OPIOID INDUCED HYPERALGESIA

Opioid-induced hyperalgesia or **opioid-induced abnormal pain sensitivity** is a phenomenon associated with the use of opioids (i.e., morphine, hydrocodone, oxycodone, hydromorphone, etc.). Over time, individuals taking opioids can develop an increasing sensitivity to noxious stimuli, even evolving a painful response to previously non-noxious stimuli (allodynia). Opioid-induced hyperalgesia is similar to overeating in a restaurant buffet or overconsumption of alcohol. Overmedicated on opioid may lead to a ceiling effect and even an overdose. Therefore, the physician/provider may rotate or wean the patient, consider a "drug holiday" or even send the patient to a detoxification program.

Opioid-induced hyperalgesia is a clinical phenomenon, characterized by increasing in pain in patients who are receiving increasing doses of opioid medication.

Clinical features of opioid hyperalgesia:

- *History*
  - Increasing sensitivity to pain stimuli (hyperalgesia).
  - Worsening pain despite increasing doses of opioids.
  - Pain that becomes more diffuse, extending beyond the distribution of pre-existing pain.
  - Can occur at any dose of opioid, but more commonly with high parenteral doses of opioids and/or in the setting of renal failure.
- *Physical Examination*
  - Pain elicited from ordinarily non-painful stimuli, such as stroking skin with cotton (allodynia)
  - Presence of other opioid hyperexcitability effects: myoclonus, delirium or seizures

Proposed mechanisms:

- Toxic effect of opioid metabolites (e.g. morphine-3-glucuronide or hydromorphone-3-glucronide).
- Central sensitization as a result of opioid-related activation of N-methyl-D-asparate (NMDA) receptors in the central nervous system.
- Increase in spinal dynorphin activity.
- Enhanced descending facilitation from the rostral ventromedial medulla.
- Activation of intracellular protein kinase C.

THERAPIES:

- Under physician supervision reduce or discontinue the current opioid regiment to "reset" the bodily system.
- Your pain care specialist may change or rotate to another opioid and taper down.
- Periodic trials of a drug holiday (also known as drug vacation, medication vacation, structured treatment interruption or strategic treatment interruption) so the patient stops taking a medication for a period of time anywhere from a few days to months or years may serve the patient's best interest.
- Add a non-opioid adjuvant such as acetaminophen, NSAID, etc.
- Consider conservative treatment such as trigger point injections, local anesthesia, epidurals steroid injections, etc. and/or taper/discontinue systemic opioids.
- Consider specialist consultation for advanced interventional procedures such as surgery, spinal cord stimulator (SCS), pain pump, etc.
- Detoxification program, addictionologist

Conclusion:

Opioids can lead to a paradoxical increase in pain. Opioid-induced hyperalgesia should be considered in any patient with increasing pain that is not responding to increasing opioid titration. The clinician may consider a medication rotation, weaning regimen, "drug holiday," and even detoxification program. Referral for conservative and advanced interventional procedures (physical therapy, acupuncture, epidural steroid injections, surgery, spinal cord stimulator, pain pump, addiction specialist, detoxification, rehabilitation care professionals, etc.) is appropriate to help develop a management strategy.

Your healthcare provider will work with you to ensure that you are taking your opioids safely. She may request original containers of medications be brought into the office at each visit to document compliance and to prevent overuse. As with all prescription medications, some risks are associated with Opioid Therapy.

PSYCHOLOGICAL ADDICTION is recognized when the individual abuses the drug to obtain mental numbness or euphoria, when the patient shows a drug craving behavior or "doctor shopping", when the drug is quickly escalated without correlation with the pain relief or when the patient shows a manipulative attitude toward the physician/provider in order to obtain the drug. If the individual exhibits such behavior, the drug may be tapered and the individual will not be a candidate for continued treatment. The patient may be referred to an addiction specialist, detoxification, or rehabilitation program for medical care.

Your physician/provider may consider the maximum prescribed Central Nervous System (CNS) depressants. An escalating mix of such medication may increase cross-interaction and sedation, which may lead to an accidental overdose. Your physician/provider may consider a CNS depressant trade (not to exceed the maximum total allowance). Common examples of the aforementioned CNS depressants include *certain* muscle relaxants (ex. carisoprodol), benzodiazepines (alprazolam, lorazepam, diazepam), sleep medication (ex. zolpidem, temazepam), opioids (oxycodone, morphine, methadone), among many others.

References:

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