

Cannabis products demonstrate short-term reduction in chronic pain, little else

June 18, 2022



Evidence behind the effectiveness of cannabis-related products to treat chronic pain is surprisingly thin, according to a new systematic evidence review by researchers at Oregon Health & Science University.

The federally funded review, which will be updated on an ongoing basis, was published today in the *Annals of Internal Medicine*.

Researchers did find evidence to support a short-term benefit in treating neuropathic pain — caused by damage to peripheral nerves, such as diabetic neuropathy resulting in pain described as burning and tingling — with two FDA-approved synthetic products made of 100% tetrahydrocannabinol, or THC: dronabinol (under the trade name Marinol) and nabilone (Cesamet). Both products also lead to notable side effects, including sedation and dizziness, according to the review.

Another product also showed evidence of some clinical benefit for neuropathic pain: a spray applied under the tongue comprising equal parts THC and cannabidiol, or CBD, extracted from the cannabis plant, known

as nabiximols. That product, however, is not available in the U.S. and led to side effects, such as nausea, sedation and dizziness.

“In general, the limited amount of evidence surprised all of us,” said lead author Marian S. McDonagh, Pharm.D., emeritus professor of medical informatics and clinical epidemiology in the OHSU School of Medicine. “With so much buzz around cannabis-related products, and the easy availability of recreational and medical marijuana in many states, consumers and patients might assume there would be more evidence about the benefits and side effects.

“Unfortunately, there is very little scientifically valid research into most of these products,” she said. “We saw only a small group of observational cohort studies on cannabis products that would be easily available in states that allow it, and these were not designed to answer the important questions on treating chronic pain.”

Voters in Oregon, Washington and 20 other states have legalized medical and recreational marijuana. However, the researchers found many of the products now available at U.S. dispensaries have not been well studied.

“For some cannabis products, such as whole-plant products, the data are sparse with imprecise estimates of effect and studies had methodological limitations,” the authors write.

This situation makes it difficult to guide patients.

“Cannabis products vary quite a bit in terms of their chemical composition, and this could have important effects in terms of benefits and harm to patients,” said co-author Roger Chou, M.D., director of OHSU’s Pacific Northwest Evidence-based Practice Center and professor of medical informatics and clinical epidemiology, and medicine (general internal medicine and geriatrics) in the OHSU School of Medicine. “That makes it tough for patients and clinicians, since the evidence for one cannabis-based product may not be the same for another.”

The living review, including a visual abstract summary of the findings, will also be shared on a new web-based tool launched by OHSU and VA Portland Health Care System early this year to help clinicians and researchers evaluate the latest evidence around the health effects of cannabis. Known as Systematically Testing the Evidence on Marijuana, or STEM, the project includes “clinician briefs” to help health care workers translate the clinical implications.

“This new living evidence review is exactly the type of resource clinicians need to clarify for patients the areas of potential promise, the cannabis formulations that have been studied and, importantly, the major gaps in knowledge,” said co-author Devan Kansagara, M.D., M.C.R., professor of medicine (general internal medicine and geriatrics) in the OHSU School of Medicine and a staff physician at the VA Portland.

Reviewers searched more than 3,000 studies in the scientific literature as of January 2022, and landed on a total of 25 with scientifically valid evidence — 18 randomized controlled studies and seven observational studies of at least four weeks.

The effects of cannabis and related products are based on their ability to mimic the body's endocannabinoid system, which comprises receptors and enzymes in the nervous system that regulate bodily functions and can affect the sensation of pain. In the evidence review, researchers sorted the types of product into high, comparable and low ratios of THC to CBD, and compared their reported benefits and side effects.

Dronabinol and nabilone fit into the high THC-to-CBD ratio category; 100% THC (no CBD) showed the most benefit among the products studied, with meta-analysis of the six randomized controlled studies demonstrating statistically valid benefits for easing neuropathic pain compared with a placebo.

“Honestly, the best advice is to talk to your primary care physician about possible treatments for chronic pain,” McDonagh said. “If you want to consider cannabis, you need to talk to your doctor.”

In addition to McDonagh, Chou and Kansagara, co-authors include Benjamin J. Morasco, Ph.D., Jesse Wagner, M.A., Azrah Y. Ahmed, B.A., and Rongwei Fu, Ph.D.

The project was funded by Agency for Healthcare Research and Quality of the U.S. Department of Health and Human Services, contract number 75Q80120D00006. Statements in the report should not be construed as endorsement by the AHRQ or the Department of Health and Human Services.