Objective & Methodology:

Publication objective is to provide an overview of efficacy and safety of paracetamol as analgesic in adults in primary care settings.

Systematic reviews (comparing paracetamol versus placebo in adults) searched from Cochrane Library, MEDLINE and EMBASE until January 2019, and recent clinical guidelines.

Discussion:

Paracetamol effectiveness

Currently, paracetamol is the mainstay analgesic with a long history of use and has been studied extensively for the relief of mild to moderate pain. Several evidences have shown the efficacy of paracetamol in multiple pain indications.

The high-quality evidence has demonstrated paracetamol (single dose of 1000 mg) as an effective treatment in tension-type headache within two hours of administration. A systematic review comprising 6 RCTs and 2162 participants, has found paracetamol to be similar efficacious to other NSAIDs in the treatment of headache. Paracetamol (1000 mg, single dose) was further shown to be effective in treating acute migraine headache, however, the quality of evidence was low with a smaller effect size than other commonly used analgesics. Paracetamol is also used in post-surgical dental pain, though evidence suggests its inferior efficacy to ibuprofen for such condition.

Studies have shown the uncertain benefits of paracetamol in musculoskeletal pain conditions. High-quality evidence from Cochrane review showed that immediate and short term (up to 12 weeks) treatment of paracetamol does not provide clinically important improvement in musculoskeletal conditions like knee or hip osteoarthritis. However, the comparative evaluation of paracetamol to other NSAIDs have shown mixed results in such conditions. A recent network meta-analysis showed paracetamol to be inferior to celecoxib and the glucosamine and chondroitin combination for the treatment of knee or hip OA. However, yet another review showed similar efficacy to NSAIDs for OA treatment.

A case presented in this article is about a 65-year old overweight and physically inactive male suffering from OA knee pain. The GP advised the use of paracetamol and consider adding topical NSAID/ heat pack for better control of his flared-up pain along with explaining the role of physical exercise in the long-term management of OA.
Additionally, clinical practice guidelines recommend paracetamol for the treatment of mild to moderate acute and chronic non-malignant pain, except for back pain and some types of osteoarthritis like hand OA.

### Conditions

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<th>Conditions</th>
<th>Efficacy of Paracetamol</th>
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| Osteoarthritis (knee or hip) | Mixed evidence regarding comparative effectiveness of paracetamol in immediate and short term (<12 weeks) relief of pain.  
  
  • In one review, paracetamol was shown to have similar efficacy as other NSAIDs  
  • However, other reviews have shown that paracetamol was either similar to placebo or was least effective when compared to Celecoxib (a COX-2 selective NSAID) or the combination of glucosamine and chondroitin.  
  No evidence to support long term use |
| Types of headache   |                                                                                         |
| Migraine            | A single dose (1000mg) of paracetamol was effective in reducing pain at 2 hours as compared to placebo, but less effective as compared to other commonly used analgesics.  
  • However, paracetamol could be an option in patients who cannot tolerate other analgesics. |
| Tension Headache    | Paracetamol is effective to achieve pain-free status at 2 hours as compared with placebo. |
| Other headaches     | Paracetamol has similar efficacy to NSAIDs                                             |

** Paracetamol safety:**

- Paracetamol is generally considered safe at recommended doses. For adults, the recommended maximum daily dose is 4000 mg.

- Unintentional overdosing which can result from consuming repeated excessive dosing or duplication of therapy i.e. unintentional concomitant use of multiple paracetamol-containing products can lead to events like liver damage, severe hepatic failure, and even death. Furthermore, frail older population and underweight patients are at greater risk and so may require dose adjustment.

- Evidence from large observational studies has shown favourable side effect profile of paracetamol than traditional NSAIDs in older people for chronic pain conditions. Hence, it can be considered as an alternative to other analgesics and NSAIDs in population nontolerant or contraindicated to such medications.

- There is low-quality evidence suggestive of a higher risk of cardiovascular and gastrointestinal adverse events associated with its ≥15-22 days/month use, or ingestion of ≥15 tablets/week.

** Practical tips:**

- Paracetamol is commonly recommended for short-term pain relief in mild to moderate acute pain in indications like migraine, headache and post-surgical dental pain.

- Paracetamol can be considered as an alternative in a population who are unable to tolerate other analgesics such as older people. It is recommended to monitor for upper gastrointestinal and cardiovascular adverse events if receiving paracetamol for chronic pain conditions.

- Patients should always be advised to read the label before using paracetamol to help them use it most appropriately & avoid misuse, unintentional overuse with other concomitant medications that may also contain paracetamol to prevent overdosing.

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**Abbreviations-**  
GP: General practitioner; MDD: Maximum daily dose NSAIDs: Nonsteroidal anti-inflammatory drugs; OA: Osteoarthritis; RCT: Randomised controlled Trials

Panadol is approved for a range of pain types:

- **Headache**
- **Period pain**
- **Musculoskeletal pain**
- **Joint pain associated with cold and flu**
- **Muscle ache**
- **Toothache**

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Nonprescription drugs recommended in guidelines for common pain conditions


**Background**

The increased availability of analgesics as nonprescription makes it easier for patients to take control of their own pain.

Nevertheless, patients still seek advice from their doctor or pharmacist regarding the best therapy to use.

The sheer number of guidelines available for each pain condition, exacerbated by the wide range of prescription and nonprescription options may make it difficult for time-constrained healthcare professionals to suggest the most appropriate analgesic for the individual patient, considering their age, gender, comorbidities and concomitant medications.

Currently, the most widely available over-the-counter medications are paracetamol, acetylsalicylic acid and nonsteroidal anti-inflammatory drugs (NSAIDs).

All of which have the major advantage of not causing unwanted sedative, cognitive, addictive or other central effects.

However, acetaminophen should be avoided in patients with liver disease, while oral NSAIDs may be risky in those with renal, cardiovascular or peptic ulcer disease.

**Objective**

Non-systematic review of accessible clinical guidelines (English only) of the most common pain conditions. To look at all drugs recommended within the guidelines

- Descriptively summarize the nonprescription analgesics as to which nonprescription analgesics are mostly recommended including the vulnerable groups such as pregnant women, older people and children.
- Provide a concise summary to aid decision-making for healthcare providers to determine the first, most effective and evidence-based step to take in the management of pain.

**Method**

- The search was conducted on websites of pain societies, organizations, databases like PubMed, ProQuest, Embase, and open searches on Google Scholar identifying accessible (English) guidelines available for common pain conditions: General pain, Acute back pain, Osteoarthritis, Dysmenorrhea, Dental pain, Tension-type headache, Migraine, Postoperative pain until April 2019.
- Exclusion criteria: Hospital specific guidelines, withdrawn or archived guidelines, language barrier (non-English), guidelines only on diagnostics, surgical procedures and not talking about nonprescription drugs were.
- The quality of the guidelines was not assessed for this study.

**Results**

- 114 relevant guidelines identified, most were in acute pain conditions. Migraine (27) and osteoarthritis (26) had most published evidence around the world.
- Few pain guidelines included special populations like pain in pregnancy, childhood & elderly
- As per the overall analysis, guidelines recommends:
  - Acetaminophen (Paracetamol) and oral NSAIDs as first-line treatment particularly for mild-to-moderate pain in adults & children. Non-prescription treatment recommendations are summarized in Figure 1.
  - Non-pharmacological treatment options like physical therapy or lifestyle changes alongside pharmacological treatment for optimal pain relief.

**Acetaminophen** is the first-line of treatment recommended by the guidelines in the older population. It is also generally considered safe in pregnancy and is recommended by the pain guidelines for pregnancy.

Oral NSAIDs should be used cautiously in the older population. It should also be avoided during pregnancy but can be used if there is a need for greater analgesia. However, it should be used cautiously during the first trimester and must be discontinued by week 32.

In osteoarthritis, topical NSAIDs are recommended over the oral NSAIDs due to their comparable efficacy and lower systemic side effects.

**Acetylsalicylic acid** is generally not recommended in children younger than 12 or 16 years of age due to the potential risk of Reye’s syndrome. However, one of the migraine guidelines from France, recommends it in children.

In headache, acetaminophen and/or NSAIDs are commonly recommended with adjunct analgesic caffeine.
Panadol is approved for a range of pain types:

- Headache
- Muscle ache
- Period pain
- Musculoskeletal pain
- Toothache
- Joint pain
- Mid-to-moderate pain associated with cold and flu

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Figure 1. Nonprescription acetaminophen and oral nonsteroidal anti-inflammatory drugs can be used initially in all types of acute pain and in vulnerable groups such as children, pregnant women and older people. Where oral NSAIDs are contraindicated or not tolerated, acetaminophen is the treatment of choice, or topical NSAIDs in osteoarthritis. It should be noted that nonpharmacological options (which vary according to the pain indication, but include measures such as physical therapy, lifestyle changes, etc.) are usually recommended alongside pharmacological therapy, for optimal pain relief. NSAID: Nonsteroidal anti-inflammatory drug; TTH: Tension-type headache.

• Conclusion

Overwhelmingly, acetaminophen and oral NSAIDs represent the first line of management across all pain conditions in adults, particularly for mild-to-moderate pain & for some severe pain cases, such as osteoarthritis & postoperative pain.

Oral NSAIDs should be used cautiously in pregnant and older population.

Acetaminophen (Paracetamol) is recommended as the treatment of choice where oral NSAIDs are contraindicated or not tolerated.

Topical NSAIDs are preferred over oral NSAIDs for indications like osteoarthritis. Though this summary can be a useful tool, specific guidelines must also be referred.