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Review

Executive summary

Postoperative analgesia and vomiting, with special reference to day-case surgery: a systematic review

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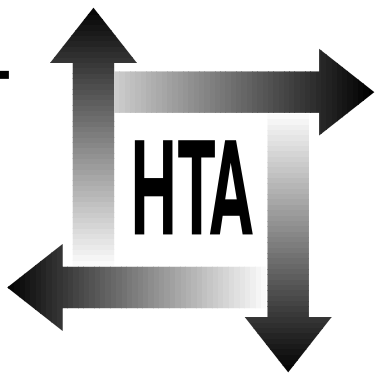

Executive summary

Background

Day-case surgery is of great value to patients and the health service. It enables many more patients to be treated properly, and faster than before. Newer, less invasive, operative techniques will allow many more procedures to be carried out.

There are many elements to successful day-case surgery. Two key components are the effectiveness of the control of pain after the operation, and the effectiveness of measures to minimise postoperative nausea and vomiting.

Objectives

To enable those caring for patients undergoing day-case surgery to make the best choices for their patients and the health service, this review sought the highest quality evidence on:

- the effectiveness of the control of pain after an operation
- the effectiveness of measures to minimise postoperative nausea and vomiting.

Methods

Full details of the search strategy are presented in the report.

Results

Analgesia

The systematic reviews of the literature explored whether different interventions work and, if they do work, how well they work. A number of conclusions can be drawn.

Ineffective interventions

There is good evidence that some interventions are ineffective. They include:

- transcutaneous electrical nerve stimulation in acute postoperative pain
- the use of local injections of opioids at sites other than the knee joint
- the use of dihydrocodeine, 30 mg, in acute postoperative pain (it is no better than placebo).

Interventions of doubtful value

Some interventions may be effective but the size of the effect or the complication of undertaking them confers no measurable benefit over conventional methods. Such interventions include:

- injecting morphine into the knee joint after surgery: there is a small analgesic benefit which may last for up to 24 hours but there is no clear evidence that the size of the benefit is of any clinical value
- manoeuvres to try and anticipate pain by using pre-emptive analgesia; these are no more effective than standard methods
- administering non-steroidal anti-inflammatory drugs (NSAIDs) by injection or per rectum in patients who can swallow; this appears to be no more effective than giving NSAIDs by mouth and, indeed, may do more harm than good
- administering codeine in single doses; this has poor analgesic efficacy.

Interventions of proven value

These include a number of oral analgesics including (at standard doses):

- dextropropoxyphene
- tramadol
- paracetamol
- ibuprofen
- diclofenac.

Diclofenac and ibuprofen at standard doses give analgesia equivalent to that obtained with 10 mg of intramuscular morphine. Each will provide at least 50% pain relief from a single oral dose in patients with moderate or severe postoperative pain. Paracetamol and codeine combinations also appear to be highly effective, although there is little information on the standard doses used in the UK. The relative effectiveness of these analgesics is compared in an effectiveness 'ladder' which can inform prescribers making choices for individual patients, or planning day-case surgery. Dose–response relationships show that higher doses of ibuprofen may be particularly effective.

Topical NSAIDs (applied to the skin) are effective in minor injuries and chronic pain but there is no obvious role for them in day-case surgery.

Postoperative nausea and vomiting

The proportion of patients who may feel nauseated or vomit after surgery is very variable, despite similar operations and anaesthetic techniques. Systematic review can still lead to clear estimations of effectiveness of interventions. Whichever anti-emetic is used, the choice is often between prophylactic use (trying to prevent anyone vomiting) and treating those people who do feel nauseated or who may vomit.

Systematic reviews of a number of different anti-emetics show clearly that none of the anti-emetics is sufficiently effective to be used for prophylaxis. Moreover, a cost-effectiveness analysis shows that prophylaxis, especially with newer anti-emetics, not only does not prevent any more people from vomiting or feeling nauseated than treating established nausea or vomiting, but exposes patients to considerably more drug at considerably higher cost.

Conclusions

This report has focused on two elements of day-case care. It is clear that the economics of day-case work require that the vast majority of patients are fit to go home and that, once home, they do not have to return to hospital or seek advice from the primary care team. To date, audits at local level have identified both pain and nausea and vomiting as problems. Providing adequate analgesia may be easier than guaranteeing minimal nausea and vomiting. The package of care in day-case surgery needs to be revisited regularly lest surgical interventions are the cause of increased hospitalisation and returns.

Research recommendations

- To extend the number of systematic reviews to include other analgesics, including the newer NSAIDs. This would provide a more comprehensive ladder of relative efficacy. It is unlikely that large 'head-to-head' comparisons of analgesics in randomised controlled trials would provide more useful information.
- To establish pilot audits of the implementation of the information included in this report; both before and after audits are needed to put the existing evidence into clinical practice to good effect.
- To investigate the effect of randomness in clinical trials. Because there are substantial numbers of analgesic trials and they are usually performed using standard methods and including patients with similar entry criteria (moderate or severe pain), they may be usefully studied to examine the effects of randomness in clinical trials. Variability between trials is large and understanding the effects of chance would help to inform us of how large trials need to be to give an accurate clinical feel for a new drug.
- To investigate how to minimise postoperative nausea and vomiting. This varies considerably between trials and may be the result of random chance, but it is just as likely that components of the overall package of care other than anaesthesia or anti-emetics are important. There is an obvious and important research agenda here in understanding how best to minimise postoperative nausea and vomiting. However, this is a complex area which will not easily be understood.

Publication

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NHS R&D HTA Programme

The overall aim of the NHS R&D Health Technology Assessment (HTA) programme is to ensure that high-quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage and work in the NHS. Research is undertaken in those areas where the evidence will lead to the greatest benefits to patients, either through improved patient outcomes or the most efficient use of NHS resources.

The Standing Group on Health Technology advises on national priorities for health technology assessment. Six advisory panels assist the Standing Group in identifying and prioritising projects. These priorities are then considered by the HTA Commissioning Board supported by the National Coordinating Centre for HTA (NCCHTA).

This report is one of a series covering acute care, diagnostics and imaging, methodology, pharmaceuticals, population screening, and primary and community care. It was identified as a priority by the Pharmaceutical Panel and funded as project number 94/11/04.

The views expressed in this publication are those of the authors and not necessarily those of the Standing Group, the Commissioning Board, the Panel members or the Department of Health. The editors wish to emphasise that funding and publication of this research by the NHS should not be taken as implicit support for the recommendations for policy contained herein. In particular, policy options in the area of screening will, in England, be considered by the National Screening Committee. This Committee, chaired by the Chief Medical Officer, will take into account the views expressed here, further available evidence and other relevant considerations.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search, appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

The editors have tried to ensure the accuracy of this report but cannot accept responsibility for any errors or omissions. They would like to thank the referees for their constructive comments on the draft document.

Copies of this report can be obtained from:

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