

# Medications Work to Intervene Pain Signals

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## Abstract

Despite the widespread use of opioid medications to treat chronic pain, there is no significant evidence to support this practice. A recent article reviewing the evidence regarding the use of opioids to treat chronic non-cancer pain concluded, there is no high-quality evidence on the efficacy of long-term opioid treatment of chronic non-malignant pain. A recent Cochrane review comparing opioids to placebo in the treatment of low back pain came to a similar conclusion. This review said that there may be some benefit over placebo when used for short term treatment, but no evidence supports opioids are helpful when used for longer than four months.

**Keywords:** Medications; Opioids; Chronic pain; Back and neck pain; Epidemiology; Therapy

## Introduction

Although there is some benefit over placebo when used short term, there is no evidence of benefit over non-opioid medications when used for less than four months. Several other reviews have also concluded that no evidence exists to support long term use longer than four months of opioids to treat chronic pain. Epidemiologic studies have also failed to confirm the efficacy of chronic opioid therapy for chronic non-cancer pain [1]. A large study from Denmark showed that those with chronic pain who were on COT had higher levels of pain, poorer quality of life, and were less functional than those with chronic pain who were not on COT. In the last 20 years in the U.S., we have increased our consumption of opioids by more than percentages. Despite this increase, we have not decreased our suffering from pain. The Burden of Disease study in the Journal of the American Medical Association showed that Americans suffered as much disability from back and neck pain in and as they did in before the escalation in the prescribing of opioids [2]. A study in JAMA found that despite rapidly increasing medical expenditures from 1997 to 2005, there was no improvement over this period in self-assessed health status, functional disability, work limitations, or social functioning among respondents with spine problems. It is currently estimated that more than 9 million Americans use COT for the treatment of chronic non-malignant pain when we consider the proven benefits of this treatment along with the known risks, we must ask ourselves how we can ethically continue this treatment [3].

## Discussion

The reality is we really don't know if COT is effective. Anecdotal evidence and expert opinion suggest it may be beneficial in a few, select people. However, epidemiologic studies suggest that it may be doing more harm than good. The treatment of incurable cancer, end stage lung disease, and other end-of-life situations are notable examples where opioid medications are absolutely indicated. Although opioid pain killers are not very good medications for the treatment of pain, they are very strong psychotherapeutic agents. They are excellent at relieving anxiety and treating depression for a limited time. Opioids cause beneficial changes to brain serotonin, epinephrine, norepinephrine, dopamine, and endorphins [4]. For short-term, end-of-life situations, these neuropsychiatric effects are likely beneficial. For terminal care, opioids are the medications of choice. So why do so many in both the general public and medical field believe opioids are so much stronger? Here are likely reasons: When given intravenously,

opioids have no ceiling effect. Higher doses given intravenously have powerful psychotherapeutic effects allowing the patient to relax or sleep. Unfortunately, the side effect of respiratory depression also gets worse with increasing doses and will limit the amount that can be used unless the patient is closely monitored or on a ventilator. The powerful psychotherapeutic effects of opioids help relieve the emotional distress of pain [5]. These psychotherapeutic effects are likely much stronger than the pain relieving effects. The opium wars were not fought because of pain relieving effects. Pain is usually associated with significant emotional distress. Unfortunately, those individuals who have the most emotional distress are more likely to become addicted. The WHO pain ladder. In 1986, the World Health Organization convened a panel of experts to recommend the best way to treat cancer pain. The result was the WHO pain ladder [6]. It recommends that practitioners use NSAIDs and acetaminophen for mild cancer pain but then change to weak or strong opioids for more severe pain, or if NSAIDs and acetaminophen are not effective. While many pain specialists reference the WHO pain ladder regarding effective treatment of pain, it is noteworthy that these recommendations are based on expert opinion and intended for cancer pain. The pharmaceutical companies have done a good job marketing opioids; so many doctors have come to believe opioids are actually stronger than other medications. Safety of NSAIDs, acetaminophen and opioids will be thoroughly addressed in a future white paper. The paper will explain that NSAIDs and acetaminophen are safer than the opioids. When taken in over-the-counter doses, ibuprofen and acetaminophen have safety profiles approaching placebo [7]. The opioid medications are often referred to as powerful painkillers. In fact, the evidence shows that they are mild to moderate painkillers and less effective than over-the-counter ibuprofen. They have, however, powerful side effects that harm hundreds of thousands of individuals every year in the U.S. Even if one disregards the public health problems created by the use of opioid pain killers, these medications still are not a good choice for the treatment of acute pain – regardless of the severity. In some situations, limited use is appropriate. But in the majority of

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**Received:** 02-Dec-2022, Manuscript No. JPAR-22-84302; **Editor assigned:** 05-Dec-2022, PreQC No. JPAR-22-84302(PQ); **Reviewed:** 17-Dec-2022, QC No. JPAR-22-84302; **Revised:** 22-Dec-2022, Manuscript No. JPAR-22-84302(R); **Published:** 29-Dec-2022, DOI: 10.4172/2167-0846.1000473

**Citation:** Oliver J (2022) Medications Work to Intervene Pain Signals. J Pain Relief 11: 473.

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situations in which opioid painkillers are used today, they are not appropriate. The standard of care in the practice of medicine today is to provide the best treatment that causes the least harms. When there is a treatment that is proven to be both more effective and safer, it is the treatment of choice. The implication of this data for policymakers is critical. By implementing policy that puts restrictions on opioid prescribing to protect public health, policymakers will also improve the treatment of pain by guiding prescribers to use medications that are more effective [8]. It is also important for the medical and dental communities to address this inadequate and unsafe treatment of pain and change practice standards to guide care that is more appropriate for what our patients need and deserve. When looking at the symptom of pain, opioids appeared to have no significant effect. The non-opioid medications did appear to have a positive effect on the pain, but these results did not reach statistical significance. Radcliff et al. looked at patients who received opioids initially for treatment of lumbar disc herniation compared with those who did not. They found that those receiving opioids had a higher rate of surgery and that, overall, there was no significant difference four years later. Opioid medications were associated with an increased crossover to surgical treatment. Four years after the initiation of treatment, 16 percentages of those who received opioids at the start were still on opioids, whereas only 5 percent of those who were treated with non-opioids initially were on opioids after four years [9]. They concluded that those who were initially treated with opioids had a higher rate of surgery and a greater chance of being on opioids four years later but no significant change in overall outcome. Severe pain Few studies have been done to determine the effectiveness of various medications in severe pain after extensive trauma. However, the Cochrane Collaboration has conducted a review of the most effective treatments for renal colic pain. This happens when a kidney stone gets stuck in the ureter leading from the kidney to the bladder, obstructing the flow of urine. Many consider renal colic to be one of the most severe pains human's experience. The Cochrane Collaboration concluded that NSAIDs and opioids are both effective. The review does mention that studies reported lower pain scores in patients receiving NSAIDs. NSAIDs also had fewer side effects and required fewer rescue medications, or additional pain medication. In summary, regarding acute pain, it is frequently stated that NSAIDs and acetaminophen should be used for mild to moderate pain, and opioids should be used for severe pain. There is, however, no scientific evidence to support this recommendation. In fact, the evidence seems to indicate that NSAIDs are more effective for severe pain. The combination of acetaminophen and an NSAID may be the strongest option available for oral treatment of acute pain. Several Cochrane reviews have examined the treatment of postoperative pain. Postoperative pain is often studied because it is an example of acute pain where there has been tissue trauma resulting in pain. It also occurs in a controlled environment where rigorous experimental protocols can be followed [10]. Since the development

of acetaminophen, medical professionals have had the choice of three different classes of medications when treating pain. Those decisions are usually made by considering the perceived effectiveness of each medicine and its side effects along with the physical status of the patient. For example, acetaminophen should not be taken by someone with advanced liver damage, NSAIDs should not be given to an individual with advanced kidney disease or stomach ulcers, and opioids pose a potential risk to anyone with a personal or family history of addiction.

## Conclusion

In conclusion, Although many have long been believed that opioids are the strongest pain medications and should be used for more severe pain, scientific literature does not support that belief. There are many other treatments that should be utilized for treating pain. Studies have shown NSAIDs are just as strong as the opioids.

## Acknowledgement

None

## Conflict of Interest

None

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