGRESSIONAL BUDGET OFFICE (US CONGRESS) WASHINGTON DC.