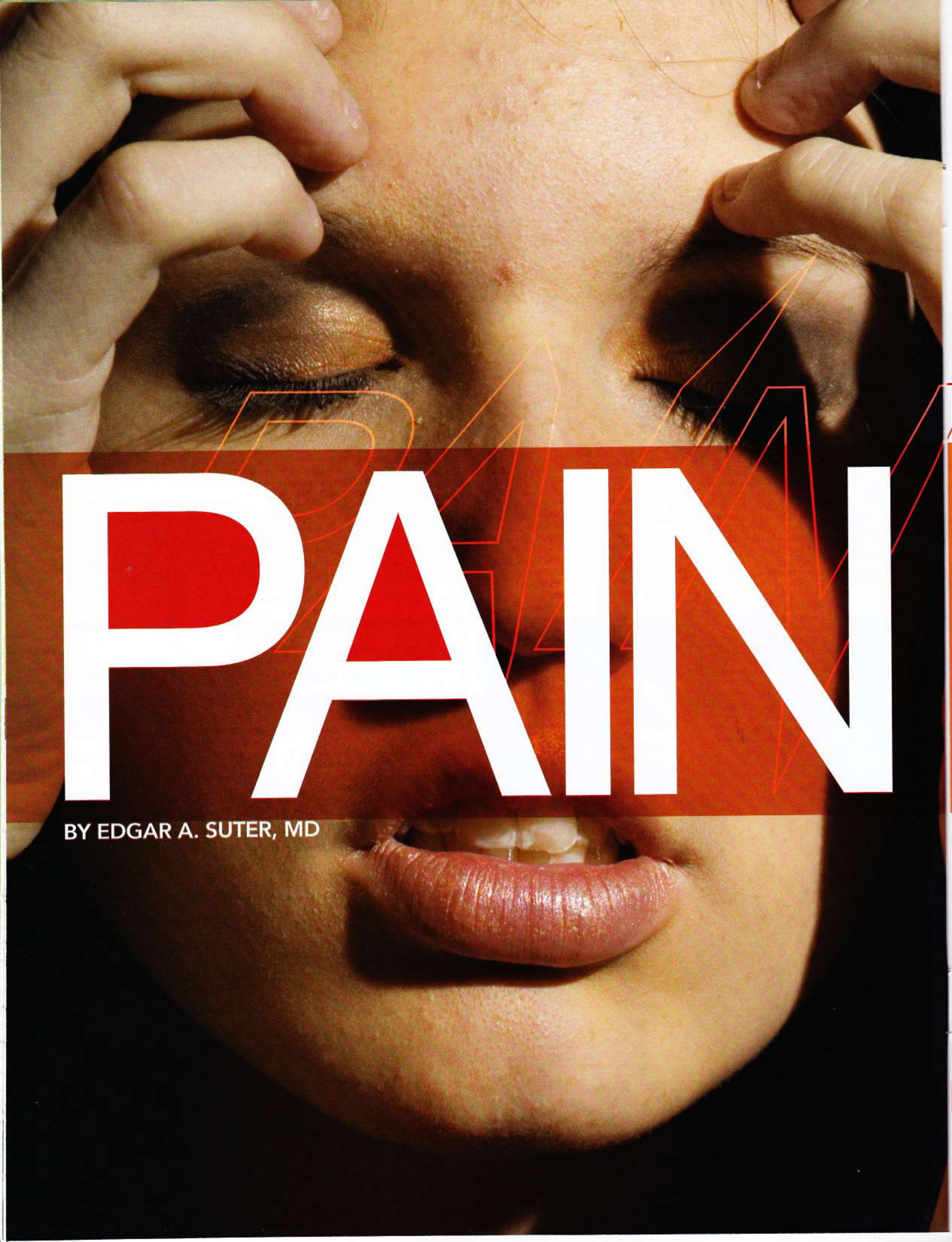

PAIN

BY EDGAR A. SUTER, MD

What is it?

Pain is classified by the regions of the body where it is felt: somatic (body), visceral (organs), or neuropathic (nerves and pain receptors). Somatic pain is easy to identify; without looking, you know where you hurt when you are injured. Visceral pain is not so well localized; visceral pain, coming from your internal organs, is often "referred" elsewhere. This is why gallbladder attacks often hurt in the shoulder blade, nowhere near the gall bladder, and why some heart attacks cause belly aches or jaw pains. Neuropathic pain is caused by damage to pain receptors, nerves, and the brain itself.

Some of the body's peripheral pain fibers are electrically insulated ("myelinated") and so conduct their pain information more quickly than the non-myelinated fibers. To generalize, the insulated "A-delta" fibers quickly carry pain that is perceived as sharp, and the non-insulated "C-fibers" sluggishly carry pain that is perceived as dull or burning.

"pain |pán| noun: physical suffering or discomfort caused by illness or injury..."

I'm sure none of us need a definition of pain—the most common reason that patients seek medical care, and the most common reason that patients are prescribed narcotics or are recommended medical marijuana. Pain receptors ("nociceptors") in the skin and organs send their information about damage and disorders of the body through nerve fibers up the spinal cord tracts to the brain. The brain processes the information so that we perceive, understand, and "appreciate" the pain. Only recently have molecular imaging and functional Magnetic Resonance Imaging (MRI) allowed researchers to "see" pain.

Medicines can affect our perception of pain by acting peripherally at the pain receptors and peripheral nerves or centrally in the brain.

What have we done to relieve it?

What do physicians and healers do about pain? Mostly we use a panoply of pain medicines, called analgesics: acetaminophen (Tylenol™), Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) (aspirin, ibuprofen, naproxen), natural and synthetic opiates (codeine, hydrocodone, morphine), and anti-epilepsy drugs (gabapentin). Transcutaneous Electrical Nerve Stimulators, Spinal Cord Stimulation implants, acupuncture, chiropractic adjustments, massage, and plenty more. Even virtual reality is being used to treat certain types of pain.[1] As a precursor to next months article, we will focus mainly on analgesics.

Opiates act at specific receptors in the brain, spinal cord, and the intestinal tract (which is the main reason for constipation). There are four major sub-types: OP1, OP2, OP3, and OP4. These receptors are much more limited in distribution compared to the ubiquitous endocannabinoid receptors. All opiate pain medicines have serious and sometimes deadly limitations: side effects, tolerance, and addiction. Even a "regular" side effect like nausea can be so heavy that patients cannot tolerate the dose necessary to relieve their pain. Patients with chronic pain eventually develop a tolerance to their pain medicines. The dose that once alleviated their pain no longer works, and higher doses are needed to stop the pain. The high doses are the reason patients can develop drug dependency, addiction, overdose, and death. Opiates in the brain stem slow and stop the signals that make us breathe, contributing to nearly 30,000 deaths from narcotic overdoses annually, most of them from prescription pain medications" (as opposed to "most of them from prescription overdoses.

NSAIDs reduce pain by reducing the body's production of the inflammatory chemicals thomboxane, and others. While NSAIDs have benefit in reducing colorectal cancer, most carry the dreaded FDA "Black Box Warnings" about the increased risk of heart attack, heart failure, and stroke. Though some NSAIDs are readily available without a prescription, they are not innocuous drugs. These are a frequent cause of gastrointestinal bleeding and kidney damage, and can have frightening side-effects when taken with certain antibiotics called "quinolones" (the Cipro™ types).

What about something lightweight, like the medicine cabinet stalwart Tylenol™? Consider the side effects of the active ingredient acetaminophen: hepatotoxicity (poisons the liver), cholestasis (normal flow of bile stopped), renal tubular necrosis (kills kidney structures), analgesic nephropathy (damages kidney structures), anemia (lowers red blood count), and hemolysis (dissolves blood cells) among many others should put things into perspective.

Are you feeling better yet? Next month you will feel much better. Newly medicinalized in Arizona is the ancient pain panacea—marijuana.

1. http://www.hpl.washington.edu/research/magnet/

Any questions or suggestions should be e-mailed to: **staff@doctorsuter.com**

NEXT MONTH: MARIJUANA, THE PAIN RELIEVER