



## Over-the-counter pain management – paracetamol and NSAIDs

Haley Van Wyk, BPharm

Pain is an unpleasant sensory and emotional experience, associated with actual or potential tissue damage.<sup>1,2</sup> Pain may be experienced as anything from a dull ache to a sharp stabbing sensation, and can range from mild to extreme. Pain may be located in one part of the body or it may be widespread.<sup>1</sup> There are two types of pain:

- Acute pain is a normal response to tissue injury, which starts suddenly and is usually short-lived.<sup>1</sup> The pain is related to an identifiable cause such as trauma, surgery or inflammation.<sup>3</sup>
- Chronic (ongoing) pain persists beyond the normal time of healing and generally lasts longer than three months.<sup>1</sup>

Pain is personal and each person will experience it differently.<sup>2</sup> The most reliable description of pain is from the patient, and thorough questioning should be used to understand the nature, history and severity of the pain (See Table I).

### Managing pain with over-the-counter medicines

#### Choosing the right pain-relieving medication

Despite the large number of over-the-counter (OTC) products marketed for pain, most consist of one or more of only four active ingredients: paracetamol, codeine, aspirin and a non-steroidal anti-inflammatory drug (NSAID), such as ibuprofen.<sup>2</sup> These are often combined with other constituents such as an antihistamine (e.g. doxylamine or promethazine) and caffeine. The reason for combining two analgesics e.g. paracetamol with ibuprofen is to provide a better analgesic effect. In some cases,

the dose of each ingredient is reduced, which may lessen the risk for dose-related side-effects. OTC analgesics are available in a variety of dosage forms and, in addition to traditional tablets and capsules, syrups, soluble tablets and sustained-release dosage forms are available for some products.<sup>5</sup>

On the whole, mild to moderate acute pain encountered in the community pharmacy will generally respond to any one of the wide range of OTC analgesic products available. Typical indications suitable for OTC analgesic use include headache, toothache, dysmenorrhoea (painful menstrual periods), musculoskeletal pain and the relief of symptoms associated with colds and influenza.<sup>6</sup>

#### Basic guidelines for managing acute pain

Table II summarises some of the recommendations for medicines used to treat mild to moderate pain.

#### Paracetamol

Paracetamol is the most widely used OTC analgesic.<sup>6</sup> It is suitable for most patients requiring an analgesic for mild to moderate pain.<sup>5,6</sup> Its analgesic and antipyretic effects are

**Table I: Assessing pain<sup>4</sup>**

##### Onset:

- When did it begin?
- How often does it occur?
- How long does it last?

##### Exacerbating or relieving factors:

- What brings it on?
- What makes it better?
- What makes it worse?
- Is the pain better when lying down or standing up?
- Is it worse on movement?

##### Localisation, region and radiation:

- Where is the pain?
- Does it move anywhere?
- Is there more than one site?

##### Quality:

- What does it feel like?

##### Severity

- How intense is the pain?
- Are there any other symptoms that accompany the pain?

**Table II: Basic guidelines for selecting an analgesic for mild to moderate pain<sup>2,3,7</sup>**

Please see manufacturer's prescribing information for appropriate doses.

**Acute mild pain**

Children (over one month of age)	Oral paracetamol
Children (from six months of age)	Oral ibuprofen
Adults with non-inflammatory pain	Oral paracetamol or aspirin*
Adults with pain associated with trauma or inflammation	Oral NSAID e.g. ibuprofen

**Acute moderate pain**

Children	Children who do not respond to oral paracetamol or ibuprofen should be referred to a doctor
Adults	Adults who do not respond to the above therapy should be referred to a doctor

\*The anti-inflammatory effect of aspirin is only seen at high doses (at least > 3 g daily) so, for this purpose, other NSAIDs are preferred because they are generally better tolerated.<sup>6</sup>

similar to those of aspirin and ibuprofen but it has no anti-inflammatory effects. It is well-tolerated and has no known gastrointestinal (GI), renal or cardiac adverse effects at usual doses.<sup>6</sup> Paracetamol side-effects are rare but may include:<sup>2,5,6</sup>

- Hypersensitivity which typically presents as a skin rash
- Blood disorders, such as a low platelet count and a low number of white blood cells
- Liver and kidney damage, when taken at higher doses than those recommended

**NSAIDs**

There appears to be no difference in the ability of different NSAIDs to reduce pain and inflammation. However, individual patients may find better pain relief from one NSAID over another and some NSAIDs may have fewer side-effects than others. Some NSAIDs also may be more convenient, since they only need be taken once or twice a day.<sup>8</sup>

Minor gastrointestinal (GI) side-effects such as dyspepsia, stomach pain, nausea and diarrhoea<sup>2,5,7</sup> usually develop early and occur commonly. Serious GI adverse effects, including ulceration, bleeding and perforation may occur, particularly in patients receiving high doses of NSAIDs long term.<sup>7</sup>

The Food and Drug Administration (FDA) has recently strengthened its warning that NSAIDs may cause an increased risk of heart attack and stroke, especially in higher doses. It is important to be aware of these potential side-effects. NSAIDs are safest when low doses are taken for short periods.<sup>8</sup>

**Aspirin**

Aspirin has analgesic, antipyretic, anti-inflammatory and antiplatelet effects. The anti-inflammatory effect of aspirin is only seen at high doses (> 3 g daily) so, for this purpose, other NSAIDs are preferred because they are generally better tolerated.<sup>6</sup> Many of the side-effects of aspirin are dose-dependent. Side-effects include<sup>5,6</sup>:

- Nausea and vomiting
- Epigastric pain
- Dyspepsia
- GI ulceration or haemorrhage
- Allergic reactions

Aspirin is best taken with or after food to reduce GI irritation.<sup>5</sup> When taken as soluble tablets, aspirin is less likely to cause GI irritation and it is also available as an enteric-coated version which is designed so that the aspirin is released lower down

the GI tract to try and prevent GI adverse effects. Aspirin may cause GI bleeding and should not be recommended for any patient who either currently has, or has a history of, peptic ulcer. Aspirin affects the blood platelets and clotting function so that bleeding time is increased. The effects of blood thinning medicines are potentiated by aspirin, so it should never be recommended for patients taking e.g. warfarin.<sup>5</sup>

**Ibuprofen**

Ibuprofen has analgesic, anti-inflammatory and antipyretic activity.<sup>5</sup> Ibuprofen may be irritating to the stomach, causing heartburn, stomach pain, nausea and diarrhoea,<sup>2,5</sup> but less so than aspirin.<sup>5</sup> Gastric bleeding may also occur. For these reasons, it is best to advise patients to take ibuprofen with or after food, and it is best avoided in anyone with a peptic ulcer or a history of peptic ulcer. Elderly patients seem to be particularly prone to these effects. Ibuprofen may increase the bleeding time due to an effect on platelets. Ibuprofen seems to have little or no effect on whole blood clotting or prothrombin time, but is still not advised for patients taking anticoagulant medication for whom paracetamol would be a better choice.<sup>5</sup>

**Other OTC NSAIDs****Diclofenac**

Diclofenac is indicated OTC for post-traumatic conditions, for a maximum of five days. It may also be used for the emergency treatment of acute gout.<sup>7</sup>

**Naproxen**

Naproxen is indicated OTC for short-term minor pain and post-traumatic conditions for a maximum of five days. It may also be used for the emergency treatment of acute gout.<sup>7</sup>

**Mefenamic acid**

Mefenamic acid is indicated OTC for post-traumatic conditions, for a maximum of five days. It may also be used to treat dysmenorrhoea.<sup>7</sup>

Table III includes a summary of the contraindications and cautions associated with NSAIDs. Table IV lists recommendations when taking OTC analgesics.

**Conclusion**

There is an ever-increasing demand from patients for access to effective OTC pain-relieving medicines. A variety of

**Table III: Contraindications and cautions associated with NSAIDs<sup>1,5-7,9,10</sup>**

- Hypersensitivity to aspirin or other NSAIDs
- Active peptic ulcer
- Patients with a history of peptic ulcers
- Patients with severe liver or kidney disease
- Heart disease e.g. angina, hypertension
- Bleeding disorders
- History of asthma, bronchospasm or rhinitis associated with aspirin or NSAIDs
- Use in the elderly
- Pregnancy
- Breastfeeding
- Patients using other NSAIDs, including aspirin
- Patients on current anticoagulant (blood thinning) or cortisone therapy

**Table IV: Recommended advice in respect of OTC analgesics<sup>9,10</sup>**

- The recommended daily dose should not be exceeded
- Aspirin and NSAIDs should preferably be taken after a meal
- Analgesics should be taken with a full glass of water
- Aspirin should not be given to children and adolescents
- It is best to avoid alcohol when taking OTC analgesics
- The patient should be referred to a doctor if the pain lasts longer than three days, or if OTC analgesics have been used continuously with no benefit
- Medication overuse headaches may occur if analgesics are used inappropriately for headache

OTC analgesics are available to patients enabling them to effectively self-manage many painful conditions. In order to ensure the safe and effective use of OTC analgesics, the pharmacist's assistant needs to be able to recommend a suitable product. The pharmacist's assistant must also be able to identify when the patient should be referred to the pharmacist or a doctor, especially when OTC analgesics have been used and successful pain relief has not been achieved.

## Bibliography

1. Better Health. Pain management – adults. c2016. Available from: <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/pain-management-adults>
2. Frontshop pharmacy magazine. Over-the-counter pain management. Available from: <http://www.frontshop.co.za/over-the-counter-pain-management/>
3. South African acute pain guidelines. SAJAA. 2009;15(6):1–120. Available from: [http://www.sasaweb.com/content/images/SASA\\_Pain\\_Guidelines.pdf](http://www.sasaweb.com/content/images/SASA_Pain_Guidelines.pdf)
4. Care Management Guidelines. Pain Management. Department of health and human services. Available from: [http://www.dhhs.tas.gov.au/\\_\\_data/assets/pdf\\_file/0006/36951/Pain\\_Management\\_Final211209\\_PCSSubComm.pdf](http://www.dhhs.tas.gov.au/__data/assets/pdf_file/0006/36951/Pain_Management_Final211209_PCSSubComm.pdf)
5. Blenkinsopp A, Paxton P, Blenkinsopp J. Symptoms in the pharmacy. A guide to the management of common illness. Headache. Pages 200–202.
6. Dickman A, MSc, MRPharmS. Choosing over-the-counter analgesics. The pharmaceutical journal. 1 November 2008. c2016. Available from: <http://www.pharmaceutical-journal.com/learning/learning-article/choosing-over-the-counter-analgesics/10040592.article>
7. South African Medicines Formulary. 12<sup>th</sup> Edition. Faculty of health sciences. University of Cape-Town. Analgesics. Page 443; M01 Anti-inflammatory and anti-rheumatic products, page 395.
8. Reviewed by Jennifer Robinson, MD on September 29, 2015. Osteoarthritis Health Center. NSAIDs (Nonsteroidal Anti-Inflammatory Drugs) and Arthritis. © 2015 WebMD. Available from: <http://www.webmd.com/osteoarthritis/guide/anti-inflammatory-drugs>
9. Dickman A, Personalising OTC analgesia, The Pharmaceutical Journal 2008;281:701. Available from: <http://www.pharmaceutical-journal.com/learning/learning-article/personalising-otc-analgesia/10043433.article>
10. Whittaker C. Over-the-counter pain management guidelines. Prof Nurs Today 2011;15(1):16–20.