

Smoked Cannabis Proven Effective in Treating Neuropathic Pain

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Smoked cannabis eased pain induced in healthy volunteers, according to a study by researchers at the University of California, San Diego (UCSD) Center for Medical Cannabis Research (CMCR.) However, the researchers found that less may be more.

In the placebo controlled study of 15 subjects, a low dose of cannabis showed no effect, a medium dose provided moderate pain relief, and a high dose increased the pain response. The results suggest a "therapeutic window" for cannabis analgesia, according to lead researcher Mark Wallace, M.D., professor of anesthesiology at UCSD School of Medicine and Program Director for the UCSD Center for Pain Medicine.

The paper, to be published in the November issue of the journal *Anesthesiology*, is the second published study out of the CMCR. Headquartered at UCSD, the CMCR is collaboration between UCSD and UC San Francisco that was funded by a state-funded initiative in 1999 to rigorously study the safety and efficacy of medicinal cannabis in treating diseases.

The study used capsaicin, an alkaloid derived from hot chili peppers that is an irritant to the skin, to mimic the type of neuropathic pain experienced by patients with HIV/AIDS, diabetes or shingles – brief, intense pain following by a longer-lasting secondary pain. The subjects were healthy volunteers who inhaled either medical cannabis or a placebo after pain was induced. The marijuana cigarettes were formulated under NIH supervision to contain either zero, two, four or eight percent delta-9-tetrahydrocannabinol (THC).

"Subjects reported a decrease in pain at the medium dose, and there was also a significant correlation between plasma levels of THC, the active ingredient in cannabis, and decreased pain," said Igor Grant, M.D., F.R.C.P.(C), professor and Executive Vice-Chair of the Department of Psychiatry, the director of the CMCR. "Interestingly, the analgesic effect wasn't immediate; it took about 45 minutes for the cannabis to have an impact on the pain," he said.

The results, showing a medium-dose (4% THC by weight) of cannabis to be an effective analgesic, converged with results from the CMCR's first published study, a paper by UCSF researcher Donald Abrams, M.D. published in the journal *Neurology* in February 2007. In that

randomized placebo-controlled trial, patients smoking the same dose of cannabis experienced a 34% reduction in HIV-associated sensory neuropathy pain—twice the rate experienced by patients receiving a placebo.

“This study helps to build a case that cannabis does have therapeutic value at a medium-dose level,” said Grant. “It also suggests that higher doses aren’t necessarily better in certain situations – something also observed with other medications, such as antidepressants.”

The researchers stated that more and larger studies need to be conducted to measure the efficacy of cannabis, noting that medical marijuana could play an important role in treating patients who don’t respond well to the usual pain relievers or can’t tolerate drugs such as ibuprofen or opioids used for severe pain.

“The results of this study might help guide others doing clinical research into pain management,” said Wallace.

Additional contributors to the study include Gery Schulteis, Ph.D., UCSD Department of Anesthesiology; J. Hampton Atkinson, M.D., professor, and Deborah Lazzaretto, M.S., UCSD HIV Neurobehavioral Research Center; Ian Abramson, Ph.D., UCSD Department of Mathematics and HIV Neurobehavioral Research Center; Tanya Wolfson, M.A., UCSD Department of Family and Preventive Medicine; and Heather Bentley and Ben Gouaux, UCSD Center for Medicinal Cannabis Research.

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