

# A Short Communication on Analgesia

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## Short Communication

An analgesic drug, also known as a pain reliever, painkiller, or simply an analgesic, is any of a class of drugs used to alleviate pain (that is, analgesia or pain management). Although analgesia and anesthesia are neurophysiologically overlapping and thus various drugs have both analgesic and anesthetic effects, analgesics are conceptually distinct from anesthetics, which temporarily reduce, and in some cases eliminate, sensation.

The type of pain also influences analgesic selection. Traditional analgesics are less effective for neuropathic pain, and there is often benefit from classes of drugs that are not normally considered analgesics, such as tricyclic antidepressants and anticonvulsants.

Many NSAIDs, for example, are available over the counter in most countries, whereas others are prescription drugs due to the significant risks and high chances of an overdose, misuse, and addiction in the absence of medical supervision.

## Classification

Analgesics are typically classified according to their mode of action.

Paracetamol, also known as acetaminophen or APAP, is a pain and fever reliever. It is commonly used to treat mild to moderate pain. Paracetamol is now used in conjunction with opioid pain medications for more severe pain, such as cancer pain and after surgery. It is typically administered orally or rectally, but it is also available intravenously. The effects last for two to four hours. Paracetamol is classified as a non-narcotic analgesic. At recommended doses, paracetamol is generally safe.

**NSAIDs:** Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are a drug class that includes medications that relieve pain, reduce fever, and, at higher doses, reduce inflammation. Aspirin, ibuprofen, and naproxen, the most well-known members of this class of drugs, are all available over the counter in most countries.

**Inhibitors of COX-2:** These medications are derived from NSAIDs. The NSAID-inhibited cyclooxygenase enzyme was discovered to have at least two variants: COX1 and COX2. According to research, the majority of the negative effects of NSAIDs are mediated by blocking the COX1 (constitutive) enzyme, while the analgesic effects are mediated by the COX2 (inducible) enzyme.

**Alcohol:** Alcohol has biological, mental, and social effects which influence the consequences of using alcohol for pain. The moderate use of alcohol can lessen certain types of pain in certain circumstances.

The majority of its analgesic effects are derived from antagonizing NMDA receptors, similar to ketamine, thus decreasing the activity of glutamate, the

primary excitatory (signal boosting) neurotransmitter. It also acts as a mild analgesic by increasing the activity of the primary inhibitory (signal reducing) neurotransmitter, GABA.

Attempting to use alcohol to treat pain has also been linked to negative outcomes such as binge drinking and alcohol use disorder.

**Cannabis:** Medical cannabis, or medical marijuana, refers to cannabis or its cannabinoids used to treat disease or improve symptoms. There is evidence suggesting that cannabis can be used to treat chronic pain and muscle spasms, with some trials indicating improved relief of neuropathic pain over opioids.

## Other drugs

Nefopam-a monoamine reuptake inhibitor, and a calcium and sodium channel modulator-is also approved for the treatment of moderate to severe pain in some countries.

Flupirtine is a K<sup>+</sup> channel opener with weak NMDA antagonist properties that acts centrally. It was used in Europe for moderate to severe pain, as well as a migraine treatment and muscle relaxation.

## Adjuvants

Certain drugs that were developed for purposes other than analgesics are now used in pain management. For pain caused by nerve damage or other problems, both first-generation (such as amitriptyline) and newer antidepressants (such as duloxetine) are used in conjunction with NSAIDs and opioids. Other agents directly enhance analgesic effects, such as using hydroxyzine, promethazine, carisoprodol, or tripeleminamine to increase the pain-killing ability of a given dose of opioid analgesic.

Orphenadrine, mexiletine, pregabalin, gabapentin, cyclobenzaprine, hyoscine (scopolamine), and other medications having anticonvulsant, anticholinergic, and/or antispasmodic effects, as well as numerous other pharmaceuticals with CNS activity, are examples of adjuvant analgesics. These medicines are used in conjunction with analgesics to modulate and/or change the action of opioids when used to treat pain, particularly neuropathic pain.

## Other applications

To avoid systemic side effects, topical analgesia is generally recommended. Painful joints, for example, can be treated topically with an ibuprofen-or diclofenac-containing gel (The labeling for topical diclofenac has been updated to warn about drug-induced hepatotoxicity. capsaicin is also used topically. Lidocaine, an anesthetic, and steroids can be injected into joints to relieve pain for a longer period of time. Lidocaine is also used to numb areas for dental work and minor medical procedures and to treat painful mouth sores.

In February 2007, the FDA warned consumers and healthcare professionals about the dangers of topical anesthetics entering the circulation when applied to the skin in excessive quantities without medical supervision. These topical anesthetics are creams, ointments, or gels that contain anesthetic drugs such as lidocaine, tetracaine, benzocaine, and procaine.

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