Best-practice Pain Management in the Emergency Department: The TARGET Pain Trial

Surrogate endpoints in pain research have limitations

There may be no account of effectiveness of analgesia

e.g. time-to-analgesia may be short but analgesia sub-therapeutic

There have been recent calls for more emphasis on:

• Adequacy of analgesia¹
• Patient satisfaction¹

Hypothesis

- If we decrease pain significantly (by $\geq 2$ on a 0-10 scale)$^1$
- AND
- If we decrease to a mild level (to $<4$ on a 0-10 scale)$^2$

We would provide ‘Adequate Analgesia’

Result: more patients would be ‘very satisfied’

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$^1$Kelly AM. Setting the benchmark for research in the management of acute pain Emerg Med (Fremantle) 2001; 13: 57-60

$^2$Todd KH et al. Pain in the ED: results of the pain and emergency medicine initiative (PEMI). J Pain 2007; 8: 460-6
Our 2 earlier studies show that if patients receive ‘adequate analgesia’ (as defined in our hypothesis), their odds of being very satisfied are significantly increased.

<table>
<thead>
<tr>
<th>Study</th>
<th>n</th>
<th>OR (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot observational study¹</td>
<td>167</td>
<td>2.1 (1.1-3.9)</td>
<td>0.03</td>
</tr>
<tr>
<td>Cohort study²</td>
<td>476</td>
<td>7.8 (4.9-12.4)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

¹Emerg Med Australas 2011; 23: 195-201
²Acad Emerg Med 2012; 19: 1212-1215
What if we strive to provide ‘Adequate Analgesia’?

We ran a national, multi-centre, cluster-randomised, controlled, clinical intervention trial

Between June 2013 – March 2014

In 9 EDs across Australia

- Late intervention cluster : 4 EDs
- Early intervention cluster : 5 EDs

Enrolled adults with pain $\geq 4$ at triage
Methods

The Intervention was:

• Provision of ‘Adequate Analgesia’ to all patients
  • Aim to get their pain score down by $\geq 2$ and to $<4$

• We had project clinical champions

• We provided staff education
  • in-service lectures
  • e-learning packages
  • email reminders

• TARGET posters around the ED
Methods

Data Collection Periods

Late intervention cluster

Early intervention cluster

0 months 3 months 6 months

Green indicates intervention period
Methods

Data Collection

• Undertaken at 0, 3 and 6 months

In the ED:
• demographics
• pain scores every 30 min
• analgesia provided

Follow up at 48 hours:
• blinded
• satisfaction with pain management
  • 6 point scale
  • very dissatisfied – very satisfied
• specific advice about pain
The Primary Endpoint was:

- Patient satisfaction with their pain management
  (we expected a 40% to 55% increase in being very satisfied post-intervention in the early cluster)

Secondary Endpoints:

- Proportion of patients provided ‘adequate analgesia’
- Sustainability of the intervention
- Variables associated with being ‘very satisfied’
Results

1. **Logistic Regression**  (controlling for site, other confounders)

<table>
<thead>
<tr>
<th></th>
<th>0 months</th>
<th>3 months</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late intervention cluster OR (95%CI)</td>
<td>1</td>
<td>0.8 (0.5, 1.3)</td>
<td>0.35</td>
</tr>
<tr>
<td>Early intervention cluster OR (95%CI)</td>
<td>1</td>
<td>2.2 (1.5, 3.4)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

**Conclusion:**
Satisfaction unchanged in the late cluster when there was no intervention
Satisfaction increased significantly in the early cluster with the intervention
Methods (pooled data)

2. We pooled Data from both clusters:
   • All data pre-intervention were pooled
   • All data after 3 months of intervention were pooled
   • We then compared % patients who were ‘very satisfied’ pre- and post-intervention
Results (pooled data)

<table>
<thead>
<tr>
<th>variable</th>
<th>Pre-intervention (n=431)</th>
<th>Post-intervention (n=447)</th>
<th>p</th>
</tr>
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<tbody>
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<td>Primary Endpoint</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very satisfied with pain management, n (%)</td>
<td>185 (42.9)</td>
<td>241 (53.9)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Conclusion:
The % patients ‘very satisfied’ increased significantly with the intervention
Results (pooled data) - graphically

![Graph showing proportion (95% CI) very satisfied over time from the beginning of the intervention.](image-url)
## Results (pooled data)

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<td><strong>Secondary Endpoints</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate analgesia administered, n (%)</td>
<td>218 (50.6)</td>
<td>218 (48.8)</td>
<td>0.64</td>
</tr>
<tr>
<td>Pain advice from staff, n (%)</td>
<td>346 (80.5)</td>
<td>385 (86.1)</td>
<td>0.03</td>
</tr>
<tr>
<td>Any analgesia administered, n (%)</td>
<td>351 (81.4)</td>
<td>371 (83.0)</td>
<td>0.61</td>
</tr>
<tr>
<td>Simple analgesia administered, n (%)</td>
<td>275 (63.8)</td>
<td>294 (65.8)</td>
<td>0.59</td>
</tr>
<tr>
<td>Oral opioid administered, n (%)</td>
<td>119 (27.6)</td>
<td>117 (26.2)</td>
<td>0.69</td>
</tr>
<tr>
<td>Parenteral opioid administered, n (%)</td>
<td>102 (23.7)</td>
<td>89 (19.9)</td>
<td>0.21</td>
</tr>
<tr>
<td>Time to first analgesia, median (IQR)</td>
<td>37 (53)</td>
<td>31 (50)</td>
<td>0.18</td>
</tr>
<tr>
<td>Time to adequate analgesia, n (%)</td>
<td>90 (68)</td>
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<td>0.99</td>
</tr>
</tbody>
</table>
3. We undertook Logistic Regression to indentify variables associated with being ‘very satisfied’

<table>
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<tr>
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<th>classification</th>
<th>OR (95%CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate analgesia</td>
<td>not administered</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>administered</td>
<td>1.42 (1.12-1.80)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Advice from staff regarding pain</td>
<td>not provided</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>provided</td>
<td>4.01 (2.86-5.62)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Conclusion:
The odds of being ‘very satisfied’ are significantly increased if patients get ‘adequate analgesia’ or ‘specific pain advice’
Conclusion

- Striving to provide ‘adequate analgesia’ increases patient satisfaction
  - However, it was not related to actual provision
  - More subtle - better communication
    - times to analgesia
    - pain score measurement

- Promise as a clinical target:
  - clinically relevant, achievable endpoint
Acknowledgements

- Auspices of the Clinical Trails Group
  (Australasian College for Emergency Medicine)

- Funded by the Morson Taylor Award
  (Australasian College for Emergency Medicine)