Health Consequences of

E-Book

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HEALTH CONSEQUENCES OF OPIOIDS

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Health Consequences of OPIOIDS

There are many types of analgesics available, including Paracetamol, nonsteroidal anti-inflammatory drugs (NSAID such as acetylsalicylic acid and ibuprofen), corticosteroids (often called steroids), and Opioids. Various types of pain relievers help manage various types of pain and, like other medications, they all involve risks.

The World Health Organization distinguishes three levels of analgesics: the minor morphine (or opioid) analgesics such as codeine are included in level 2, and **the strong or major morphine analgesics in level 3**. Level 1 drugs are non-opioid.

Opioid analgesics are generally **used to manage moderate to severe pain**, which can be acute (short-term pain because of surgery) or chronic (long-term pain associated with a health problem, such as various types of pain like the one resulting from cancers). More rarely, they can also be used to control a moderate to severe cough, control diarrhea and treat addiction to other Opioid, including illicit drugs such as heroin.

Opioid drugs are available in the form of tablets, capsules, syrups, solutions, nasal sprays, transdermal patches and suppositories. Except for some that contain codeine, **opioid-containing medicines are only available on prescription.**

When following the directions, opioid analgesics are effective and side effects (drowsiness, nausea, constipation, etc.) are generally bearable. However**, over-consumption of these drugs can have serious health consequences and become addictive.**

Concerning the pharmacokinetic characteristics, **an opioid is a synthetic psychotropic substance** (fentanyl, heroin...) or natural (opium derivates) whose effects are similar to those of opium. **Opioids exert their effects by direct or indirect stimulation of opiate receptors**, which are mainly located in the central and parasympathetic nervous systems. The receptors of these organs mediate both the beneficial and the harmful effects of Opioids.

- **Risks associated with the use of opioid drugs:**

Opioid medications can cause euphoria (or high), which can lead to over-consumption. The person taking opioid medications for pain may or may not experience euphoria. However, all Opioids can be addictive. **The term dependence refers to the compulsive use of a substance, despite its**

harmful effects. Individuals with a personal or family history of substance abuse, including alcoholism, are more likely to be addicted to opioid analgesics.

Over the last decade, **over-consumption of opioid analgesics and dependence on them has become a public health problem.** Overconsumption can have serious effects on the health of the user or even lead to death following an overdose.

Apart from the side effects of acute over-consumption, the long-term side effects associated with the use of opioids are numerous and include:

- **Increased tolerance:** If they have been taking Opioids for some time, their body becomes accustomed to or becomes tolerant of the dose taken. You may need an increasing dose of Opioids to achieve the same effect.
- **Liver metabolism damage.**
- **Infertility in men.**
- **Worsening pain (called "opioid-induced hyperalgesia")**
- **Exaggerated withdrawal symptoms:** They may be experiencing withdrawal symptoms if they reduce the opioid dose quickly or if they suddenly stop taking it. If they plan to reduce the dose, they should do so with the help of a health care provider.

Opioids are very efficient analgesics that are very widely used in different types of pain treatment. However, they should be used wisely to avoid their various harmful effects on human health.

Opioids side effects:

Morphine and opiate derivatives are powerful analgesics (belonging to step 3) recommended for the treatment of **nociceptive pain** (that is to say **pain related to a painful stimulus**). However, in some people, especially when they are administered over a long period, the effect produced can be the opposite effect of the one sought. **Indeed, these substances may induce an increase in pain to intolerable thresholds**.

- The purpose of this article is to explain how opioids can **increase the pain of some patients.**

This effect**, known as opiate-induced hyperalgesia** (OIH), makes these medications less effective and may lead to taking higher doses to achieve the same effect. This loss of analgesic power does not correspond to a loss of effectiveness of the molecule but **to a gradual decrease in the threshold of perception of pain:** the person **has become more sensitive to pain.**

- That is to say that for pain of constant intensity, the patient feels it as more intense.

This effect is even more important in combination with **the increase in tolerance to the molecule**. The patient-as he becomes more tolerant to the molecule-needs to increase the opioid dose to achieve the same analgesic effect.

Hyperalgesia is a now well-identified complication of long-term opioid (or opioid) therapy that is being encountered more and more frequently.

This side effect can also occur after surgery, called post-surgical hyperalgesia.

Concretely, an increase in sensitivity to pain or hyperalgesia means that a little painful stimulation causes a lot of pain. This hyperalgesia sometimes turns into allodynia, which means that a normal stimulus such as the simple touch of the skin causes intense pain.

This pain causes the patient to increase the doses of analgesics, and thus makes him enter a vicious circle. This increase in intake also increases the risk of all other undesirable effects of opioids such as:

- ✓ Constipation
- ✓ Dizziness
- ✓ Anxiety
- ✓ Dry mouth
- ✓ Headache
- ✓ Loss of appetite
- ✓ Vomiting
- ✓ Difficulty urinating
- ✓ Difficulty breathing, such as slow, shallow breathing.

- **Without forgetting the main and most formidable of the undesirable effects of opioid use, which is dependence.**

The intensity of opiate tolerance and hyperalgesia is proportional to the dose of drug administered and the duration of treatment.

How does hyperalgesia appear?

The opioids molecules have a double action with:

- ✓ **Immediate action**

The opioid molecule binds to pain receptors in the brain. This attachment regulates normal operation. These receptors will be able to self-activate and trigger pain are painful stimulus.

- ✓ **Delayed hyperalgesic action**

Through the activation of specific receptors (NMDA) that will activate pain-excitatory fibers and make the patient more sensitive to pain.

- **The opioids are therefore both anti-nociceptive (against pain) and pro-nociceptive (for pain) molecules acting first analgesic, and then facilitators for pain.**

What are the risk factors?

This hyperalgesia does not appear in all individuals, its onset depends on the **dose of drug administered**, the **duration of treatment** and the characteristics of the molecule and the way of administration.

Its appearance also depends on **individual factors such as sex or phenotype** (and therefore the genotype). Pre-treatment **stressful situations** may also increase the incidence of hyperalgesia.

Treat and prevent hyperalgesia: What to do?

To treat hyperalgesia, first you should reduce the doses of opioid analgesics and then you should use anti-hyperalgesic drugs, in combination, and as soon as possible.

- ✓ **Some molecules such as ketamine or nitrous oxide** are effective in these cases; they act by blocking NMDA receptors.
- ✓ One can try the alternative to **use other classes of analgesics.**
- ✓ Other possibilities exist and are being investigated with **cannabis derivatives** that act on the cannabinoid receptors at all levels of the pain pathways, both centrally and peripherally.
- ✓ In combination, **a multivitamin and low polyamine diet** will also help to limit the awareness process and consequently improve the quality of life.

This management requires an overall evaluation in a center specialized in pain.

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