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Oral ibuprofen for acute postoperative pain

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Abstract: In this short communication we wanted to find out what is the analgesic effect of single dose oral Ibuprofen for adults with postoperative pain? Ibuprofen at 200mg and 400mg are effective in producing at least 50% pain relief in patients with moderate to severe postoperative pain (at least 30mm on a VAS). They are safe to use without common adverse effects. The use of Ibuprofen 200mg or 400mg should be considered as standard practice or protocol for pain relief in post-operative settings. Clinicians should consider a range of factors before prescribing or administering Ibuprofen for acute post-operative pain, including but not limited to, the duration of pain relief with Ibuprofen of different doses, Ibuprofen formulation, cost and patient preference.

Keywords: Analgesia, ibuprofen, non-steroidal anti-inflammatory, post-operative pain, systematic review

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INTRODUCTION

The research question, which was posed in order to conduct the review was simple: What is the analgesic effect of single dose oral Ibuprofen for adults with postoperative pain?

Relevance for nursing

Ibuprofen is a type of non-steroidal anti-inflammatory drug (NSAID), extensively used worldwide for pain relief and inflammation in both acute and chronic conditions. This medication is commonly prescribed and administered by clinicians for acute postoperative pain. This review focuses on providing updated information (up to May 2009) in relation to the analgesic efficacy for acute postoperative pain.

Study characteristics

This review included 72 studies containing a total of 9186 participants. All studies were randomised double-blinded trials comparing a single dose oral ibuprofen against placebo for the treatment of moderate to severe postoperative pain in adults. The age requirement of this review was 15 years and above. The majority of the included studies were assessed as high quality in their reporting. The levels of pain were measured as pain relief or pain

intensity, expressed hourly over 4 to 6 hours using validated pain scales. Moderate pain was defined as greater than 30 mm on the Visual Analogue Scale (VAS). There were no specified dosage requirements in the inclusion criteria. Although various doses were used for comparison in these studies (50 mg, 100 mg, 200 mg, 400 mg, 600 mg and 800 mg), the bulk of information concerned ibuprofen 200 mg (25 treatment arms) and 400 mg (67 treatment arms). Fifty seven studies were conducted in participants with dental pain post surgical extraction of one or more impacted third molars. Thirteen studies were undertaken in participants with pain following general surgery, tonsillectomy, hernia repair, obstetric surgery, gynaecological surgery, abdominal surgery, pelvic surgery and orthopaedic surgery.

Summary of key evidence

- With data of 2,690 participants in 25 studies, ibuprofen 200 mg was effective in achieving at least 50% pain relief compared with placebo, with a significant effect size, Risk Ratio=4.6 (95% CI:3.9, 5.6, $p<0.0001$). A total of 46% had at least 50% of pain relief over 4 to 6 hours. Number-needed-to-treat for at least 50% pain relief over 4 to 6 hours was 2.7 (2.5 to 3.0).
- With data of 6,475 participants in 67 studies, Ibuprofen 400 mg was effective in achieving at least 50% pain relief compared with placebo, with a significant effect size, Risk Ratio=3.9 (95% CI: 3.6-4.4, $p<0.00001$). A total of 54% had at least 50% of pain relief over 4 to 6 hours. Number-needed-to-treat for at least 50% pain relief over 4 to 6 hours was 2.5 (2.4-2.6).
- In terms of “time to use of rescue medication” (time taken before asking for another pain medication), the median time of Ibuprofen 200 mg was 4.7 hours, and 5.6 hours for Ibuprofen 400 mg.
- A series of sensitivity analyses demonstrated that better efficacy estimates were yielded in those who had dental surgery compared to other types of surgery, as well as soluble Ibuprofen salts.
- Adverse effects associated with Ibuprofen were uncommon, and there was no difference between Ibuprofen and placebo.

Best practice recommendations

- Ibuprofen at 200mg and 400mg are effective in producing at least 50% pain relief in patients with moderate to severe postoperative pain (at least 30mm on a VAS)
- They are safe to use without common adverse effects. The use of Ibuprofen 200mg or 400mg should be considered as standard practice or protocol for pain relief in post-operative settings.
- Clinicians should consider a range of factors before prescribing or administering Ibuprofen for acute post-operative pain, including but not limited to, the duration of pain relief with Ibuprofen of different doses, Ibuprofen formulation, cost and patient preference.

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