Pain Management

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Pain Assessment

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. Pain has biological, psychological, and socio-behavioral components. Different patients experience and express pain differently, so individual assessment of pain is essential. Inadequately treated pain may result in physiologic manifestations such as delirium or impaired immune function.[1] Psychological sequelae of untreated pain include anxiety, depression, and suffering. These complications can be prevented by adequately treating pain.

To assess pain, determine when it started, how frequently it occurs, and what the patient has done to try to relieve the pain. The intensity of pain can be determined by using a Pain Scale, where 0 is the absence of pain and 10 is the worst pain the patient has ever experienced. Ask what number the patient would give to the intensity of their pain at that moment. Then ask what number would be a tolerable level of pain that the patient could stand if it was not possible to reduce their pain level to 0. This helps to set an achievable goal of pain relief for that patient.

The character or description of pain provided by the patient can be useful in identifying the source of pain in some cases. For example, aching or dull pain may be musculoskeletal in origin, while shooting or burning pain may be neuropathic. This can help determine which types of pain medications may be most effective for that particular patient.

Pain Medications

For maintaining control of significant pain, long-acting opioids are the medications of choice. They provide predictable serum levels[2], which avoids increased pain between doses and development of early symptoms of opioid withdrawal. Patient compliance and satisfaction is enhanced due to fewer pills to take throughout the day. Patients with acute pain conditions that require medication for more than a few days (such as post-surgical pain) can receive long-acting opioids, which can then be tapered off rapidly as the acute pain resolves.

There are several preparations of long-acting opioids available. Sustained-release oral preparations of morphine and oxycodone are well absorbed from the gastrointestinal tract and can be dosed every 8 to 12 hours.[3] There is an oral sustained-release morphine preparation that has a duration of action of 24 hours.[2] These are essentially short-acting medications in a sustained-release pill matrix that have typical opioid side-effects (sedation, constipation), but are generally well tolerated by patients. Methadone is pharmacologically long-acting without a delayed-release pill matrix, so it can be administered as a tablet or elixir, and it is dosed for analgesic effects every 6 to 8 hours.[4] The primary advantage to methadone is that it is significantly less expensive than any of the other long-acting opioid preparations. Levorphanol is another long-acting oral pain medication with good absorption and a duration of action of 6 to 8 hours. Fentanyl transdermal patches provide an alternative non-oral dosing route and are very long-acting, requiring changing of the patch only every 2 to 3 days. Fentanyl patches are also composed of a short-acting medication with a sustained-release delivery system, which allows for a beneficial side effect profile similar to the other long-acting opioids.

Short-acting opioid pain medication is given for breakthrough pain in addition to long-acting opioids. There are many short-acting opioids available, including oxycodone, hydrocodone, and codeine. Many of these are available as combination products with acetaminophen or aspirin. The amount of these combination products that can be given to a patient within a specified time period is limited by the total dose of the acetaminophen or aspirin, due to side effects (gastrointestinal upset or bleeding from aspirin, or liver toxicity due to acetaminophen). Single-agent medication products are available, such as hydromorphone, or immediate-release morphine or oxycodone. These products can be taken in higher doses since they are only limited by the patient's tolerance to opioids, not by toxicity from another compound. Tramadol is an intermediate-acting analgesic with mild opioid activity, and has a low potential for misuse compared with other immediate-acting opioids.[5]

Partial opioid agonist and agonist-antagonist medications (butorphanol and pentazocine) are used for relief of acute pain. Patients with physical dependence on pure opioid agonist medications (morphine, methadone, oxycodone, etc.) may develop an opioid withdrawal syndrome when given these medications.[6,7]

In addition to opioids, there are many other medications that can enhance pain control.[8] Addition of these adjunct medications can reduce the total opioid medication dose, which helps reduce

the occurrence of opioid side effects. Non-steroidal anti-inflammatory drugs are very useful as analgesics due to pain control with a different mechanism of action from opioids. Membrane-stabilizing medications (anticonvulsants such as gabapentin, carbamazepine, valproate, lamotrigine and phenytoin) stabilize pain nerve impulses, so are effective for neuropathic types of pain and are generally well tolerated by patients.[9] Tricyclic antidepressants (amitriptyline, nortriptyline) potentiate opioid analgesic effects and improve sleep at lower doses than typically used for the antidepressant effects, so there are fewer side effects (dry mouth, urinary hesitancy, blurred vision) from these medications when used for analgesic effects. Selective serotonin re-uptake inhibitors (SSRI medications, such as fluoxetine, paroxetine, sertraline) do not have a specific analgesic effect, but may be beneficial for the depression that often accompanies pain, and these medications are safe and well tolerated. Recent studies indicate that another SSRI, bupropion, may be effective in certain types of neuropathic pain.[10,11]

Muscle relaxants can be useful for muscle spasms that may accompany acute or chronic pain conditions, but may cause excess sedation, especially when combined with other sedating medications (opioids, membrane-stabilizers, antidepressants). Benzodiazepines are the most effective muscle relaxants, but must be used with caution in patients with a history of addiction or medication abuse. Other muscle relaxants (baclofen, methocarbamol, cyclobenzeprine) may be beneficial, but may also be subject to misuse by patients. Improving sleep helps reduce pain and anxiety, but insomnia medications may also produce dependence. Benzodiazepines or zolpidem help ensure restful sleep, but may be misused by patients. Trazodone causes sedation that reduces insomnia and has antidepressant effects at higher doses, as well as less abuse potential than some other insomnia medications.[12]

Several topical preparations are available for analgesia. Capsaicin cream depletes substance P in cutaneous nerve endings and provides analgesia without producing dependence.[13] It is useful for peripheral neuropathy due to diabetes or herpes zoster. Topical lidocaine is available as a cream or a patch to apply to affected areas of cutaneous pain. Transcutaneous electrical nerve stimulation (TENS) units can be used at areas of localized pain.

"Drug-Seeking" Patients

Patients and physicians have some common misconceptions about the use of opioid medications for pain. They may believe that opioids are likely to cause addiction when taken for pain, or that opioids inevitably lead to relapse to illicit drug use in patients who are in recovery from addiction at the time they are given opioids. Practitioners may give the lowest possible dose of analgesic at the longest possible interval to try to prevent addiction from occurring. They may be reluctant to provide pain medication on a scheduled basis, instead giving medication only as needed in order to reduce potential abuse of the pain medication. These misconceptions are not accurate and may lead to a greater chance for emergence of drug-seeking behavior if pain is not adequately controlled.

Undertreatment of pain may lead to drug-seeking behavior by the patient. This may manifest as aggressive complaints about the need for more pain medication. Patients may request specific medications by name ("Demerol is the only medicine that works for me"), or use pain medication to treat another symptom, such as anxiety or insomnia. These signs may be attempts by the patient to achieve appropriate relief from pain that is undertreated. These manifestations of drug-seeking behavior in order to achieve pain relief are known as psuedoaddiction.[14] It is nearly impossible to differentiate an addict who escalates the dose of medication to obtain euphoria from a non-addict with psuedoaddiction who is not being adequately treated for pain, since both will exhibit drug-seeking behavior. The best course of action for the physician is to provide the patient with what he is asking for: more pain medication. Rapidly titrate the dose of medication upward to control pain quickly. Starting at the lowest dose and longest interval of analgesic for every patient may require an unnecessarily prolonged period of time to reach effective analgesia, so some patients may resort to "drug-seeking behavior." Adjust the medication dose based on the patient's reported pain level using a pain scale. This helps to set goals for a level of pain which the patient is able to tolerate while still being functional without side effects such as oversedation. Monitor pain levels, medication-taking behavior, and side effects several times throughout the day to evaluate for trends in pain level and effectiveness of medication. Observation of each patient's behavior over time will help determine whether additional doses of medication are being requested because of pseudoaddiction or addiction. This may not be obvious immediately, but will become apparent eventually as the physician

learns more about the patient and as the dose of pain medication is adjusted.

A non-addict who is experiencing pain or a former addict in solid recovery who is experiencing legitimate pain will stop escalating the dose of pain medication when the pain is controlled by an adequate analgesic dose. Often, patients will decrease the dose slightly as they become comfortable and feel secure that they will continue to receive adequate amounts of medication from the physician. Once the pain is controlled, these patients will focus more on side effects with the goal of maintaining function. Tolerance to the analgesic effects of opioids does not develop rapidly in patients who are being medicated adequately for pain[15]; however, selective tolerance does develop quickly to the euphoric side effects, requiring larger doses to achieve the same effects. A patient with active addiction will usually escalate the dose of pain medication to try to achieve euphoria. The addict may show signs of intoxication, such as sedation and confusion, but will continue to request larger doses of medication and focus only on the amount of medication, not the side effects or consequences. Patients who use analgesics appropriately for pain control will not show these signs of addiction if given adequate doses of opioids to control pain. These differences in the pattern of behavior help physicians differentiate pseudoaddiction from addiction.

Pain Management

To effectively treat patients who complain of pain, regardless of whether there is a history of addiction, it is important to believe the patient's symptoms. If the patient reports pain, then the presence of pain should be believed. However, trusting that the patient's complaints are legitimate does not absolve the physician of the responsibility to observe the patient closely to determine whether the present course of therapy is beneficial. A physician can enhance patient care by being diligent in observing for warning signs that problems with use of medication are occurring, so that misuse or abuse of medication can be appropriately addressed when these signs become evident. Believe the patient's complaints unless there is a clear reason not to.

Acute Pain

When treating acute pain, scheduled dosing is better than 'as-needed' dosing. Use scheduled dosing of long-acting opioids, with short-acting medication available for breakthrough pain. If the patient is allowed some control over the dose (such as with a PCA pump), there is less anxiety on the part of the patient and less work on the part of the physician and nurse. Treat proactively instead of reactively, because less medication is required to maintain relief once it has been achieved. Recovery time is shorter when pain is well controlled.

Prescribe an adequate dose of pain medication administered at an appropriate time interval. The dosing interval of the particular pain medication being given should match the duration of action of the medication. For example, if the duration of action is 3 hours (such as for oxycodone or meperidine), it should be dosed every 3 hours. If given every 4-6 hours, the patient is in pain for 1-3 hours and will require higher doses to treat the pain once it has begun. Undertreatment of pain may lead to "drug-seeking behavior" by the patient.

Malignant Pain and Chronic Pain Syndromes

Start at a reasonable dose of pain medication based on the patient's history, not the lowest dose. If a patient with pain is already on chronic scheduled opioids, continue the medication regimen after attempting to verify the dose with the prescribing physician. Patients with chronic pain on chronic doses of opioids can still experience acute pain and benefit from additional doses of opioids for the acute pain. The chronic opioid dose is for the baseline pain, and additional opioids are necessary for any additional pain from an acute injury or illness. The patient may require higher doses of additional opioids due to development of some tolerance. Patients on chronic opioids should not receive opioid agonist/antagonist pain medications (such as pentazocine or butorphanol) for acute pain because these medications may cause an acute opioid withdrawal syndrome.[7]

Opioid pain medications can be used with adjunct pain medications (such as a membrane stabilizer or tricyclic antidepressant) until the adjunct medication begins to have a significant effect, usually after several weeks. The opioid and adjunct medication can both be started while the patient is in the hospital. Then the patient can be evaluated and the dose of opioid may be decreased after the patient has been discharged from the hospital. Patients with chronic pain should have a prescribing physician identified and contacted prior to discharge. This reduces the chance of problems with obtaining pain medication after discharge.

Use a multidisciplinary approach, including psychological and social aspects, as well as coordinating with the patient's other health care providers. Surgery, radiation, or chemotherapy may be effective for palliation of malignant pain. Physical

therapy, psychotherapy, pain support groups, and relaxation therapy are useful in treatment of chronic pain.

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