Despite the legalization of marijuana by several state governments, physicians should not recommend smoking it as a treatment for glaucoma, said Sunita Radhakrishnan, MD.

“It has been approved by public opinion rather than scientific research,” said Dr. Radhakrishnan, research director, Glaucoma Research and Education Group, and associate, Glaucoma Center of San Francisco, San Francisco.

While cannabis lowers IOP for 2 to 4 hours, few studies have examined its effects on glaucoma, she said.

In addition, it can cause adverse reactions, is illegal under federal law, and cannabis-containing products are not subject to regulatory oversight, Dr. Radhakrishnan said.

Seven states and Washington, DC, have legalized cannabis for recreational use, and 21 states have legalized it for medical use, she said, citing Business Insider.

However, the U.S. Drug Enforcement Administration (DEA) continues to classify it on schedule I, “drugs with no currently accepted medical use and a high potential for abuse.”

The cannabis plant contains multiple cannabinoids including Delta 9 Tetrahydrocannabinol (THC), which is psychoactive, and cannabidiol (CBD), which is not.

Scientific exploration of its use for glaucoma dates back to 1971, when Hepler and Frank documented a 25% to 30% reduction in IOP for 3 to 4 hours in volunteers who smoked it. In 1980, Merritt et al. repeated the finding in a placebo-controlled trial.

Other researchers found that oral ingestion and sublingual administration of a whole plant extract of THC also reduced IOP for 2 to 4 hours. But topical THC administered in a light mineral oil had no effect compared with controls.

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MARIJUANA

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And one study found that taking THC daily resulted in only a transitory effect, with all patients electing to discontinue within 9 months. There are no long-term studies on the use of cannabis for glaucoma, Dr. Radhakrishnan said.

‘Nowadays, we have much better IOP-lowering agents that are FDA approved and have been extensively studied.’

Case reports (published or anecdotal) of long-term use for glaucoma have varied. They include both dramatic IOP reduction with good functional status on one hand, and progression to blindness on the other.

Summarizing the published literature, the National Academies of Sciences, Engineering, and Medicine (NASEM) concluded this year that “there is limited evidence that cannabis or cannabinoids are ineffective for improving IOP associated with glaucoma.”

Physicians should educate patients wanting to try cannabis for glaucoma about its limitations, Dr. Radhakrishnan said.

Side effects may include addiction, structural brain changes, decreased intelligence quotient (IQ), impaired cognitive function, development of psychotic disorders, chronic obstructive pulmonary disease, and increased risk of motor vehicle accidents.

Patients may already be using marijuana recreationally or for medical reasons other than glaucoma. It is important to advise that marijuana does not replace ongoing glaucoma therapy and that regular monitoring for glaucoma for should still be continued.

ADDITIONAL DRAWBACKS

There are a variety of ways in which cannabis may be used.

“For obvious reasons, we don’t advocate smoking,” she said. And it is hard to control the dosages when smoking marijuana. There are fewer respiratory symptoms with inhaled vapor, but much remains unknown about the volatile toxins with this route of administration. With oral consumption, gastrointestinal absorption varies. There is no uniform standard for production, so products and potencies vary.

While topical application may seem best suited to treating eye diseases, cannabinoids are highly lipophilic and this approach has not been successful in studies so far.

“Nowadays, we have much better IOP-lowering agents that are FDA approved and have been extensively studied,” Dr. Radhakrishnan said.

“You must remember that in patients using latanoprost or timolol the potential for addiction is zero.”

These drawbacks “preclude recommending this drug in any form for the treatment of glaucoma at the present time,” according to a 2009 position statement by the American Glaucoma Society.


CONTINUING RESEARCH

The potency effect of cannabinoids on IOP deserves further study in order to understand where they may fit in the glaucoma management algorithm. Currently, research is difficult because of its Schedule I classification.

Federal law limits the source of cannabis for research to a single site at the University of Mississippi. This cannabis has lower potency than cannabis sold in state regulated markets, and doesn’t reflect the variety of products on the street.

In August 2016, the DEA announced plans to expand the number of registered marijuana manufacturers, but it’s too early to say how this will affect research in glaucoma, Dr. Radhakrishnan said.

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This article was adapted from Dr. Radhakrishnan’s presentation during the Glaucoma Symposium at the 2017 Glaucoma 360 annual meeting. She has no financial interest in the subject matter.

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