Effectiveness of pre-emptive analgesia is unproven


Objective
To determine whether analgesics given before surgery (pre-emptive) offer better pain control than analgesics given after surgery.

Data Sources
Studies were identified in MEDLINE (1966 to 1994). The 50 journals with the greatest number of studies in MEDLINE and 9 selected specialist journals were handsearched.

Study Selection
Studies were selected if they were randomised controlled trials (RCTs) that compared the outcome when analgesics were given before surgical incision with the outcome when the same medication was given after surgical incision. Studies that compared pre-emptive analgesia with no analgesia or that compared pre-emptive analgesia with pre-emptive analgesia plus analgesia given after surgery were excluded. 15 studies that included 704 patients met the inclusion criteria.

Data Extraction
Data were extracted that pertained to study design; type of surgery; type, dosage, and scheduling of pain medication; and outcome measures (categorical pain intensity score, visual analog scale of pain intensity, time to first analgesia, and time to patient-controlled analgesia). Studies were divided into 3 drug classes (nonsteroidal anti-inflammatory drugs [NSAIDs], 4; local anaesthetic, 7; and opioids, 4).

Main Results
3 RCTs compared NSAIDs and 1 compared paracetamol given before and after surgery. None of the trials showed pre-emptive analgesia to have a beneficial effect in pain control compared with the same medications given after surgery. 7 trials compared local anaesthetic given before and during or after surgery (epidural, 4; nerve block, 1; and infiltration, 2). 1 trial showed delayed time to first request for pain medication in patients who received pre-emptive local anaesthetic infiltration compared with patients who received infiltration before closure. Of 4 studies that compared opioid administration before and during surgery, 1 showed that patients who received a lumbar epidural before surgery had lower visual analog scale of pain intensity scores 6 hours after surgery, 1 showed decreased patient-controlled morphine consumption within 24 hours of surgery, and 1 showed lower categorical pain intensity scores at the time of remedication. A fourth study showed a higher pain score in patients who received pre-emptive intravenous alfentanil compared with patients who received it after skin incision.

Conclusion
Studies that compare outcomes when the same pain medication is given before, after, or during surgery show no beneficial pre-emptive effect of nonsteroidal anti-inflammatory drugs, a benefit in 1 study of local anaesthetic given pre-emptively, and modest effects of opioids given pre-emptively in 3 studies, but a negative effect in a fourth.

Source of funding: Not stated.
For article reprint: Dr. HJ McQuay, Oxford Pain Relief Unit, Churchill Hospital, Oxford, OX3 7LJ, England, UK. FAX 44-1865-226-060.

References

Effectiveness of pre-emptive analgesia is unproven


Objective
To determine whether analgesics given before surgery (pre-emptive) offer better pain control than analgesics given after surgery.

Data Sources
Studies were identified in MEDLINE (1966 to 1994). The 50 journals with the greatest number of studies in MEDLINE and 9 selected specialist journals were handsearched.

Study Selection
Studies were selected if they were randomised controlled trials (RCTs) that compared the outcome when analgesics were given before surgical incision with the outcome when the same medication was given after surgical incision. Studies that compared pre-emptive analgesia with no analgesia or that compared pre-emptive analgesia with pre-emptive analgesia plus analgesia given after surgery were excluded. 15 studies that included 704 patients met the inclusion criteria.

Data Extraction
Data were extracted that pertained to study design; type of surgery; type, dosage, and scheduling of pain medication; and outcome measures (categorical pain intensity score, visual analog scale of pain intensity, time to first analgesia, and time to patient-controlled analgesia). Studies were divided into 3 drug classes (nonsteroidal anti-inflammatory drugs [NSAIDs], 4; local anaesthetic, 7; and opioids, 4).

Main Results
3 RCTs compared NSAIDs and 1 compared paracetamol given before and after surgery. None of the trials showed pre-emptive analgesia to have a beneficial effect in pain control compared with the same medications given after surgery. 7 trials compared local anaesthetic given before and during or after surgery (epidural, 4; nerve block, 1; and infiltration, 2). 1 trial showed delayed time to first request for pain medication in patients who received pre-emptive local anaesthetic infiltration compared with patients who received infiltration before closure. Of 4 studies that compared opioid administration before and during surgery, 1 showed that patients who received a lumbar epidural before surgery had lower visual analog scale of pain intensity scores 6 hours after surgery, 1 showed decreased patient-controlled morphine consumption within 24 hours of surgery, and 1 showed lower categorical pain intensity scores at the time of remedication. A fourth study showed a higher pain score in patients who received pre-emptive intravenous alfentanil compared with patients who received it after skin incision.

Conclusion
Studies that compare outcomes when the same pain medication is given before, after, or during surgery show no beneficial pre-emptive effect of nonsteroidal anti-inflammatory drugs, a benefit in 1 study of local anaesthetic given pre-emptively, and modest effects of opioids given pre-emptively in 3 studies, but a negative effect in a fourth.

Source of funding: Not stated.
For article reprint: Dr. HJ McQuay, Oxford Pain Relief Unit, Churchill Hospital, Oxford, OX3 7LJ, England, UK. FAX 44-1865-226-060.

References
Effectiveness of pre-emptive analgesia is unproven

_Evid Based Med_ 1996 1: 50
doi: 10.1136/ebm.1996.1.50

Updated information and services can be found at:
_http://ebm.bmj.com/content/1/2/50.citation_

These include:

**References**
This article cites 1 articles, 0 of which you can access for free at:
_http://ebm.bmj.com/content/1/2/50.citation#BIBL_

**Email alerting service**
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

---

To request permissions go to:
_http://group.bmj.com/group/rights-licensing/permissions_

To order reprints go to:
_http://journals.bmj.com/cgi/reprintform_

To subscribe to BMJ go to:
_http://group.bmj.com/subscribe/_.

Notes