Medications - non-steroidal anti-inflammatory drugs

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used to manage the pain and inflammation (swelling and redness) associated with some types of arthritis (such as rheumatoid arthritis) and other musculoskeletal disorders.

NSAIDs are also used to treat non-inflammatory conditions such as migraine, period pain and postoperative pain. The blood-thinning properties of the NSAID, aspirin, are also used to reduce the risk of heart attack and stroke in high-risk patients.

Some commonly prescribed NSAIDs include aspirin, ibuprofen (Brufen), naproxen (Naprosyn), diclofenac (Voltaren) and celecoxib (Celebrex).

How NSAIDs work

Prostaglandins are hormone-like chemicals in the body that cause inflammation and pain by raising the temperature and dilating the blood vessels in the place they are released. NSAIDs block a specific enzyme (called 'cyclooxygenase' or COX) used to make prostaglandins. By reducing production of prostaglandins, NSAIDs relieve inflammation and the associated pain.

Side effects of NSAIDS

While NSAIDs are effective in relieving pain and inflammation, they can cause unwanted side effects. Gastrointestinal symptoms such as stomach upset and stomach pain may be caused by NSAIDs. Use of NSAIDs can also cause ulcers in the stomach and other parts of the gastrointestinal tract (gut). This is mainly because these medicines attack the enzyme that protects the stomach lining from normal stomach (gastric) acid.

The NSAIDs known as cyclooxygenase inhibitors (COXIBs) were developed to reduce the risk of these gastrointestinal side effects. These types of NSAIDs block the enzyme that leads to inflammation, but don't knock out the enzyme that protects the stomach lining against gastric acid. COXIBs are a major advance, but they have not completely removed the problem and they can still cause gastrointestinal side effects.

Common side effects include:

- Nausea
- Indigestion or upset stomach
- Stomach or gastrointestinal ulcers or bleeding
- Raised liver enzymes (detected by blood test)
- Diarrhoea
- Headache
- Dizziness
- Salt and fluid retention
- High blood pressure.

Less common side effects include:

- Ulcers of the oesophagus (food pipe)
- Rectal irritation (if suppositories are used)
- Cardiovascular problems (heart failure)
- Hyperkalaemia (high levels of potassium in the blood)
- Kidney problems

- Confusion
- Bronchospasm (difficulty breathing)
- Skin rash
- Skin irritation, reddening, itching and/or rash if used as a cream.

Rare side effects include:

- Blood abnormalities
- Interstitial nephritis (inflamed tubes in the kidney)
- Cystitis (bladder infection)
- Nephrotic syndrome (a range of symptoms related to diseased kidneys)
- Acute renal failure (kidney failure)
- Papillary necrosis (disease where parts of the kidney are destroyed)
- Photosensitivity (sensitive to light)
- Stevens–Johnson syndrome (serious condition where flu-like symptoms are followed by red skin lesions)
- Epidermal necrolysis (a serious skin condition where the top skin layer separates from other layers of skin)
- Hepatitis (inflammation of the liver)
- Meningitis (inflammation of the brain)
- Blurred vision
- Tinnitus (ringing in the ears)
- Allergy and asthma.

Side effects can be life threatening

Statistics from the UK estimate that NSAID complications cause about 2,000 deaths each year. One reason for potential complications is that these drugs block pain, fever and inflammation so the person may not pick up disease symptoms in their early stages.

NSAIDs can provide helpful relief

While NSAIDs can potentially cause many side effects, if prescribed under the right conditions and used as instructed, they can be of great benefit.

NSAIDs should be used sparingly and for a short time. If you need to use these medications for a long time (for example, to manage the symptoms of arthritis when other therapies have failed to offer relief), you should make sure you see your doctor regularly.

Do not take NSAIDs if you are:

- Allergic to NSAIDs, including aspirin
- Suffering from a stomach or gastrointestinal ulcer or bleeding
- Pregnant or planning a pregnancy.

High risk groups

Some people are at higher risk of developing serious complications from taking NSAIDs. Risk factors include:

- Age, since adverse reactions are more common in people 65 years and over
- Medical history of gastrointestinal problems such as ulcers or *Helicobacter pylori* infection (the germ that can cause ulcers)
- Medical history of particular heart problems or high blood pressure
- Diabetes
- Asthma
- Kidney disease
- Taking high doses of NSAIDs
- Taking certain other drugs while taking NSAIDs.

Drug interactions

NSAIDs may interact with other drugs and cause adverse reactions. Examples include:

- NSAIDs and blood-thinning medications (such as warfarin) increase the risk of serious bleeding from gastrointestinal ulcer.
- NSAIDs can cause kidney failure when they are combined with ACE inhibitors (drugs to reduce blood pressure) and diuretic medications (to remove excess fluid).
- NSAIDs can also block some drugs and stop them working effectively, including ACE inhibitors, beta blockers (heart medication) and diuretics.
- NSAIDs given with cortisone drugs increase the risk of adverse reactions.
- Alcohol irritates the stomach lining – people who regularly drink alcohol while taking NSAIDs increase their risk of damage to the gastrointestinal tract.

Be wary of over-the-counter medicines

Some over-the-counter preparations contain NSAIDs. For example, cold and flu tablets, some herbal medicines and cough syrups may contain aspirin.

If you already take an NSAID, you may increase your risk of side effects if you also take an over-the-counter preparation that contains aspirin or another NSAID. Check with your pharmacist before buying any over-the-counter preparation.

Except when your doctor recommends it, you should not take more than one of these types of drugs at the same time. **Low-dose** aspirin, used to reduce the risk of heart attack and stroke, is the exception and can be taken alongside a NSAID.

If you are taking any over-the-counter NSAIDs, tell your doctor, particularly if you are due to undergo surgery

Stop taking NSAIDs and seek advice from your doctor if you develop:

- Swollen ankles
- Difficulty in breathing
- Black stools
- Dark, coffee-coloured vomit

General suggestions

Be guided by your doctor, but general suggestions include:

- If you take NSAIDs, it is very important to tell your doctor and pharmacist about any other drug you take (or plan to take) including over-the-counter drugs and herbal medicines.
- See your doctor if you think your NSAID may be causing side effects.
- Be cautious of long-term or high-dose treatment with an NSAID if you are at risk of side effects. Discuss your concerns with your doctor. Ask if there are any alternatives to NSAIDs that you could try.
- Explore different ways to manage your pain. For example, you could try losing weight, physical therapies, anti-inflammatory creams (that have fewer side effects), medications for pain containing paracetamol, or joint replacement surgery.
- If you need to keep taking NSAIDs, your doctor may be able to prescribe other drugs to help manage some of the side effects.
- Don’t stop taking your NSAID without your doctor’s knowledge and approval.

Where to get help

- Your doctor
- Pharmacist
- Rheumatologist
- Physiotherapist
- Medicine Line Call in Australia on 1300 MEDICINE (1300 633 424) – for information on prescription, over-the-counter and complementary medicines
- The Gut Foundation

- Arthritis Victoria Tel. (03) 8531 8000 or Toll free in Australia on 1800 011 041

Things to remember

- NSAIDs are commonly used to manage the pain and inflammation associated with arthritis and other musculoskeletal disorders.
- NSAIDs can cause serious side effects and even death.
- NSAIDs should generally only be used sparingly and for a short time.

This page has been produced in consultation with, and approved by:

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