[IMAGE]

New Alternatives to Pain Medication: How Natural Pain Relievers Can Help

By Phil Page and Dr. Dana Mackison

Increasing evidence suggests topical analgesics are as effective - and safer - than over-the-counter pain medications for treating chronic musculoskeletal pain, fibromyalgia, headaches and peripheral neuropathy.

Physicians around the world have used naturally occurring substances to decrease pain for hundreds of years. The two main ingredients used for pain relief are capsaicin and menthol. These active ingredients most commonly are found in pain-relieving creams and gels, but also can be applied with roll-ons or sprays. Capsaicin is the hot substance in chili peppers, while menthol is the cool substance in peppermint oil. Menthol is a common ingredient in many products we use daily, such as toothpaste, chewing gum and mouthwash. When applied to the skin, these ingredients are used as "topical analgesics." This means they decrease the sensation of pain when applied to the skin.

Mechanism of Action

Traditionally, it was thought that these substances reduced pain through a "counter-irritant" mechanism. It’s important to remember that the perception of pain essentially is a message sent from parts of the body into the brain, so we feel the sensation of pain. The counter-irritant theory was based on the active ingredient actually "irritating" the skin to create a reaction that cancelled out the pain signal before it reached the brain. Essentially, this skin irritation would stimulate certain nerve fibers (larger-sized nerve fibers) that would send more information than the smaller-sized nerve fibers carrying the pain signals, essentially blocking the pain signal from reaching the brain. This is known as the gate-control theory and is a commonly held view of pain relief.

image - Copyright â Stock Photo / Register Mark Classic research on menthol has shown that topical application will increase cutaneous blood flow and increase the pain threshold (tolerance to pain). This research supported the theory that menthol, in particular, acted as a "counter-irritant."

Recent exciting research, however, has shed some doubt on the counter-irritant function as the only mechanism of pain relief for topical analgesics containing capsaicin and menthol. Researchers have shown that menthol, in particular, actually might stimulate the smaller-diameter nerve fibers, rather than the larger-diameter fibers. While researchers aren’t ready to totally discount the counter-irritant mechanism and theory, these new discoveries might help rethink how chronic pain patients are treated and offer even better options for helping patients with all types of pain.

Clinicians have noted that many patients with chronic pain also have temperature sensitivities. Researchers have shown there is, in fact, a link between chronic pain and temperature ("thermal") sensation, specifically because these two perceptions share similar paths to the brain in the spinal cord. Therefore, when local pain becomes chronic (lasting more than one month), the pain becomes "centralized" in the central nervous system, meaning the perceptions we have of pain are controlled more by the brain than by the actual site of the pain itself.

Scientists first discovered specialized protein receptors in nerves that are sensitive to capsaicin and create the sensation of warmth in our brain. These receptors are called "transient receptor protein" or "TRP" channels, and they help give us our sense of temperature. Therefore, they are known as "thermosensitive" receptors. The first of these specialized receptors was discovered for capsaicin: the TRPV1 or "vanilloid" receptor, which is responsible for our sense of warmth.

While the capsaicin receptor TRPV1 has been known for several years, only recently did researchers discover the specific receptor for menthol. This newly discovered receptor is called TRPM8. These receptors are being investigated for their role in chronic pain control. Some investigators believe these receptors are a key link because of the close link between temperature and pain in the central nervous system.

TRP receptors are activated at specific ranges of temperatures on the skin, or by specific chemicals such as menthol. When activated, these receptors stimulate sensory fibers, changing thermal stimuli to chemical signals. These signals travel to the central nervous system in the spinal cord, where the stimulus is perceived as hot or cold.

Effectiveness

Topical analgesics provide temporary pain relief. The amount of relief depends on several factors: the active ingredient, the amount of the ingredient and the length of treatment. The amount of relief also depends on the cause of the pain. For example, research has shown that capsaicin is effective for arthritis (both osteoarthritis and rheumatoid arthritis), as well as diabetic neuropathy.

Menthol has been shown to be effective for managing hand arthritis, neuropathic pain, sports injuries and headaches. Unfortunately, much more research is needed to determine the effectiveness of these ingredients on many other conditions. With the recent discovery of the TRPM8 receptors and their influence on chronic pain, we can learn more about the effectiveness of substances such as menthol in the treatment of both acute and chronic pain.

Application

Finger with dollop of topical analgesic on the tip. - Copyright â Stock Photo / Register Mark Topical analgesics simply are pain-relieving creams or gels that are applied to the skin at the point of pain. This helps concentrate the pain relief at the point of the problem, without having to wait for medication to be absorbed internally before taking effect. In contrast to oral medications, natural pain relief can be provided without possible side effects such as ulcers, liver or kidney damage. While topical analgesics are fast-acting, they occasionally do need to be re-applied.

For example, The American College of Rheumatology recommends topical analgesics such as capsaicin and menthol for patients with knee arthritis as a "front-line" treatment before expensive and potentially harmful prescription anti-inflammatories. They recommend applying these topical analgesics up to four times a day for temporary pain relief.

Menthol also can be applied for "cryotherapy" or cold-therapy without the side effects of cold packs or ice. Researchers have shown that menthol provides similar effects of ice, such as increased pain threshold and increased cutaneous circulation. Using menthol, these effects can be produced without decreasing skin temperature, stiffness, decreased elasticity, skin irritation or prolonged vasoconstriction ... all disadvantages to using cold packs and ice treatments. This can be particularly advantageous when providing cryotherapy to athletes, for example.

Possible side effects of both capsaicin and menthol include a burning sensation that will decrease over time, as well as a minimal risk of contact dermatitis. These products should not be used over open wounds or

mucous membranes. It’s important not to combine these topical analgesics with external heat sources, such as heating pads, because of the change in heat sensitivity after application. Individuals might not sense that a heating pad is getting too hot and could inadvertently burn the skin.

Topical analgesics can be an effective, natural pain reliever with minimal side effects. Recent scientific discoveries provide even more support for the beneficial effects of topical analgesics in assisting with the treatment of chronic musculoskeletal pain, fibromyalgia, headaches and peripheral neuropathy.

Talk to your doctor of chiropractic if you are experiencing local, chronic or any of the previously mentioned types of pain, including headaches. Your doctor can recommend and provide a topical analgesic to support the care you currently are receiving. Additionally, many patients find that with topical analgesics added to their in-office or home care, they are able to achieve quicker recovery from acute injuries and less recurrences with chronic conditions.

Health Facts

Red Peppers. - Copyright â Stock Photo / Register Mark Grabbing for a glass of ice water after too much Tabasco won’t reduce the burning at all. CAPSAICIN, which puts the hot in hot sauce, is a nonpolar molecule and is therefore hydrophobic. Thus, by the same principle that causes oil and water to separate, the nonpolar capsaicin is unable to dissolve in the polar water molecules. Instead, water only spreads the burning across the surface of the mouth.

On the other hand, consuming foods high in fats and oils, such as milk or bread and butter, will help alleviate the burning. The capsaicin is able to mix freely with the fats in the food and is removed from the surface of the mouth. Alcohol and alcoholic beverages also dissolve capsaicin, due to the solvent characteristics of ethanol. And, of course, if you can stand the heat, the capsaicin will dissipate on its own - eventually.

Growing sprig of mint. - Copyright â Stock Photo / Register Mark MENTHOL is available as a dietary supplement or natural medicine in the form of peppermint oil. It is used in Eastern medicine to treat indigestion, nausea, sore throat, diarrhoea, colds and headaches. A carefully crafted, natural product that originates from peppermint essential oil extraction, menthol crystals come from freezing the base concentrate oil from a common mint, Mentha arvensis. From there, the crystals are blended into natural products.

Menthol has been used in Japan for more than 2,000 years, but in the West, it was not isolated until 1771 by Gambius. It has been used as an antipruritic, which reduces itching; and for relief of muscle aches and sprains.

Phillip Page, MS, PT, ATC, CSCS, is a physical therapist, athletic trainer, and certified strength and conditioning specialist. He operates a private practice in Baton Rouge, La., specializing in sports and orthopedic physical therapy, and has worked with the National Football League's New Orleans Saints and Seattle Seahawks.

Dana Mackison, DC, CCSP, graduated from Logan College of Chiropractic in St. Louis, Mo., and practiced in Carrollton, Texas, for 24 years, operating a family-oriented, community based practice with an emphasis on sports, nutrition and follow-up rehabilitation.

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