Acute postoperative pain in adults

Critical elements for pain reporting in systematic reviews & meta-analyses

Cochrane Pain, Palliative and Supportive Care

This guide aims at helping those performing systematic reviews in adults (especially Cochrane Reviews) to avoid known pitfalls for acute pain. Each point is based firmly on evidence from pain analyses.

STUDY DESIGN
Elements that strongly affect efficacy

Randomisation
Is the study randomised?

Include studies where the words 'random', 'randomly', or 'randomisation' are explicit

Sensitivity analysis recommended

Non-randomised studies can overestimate efficacy

FUNDAMENTALS Slide set 4

Double-blinding
Is the study double blind?

Include studies where the word 'double-blinding' is explicit, or where neither the care giver nor the patient could identify the treatment being assessed

Sensitivity analysis recommended

Non-double-blinded studies can overestimate efficacy

FUNDAMENTALS Slide set 4

Pain measuring
Who measures pain ?

Include studies where participants are adults, able to communicate & measure their own pain

Pain measurements by someone other than the person with pain can be underestimated

MEASURING POSTOP PAIN Slide set 2

Level of initial pain
Is pain before treatment moderate or severe?

Include studies where pain levels are at least moderate, to ensure sensitivity

Sensitivity analysis recommended

Where initial pain is not at least moderate in intensity there is a lack of sensitivity, and analgesic effects can be underestimated

MEASURING POSTOP PAIN Slide set 2

LESSONS IN PRACTICE Slide set 7

Diagnostic criteria
Is the pain condition defined with standard or specific criteria?

Check for consistency across studies & report inconsistencies

Response of pain to analgesic interventions can vary according to the pain condition studied (drug vs placebo)

Withdrawals
How does the study deal with withdrawals in data analysis?

BOCF (baseline-observation-carried-forward) is the most conservative method

Sensitivity analysis recommended when using different methods

Common methods such as "completers" or "per protocol" analysis, or imputing missing data using LOCF can overestimate treatment effects

FUNDAMENTALS Slide set 4

STUDY OUTCOMES
Important considerations

OUTCOMES Slide set 3

Averages
Pain scores or change in pain

Responder analyses are preferable and typically bimodal – good/very good or poor/very poor

Average pain scores can be misleading if treatment outcomes are not normally distributed

Pain reduction
Number of persons responding to pain reduction

Measuring end points can be useful – for example, the number/ proportion of participants with ≥50% pain intensity reduction, ≥50% pain relief, numbers of persons with no worse than mild pain

Analgesia duration
Measures relating to the duration of analgesia

Examples include –
how long before additional analgesia is given,
percentage of participants remedicating by a particular time

Analgesic consumption
Measures relating to analgesic consumption

Desirable outcome –
Reduced postoperative analgesic consumption resulting from a perioperative intervention

Analgesic consumption postoperatively has a highly skewed distribution, differences of a few mg in mean opioid consumption may be statistically significant, but of no clinical value

Adverse events
Significant adverse events

Consider the information of how adverse events were measured and categorised/ classified within the study as this can substantially impact the results

Post-operative nausea & vomiting can be distressing and time consuming

Hospital stay
Duration of hospital stay

Use this outcome with caution

Few studies give sufficient detail to be certain about the robustness of this outcome

STUDY MAGNITUDE
Caution for possible bias

Study size
Number of participants per treatment arm

Prefer intermediate (50-199 participants per treatment arm) or large (≥200 participants per treatment arm) size studies

Sensitivity analysis recommended to explore the impact of including small studies

Small studies (<50 participants per treatment arm) can overestimate treatment effects, especially in pain

STUDY SIZE Slide set 5

LESSONS IN PRACTICE Slide set 7

Publication bias
Is there susceptibility to publication bias?

The risk of publication bias increases where small studies dominate the evidence

Small numbers of small studies & minimal clinical effectiveness show high susceptibility to publication bias

PUBLICATION BIAS Slide set 6

Cochrane Musculoskeletal, Oral, Skin and Sensory

FULL RESOURCES — This is a simplified version; users are encouraged to access the full resources