Paracetamol for pain relief after surgical removal of lower wisdom teeth

The surgical removal of wisdom teeth (third molars) is the most commonly performed surgical procedure undertaken in oral surgery practice. Postoperative complications may include swelling, bruising and limited mouth opening but patients are most often concerned about postoperative pain, which may be severe.

Paracetamol is effective in relieving pain with a low incidence of adverse effects. It is one of the most commonly used analgesics and is widely available without prescription around the world. In this review we investigated the optimal dose of paracetamol and the optimal time for drug administration to provide pain relief after the surgical removal of wisdom teeth. The side effects of different doses of the drug were also explored.

Twenty-one trials (with over 2000 participants) were included.

The results show paracetamol to be an effective analgesia for use following third molar surgery. The number needed to treat (to benefit) (NNTs) and number needed to treat to harm (NNTHs) support the use of 1000 mg as an optimal dose.

It is effective over both 4 and 6 hours. In considering the use of pain relief, or pain intensity difference as a measure of efficacy it was of interest that metaregression showed that pain relief scales showed a statistically significant difference for increased dose, and pain intensity did not. It is acknowledged that this review only considered single dose studies when considering efficacy, multidosed studies may be considered when updating the review.

The NNTs and NNTHs found in this review are similar to those recorded by a systematic review (Barden J 2004) where they investigated paracetamol for pain involving various types of surgery. This would confirm yet again the value of the third molar pain model, showing that dental pain is comparable with pain from other sources.

The implementation of NICE (National Institute for Health and Clinical Excellence) Guidelines for removal of third molars has led to a decrease in the performance of this surgery, which may have an adverse effect on the number of trials able to use the third molar model. In the United States of America such guidelines have not yet been adopted. It is of interest that in striving to provide evidence based treatment the opportunity for research using the third molar pain model may be adversely affected.

The data available for adverse events show that NNTH for < 1000 mg of paracetamol is 33 (14.3 to infinity), for 1000 mg of paracetamol is 33 (12.5 to infinity) and for all doses 33 (14.3 to infinity), suggesting it is an extremely safe drug. Only one severe adverse event was recorded by any researchers, and that was a severe headache (Olson 2001), two other participants stopped taking paracetamol because of vomiting.

However there was a high degree of inconsistency across the trials in the way that adverse events were recorded, raising the concern that only adverse events considered by the researchers to be attributable to paracetamol were recorded, with some trials recording many AEs and some reporting none.

The diverse way in which adverse events were recorded led to there being over 20 categories of adverse events. The main categories are shown in Additional **Table 1**. Of interest are adverse events where placebo scored more highly than paracetamol, which could suggest that paracetamol may possibly have a beneficial effect eg dry socket, but this would require further investigation.

Table 1. List of adverse events

Adverse events	Paracetamol	Placebo
Nausea	21	11
Vomiting	11	3
Nausea and/or vomiting, stomach cramps, abdominal pain	3	3
Headache	47	31
Drowsiness, sleepiness, somnolence	36	13
Dizziness, fainting, syncope	9	4
Bleeding	11	7
Chills, flushes, fever, flu-like symptoms	5	0
Paraesthesia	4	2
Jawache	1	0
Swelling	1	6
Cellulitis	1	0
Dry socket	11	12
Surgical complications	6	13
CNS	5	6
GI	12	2
Body as a whole	8	3
Respiratory	2	0
Psychiatric	0	1
Other, hiccups, hearing/vestibular, miosis,	5	1

As all patients had surgery, and various combinations of local anaesthesia, general anaesthesia, and sedation making it difficult to ascertain which effects are directly related to the intervention. However the results strongly support the use of paracetamol in doses up to 1000 mg as a safe effective analgesia.

The efficacy of paracetamol decreases with times, and the recommended interval between doses is 8 hours, which would suggest there may be some benefit in a slow release formulation. None of the studies in this trial used a slow release formulation, but a trial (Coulthard 2001) compared sustained release and standard release formulations of paracetamol and found that the sustained release was statistically significantly more effective at 6 and 8 hours, with no loss of efficacy at 4 hours. Safety for both formulations was comparable, making sustained release paracetamol a safe and effective choice.

Reference

Kiaran Weil[1], Lee Hooper[2], Zahid Afzal[3], Marco Esposito[4], Helen V Worthington[4], Arjen van Wijk[5], Paul Coulthard[1]

1 Department of Oral and Maxillofacial Surgery, School of Dentistry, The University of Manchester, Manchester, UK.

2 Norwich Medical School, University of East Anglia, Norwich, UK.

3 Oral and Maxillofacial Surgery, City Hospital, Birmingham, UK.

4 Cochrane Oral Health Group, School of Dentistry, The University of Manchester, Manchester, UK.

5 Social Dentistry and Behavioural Sciences, Academic Centre for Dentistry Amsterdam (ACTA), Amsterdam, Netherlands

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