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HERBAL MEDICINE

Herbal Alternatives to Drugs in Pain Management, Part I

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Pain is a sensation of discomfort, distress, or even agony that results from stimulation (by heat, cold or pressure) of specialized nerve endings. Even though pain serves as a protective mechanism, it may cause a tremendous amount of suffering. In such cases, pain must be managed so that sufferers may resume a normal lifestyle. The goals of pain management are to decrease pain intensity and increase the patient's physical activity. The objectives of this article are to explore the advantages and disadvantages of drug and herbal therapies, and to identify the most beneficial treatment for the patient.

Western Medicine

The ideal treatment for pain is to identify and eliminate the cause. However, symptomatic pain relief is often critical and necessary, such as in cases of traumatic injuries, acute migraine, burns, pain related to cancer and surgical procedures. Analgesic medications are the first line of treatment in Western medicine. It is essential that health care practitioners be familiar with the indications for, and functions, side-effects and toxicity of, these medications.

Salicylates

Salicylates are among the oldest and most commonly used analgesics. A naturally occurring substance found in willow bark, aspirin is the original prototype for the design of modern salicylates. Aspirin's therapeutic effect lies in its ability to irreversibly inhibit cyclo-oxygenase, an enzyme responsible for the conversion of arachidonic acid to prostaglandin peroxides. Interruption of this pathway leads to aspirin's analgesic, antipyretic and anti-inflammatory actions.

Salicylates are commonly used for mild-to-moderate pain of musculoskeletal origin. Salicylate side-effects and toxicity include headache, dizziness, mental confusion, tinnitus, nausea and vomiting. More severe adverse effects include renal damage, peptic ulcer, and Reye's syndrome in infants and young children.

Para-Aminophenols

Tylenol (acetaminophen) is the most commonly used drug in this category. Similar in mechanism to aspirin, acetaminophen is a weak inhibitor of cyclo-oxygenase in the periphery and at the hypothalamic thermoregulatory center. It has antipyretic and analgesic effects, but no anti-inflammatory effect. Acetaminophen is relatively safe at normal dosages. However, it may be hepatotoxic if given to alcoholics, individuals with hepatitis, or if taken in large dosages.

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

There are a wide variety of anti-inflammatory drugs, including (but not limited to): Motrin or Advil (ibuprofen); Naprosyn (naproxen); Anaprox (naproxen sodium); Indocin (indomethacin); Relafen

(nabumetone) and Voltaren (dicolfenac). Ibuprofen is the most commonly dispensed NSAID in the U.S.; dicolfenac is the most commonly used world-wide.

Similar to aspirin, NSAIDs exert antipyretic, analgesic and anti-inflammatory effects by inhibiting the cyclo-oxygenase required for conversion of arachidonic acid to endoperoxide intermediates (PGG2 and PGH2). Although NSAIDs are effective for mild-to- moderate pain and inflammation, their therapeutic action is often accompanied by side-effects, the most common and severe of which include gastrointestinal disturbances, inhibition of platelet aggregation and renal damage. Other adverse effects include allergic reactions, cardiovascular effects, central nervous system problems, rash, hematological disturbances and liver damage.

Opioid Analgesics

Derived from the unripe seed capsules of the poppy plant, opioids are considered the most potent analgesics available today. Examples include MS Contin (morphine); Dilaudid (hydromorphone); Demerol (meperidine); Tylenol with codeine (acetaminophen with codeine); Vicodin (hydrocodone with acetaminophen) and Darvocet (propoxyphene with acetaminophen).

Opioid analgesics exert their actions on the central and peripheral nervous systems through binding with mu, kappa and delta receptors. Though quite effective for pain relief, opioids have numerous side-effects and toxicities, including nausea, constipation, vomiting, hypothermia, escalating tolerance levels over time, dependence, respiratory depression and unwanted sedation.

Antidepressants

Tricyclic antidepressants (TCAs) are commonly prescribed for patients with chronic or neuropathic pain that does not respond to standard analgesics. The mechanism of the analgesic effect is unknown, but there is evidence that TCAs potentiate the analgesic effects of opioids. Common side-effects include tremors, seizure, withdrawal symptoms, arrhythmia, anticholinergic effects and coma. The most commonly prescribed TCAs include Tofranil (imipramine); Elavil (amitriptyline); Sinequan (doxepin); Norpramin (desipramine); Anafranil (clomipramine) and Vivactil (protriptyline).

Serotonin-selective reuptake inhibitors (SSRI) are a newer generation of antidepressants that have fewer and less severe side-effects than TCAs. Unfortunately, they also have less potent analgesic effects. Common side-effects of SSRIs include nausea, anxiety, headache, sexual dysfunction, weight loss and insomnia. Commonly prescribed SSRIs include Prozac (fluoxetine), Zoloft (sertraline), Luvox (fluvoxamine) and Paxil (paroxetine).

Anticonvulsants

Anticonvulsants are used primarily for patients with neuropathic pain. Tegretol (carbamazepine) and Dilantin (phenytoin) are most effective for treatment of brief, shooting, and electric-shock-like pain such as trigeminal neuralgia. Possible side-effects include diplopia, dizziness, sedation, GI disturbances, decreased leukocyte count, nystagmus and ataxia.

Summary

The goal of pain management treatment is to identify and remove the cause(s) of pain so that patients can resume a normal lifestyle. Unfortunately, pharmaceutical analgesic medications prescribed for pain management often lead to unwanted side-effects and complications. Some merely address symptoms or mask or dull pain rather than addressing and resolving the cause. According to *JAMA*, adverse drug reactions and fatal drug reactions are now the fourth and sixth

leading causes of death. As a result, patients are actively seeking other modalities of pain treatment, including (but not limited to) acupuncture, chiropractic and herbal medicine. In part II of this article, we will explore herbal counterparts to typically-prescribed medications, and detail how these formulas can be used in case management.

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