TOWARDS THE DEVELOPMENT OF A CORE OUTCOME SET IN PEDIATRIC POST-OPERATIVE PAIN TRIALS

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Why Study Pediatric Post-operative Pain?

- Pain assessment is an important aspect of post-operative patient care (Poobalan 2003)
- Accurate assessment drives pain management decisions such as whether analgesic dose changes are needed or whether changes to the management plan are warranted (Chou 2008)
- Evaluating it in the most consistent way possible across a continuum of care is an important therapeutic goal
Core outcomes are the minimum set of outcomes that patients and professionals agree should be measured in all trials of a certain condition (Williamson et. al.)

Core outcome sets provide a way of stabilizing outcome domains that can be used in post-operative pain trials.

Aim to facilitate comparison of results across trials and synthesis of results in meta-analyses.

There has been no systematic evaluation of outcomes reported in pediatric post-operative pain trials to provide a foundation for the future development of a core outcome set.

Key issues to consider in the development of a core outcome set include its scope, the stakeholder groups to involve, choice of consensus method and the achievement of a consensus (Williamson 2012).
Outcome Reporting Bias

- “the results-based selection for publication of a subset of the original measured outcome variables” (Kirkham 2010)
- A high degree of outcome reporting bias has been noted in the literature (Williamson 2014)
- To avoid outcome reporting bias we chose to systematically evaluate the outcomes reported in the trial registry clinicaltrials.gov.
Methods

- Collaborated with a research librarian to gather initial set of trial registries.

- Search thread→Trials investigating pain management of postoperative pain in pediatric patients.

- Four authors individually screened and validated the preliminary set of gathered trials for eligibility. Any discrepancies/duplicates were adjudicated by discussion between the authors.

- We consulted several sources when developing the abstraction manual (Page et al., McNair et al.).

Results were then coded onto Google Doc.
Methods

- Once abstraction manual was developed the authors extracted the following elements from the registries:

<table>
<thead>
<tr>
<th>Procedure type</th>
<th>Phase of trail</th>
<th>Study type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Design</td>
<td>Sample size</td>
<td>Primary or secondary outcomes</td>
</tr>
<tr>
<td>Measurement device</td>
<td>Metric</td>
<td>Method of aggregation</td>
</tr>
</tbody>
</table>

- Two pairs of authors coded the initial set, while subsequently validating the other authors results for accuracy.

- After discrepancies were resolved amongst different coders, AR and JY jointly reviewed all abstracted data from all authors a third time together to ensure the accuracy and integrity of the data for this study.
Methods

- Final outcomes were then standardized to improve the consistency of naming. Many outcomes from different studies measured the same thing but worded each outcome differently.

- After the outcomes had been standardized, we placed them into one of twelve broader domains that were developed in conjunction with a board certified anesthesiologist, Dr. Amy Stafford MD.

<table>
<thead>
<tr>
<th>Post-operative Analgesia</th>
<th>Pain Assessment</th>
<th>Unexpected Events</th>
<th>Anesthetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Measures</td>
<td>Vital Signs</td>
<td>Pharmacological</td>
<td>Recovery</td>
</tr>
<tr>
<td>Post-operative time</td>
<td>Morbidity</td>
<td>Intra-operative</td>
<td>Other</td>
</tr>
</tbody>
</table>
Methods

- After data collection and outcome categorization we summarized results using frequencies and percentages for outcomes and Stata 13.1 was used to produce descriptive statistics for study results.
Results

- A total of 300 titles and abstracts were identified and screened through clinicaltrials.gov with 135 not meeting research criteria, 14 were excluded for ineligible intervention.
- 151 studies were included for qualitative synthesis.
- Almost one-half of the trials ($n = 74, 49\%$) included for this review were completed. The remaining trials were at various stages, with 35 of those remaining trials in the recruiting stage. The overwhelming majority ($n = 138$ trials, $91\%$) were interventions, with the remaining trials either observational epidemiological, or diagnostic accuracy.
Results

- As expected, the most commonly reported outcome was some form of pain measurement ($n=116, 21\%$), followed by total post-operative analgesic dosage ($n=67, 12\%$), and the amount of time to rescue medication ($n=20, 4\%$).

- There was an average of 4 outcomes reported per study, with a range between 1 and 15 outcomes reported per study.

- The majority of devices used to describe domains ($n=9, 75\%$) were unclear or unknown.

- “Unclear” Metrics comprised more than a $\frac{1}{4}$ of all outcomes studies.
Discussion

- Heterogeneity of reported outcomes creates problems in comparison among separate trials, hindering synthesis of a core outcome set in pediatric post-operative pain.

- The obvious lack of complete reporting in clinicaltrials.gov impedes systematic reviewers utilizing the content of the registry while also taking away the usefulness of the registry as a public information database.

- Adequate reporting of outcome measurements could prevent certain biases (i.e. publication bias) in ongoing clinical trials and reviews utilizing clinicaltrials.gov.
Limitations

- Although there is a risk for outcome reporting bias in published literature, the literature needs to be searched in order to get a more complete view of outcomes reported in pediatric post-operative pain.

- Subjective nature of pain and differences in developmental status of pediatric patients makes it a difficult topic to study.

- The timeframe of when measurements were taken could have an effect on the outcomes produced in the study.

- Procedural protocols regarding pain management evolve over time, making pain assessment still more difficult.
References


- Williamson PR, Altman D, Blazeby J, Clark M, Devane D, Gargon E, Tugwell P. Developing core outcome sets for clinical trials; issues to consider. Trials. 2012 13(132)

