Germs, mold found in some medical pot

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(HealthDay)—Medical marijuana carries infectious bacteria and fungi that can pose a life-threatening risk to cancer patients who use pot to help with side effects of chemotherapy, a new study suggests.

The study was initially prompted by the death of a man using medical marijuana to combat the side effects of cancer treatment. His death was believed to be caused by a fungus from his marijuana, his doctor said.

Study researchers tested 20 different samples of dried marijuana obtained from Northern California dispensaries and found several potentially dangerous pathogens in the samples.

The germs found by the researchers wouldn't harm an average pot user, but could be potentially fatal to people whose immune systems have been suppressed, said lead researcher Dr. George Thompson III.

"We found basically everything that, if you're really immunosuppressed, you don't want," said Thompson, an associate professor of clinical medicine at the University of California, Davis.

Immune-suppressed patients—people who have undergone chemotherapy, for example, or those with a disease that attacks the immune system—are warned to avoid many things that could carry potentially harmful bacteria or fungi, Thompson said.

"They can't have cut flowers in their room. They're told to not garden. They're told to really scrub their produce before they eat it," Thompson said.

Patients are also told to avoid foods such as raw vegetable sprouts, undercooked eggs, fresh salsa and berries, because of infection risk, the study authors said.

But there haven't been any similar warnings associated with medical marijuana, even though it's basically dead plant material very likely to be covered in the same sort of pathogens, Thompson said.

Medical marijuana is frequently used to control nausea, pain and lack of appetite. This is seen in people with immune systems compromised by AIDS, cancer treatment or drugs taken after an organ transplant, the researchers noted.

The UC Davis researchers became aware of this risk when a patient developed a rare and incurable fungal infection after using aerosolized marijuana—raw, blended marijuana inhaled as a mist.

The patient ultimately died from a lung infection with a fungus called *Mucor*, according to his physician, Dr. Joseph Tuscano, from UC Davis.

The patient had been using medical marijuana while he was receiving chemotherapy and stem cell therapy for cancer.

To test their concern, the researchers had DNA analysis conducted to identify the fungi and bacteria contained in the samples from medical marijuana dispensaries.

Several different families of dangerous fungi were found in the medical pot, including *Aspergillus*, *Cryptococcus* and *Mucor*. These cause dangerous sinus and lung infections, and Mucor also can spread to the brain and spinal cord, according to the U.S. Centers for Disease Control and Prevention.

Bacteria found in the marijuana samples included *E. coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Pseudomonas fluorescens* and *Pseudomonas putida*, *Acinetobacter baumannii* and *Stenotrophomonas maltophilia*.

Any of these germs could cause a serious respiratory infection in immune-compromised patients, said Dr. Paolo Boffetta, associate director for cancer prevention at the Tisch Cancer Institute at Mount

Sinai in New York City.

It's possible that when smoking pot, not all of the germs are burned away, Boffetta said. Some pathogens might survive and be inhaled, where they could infect the lungs.

The study authors warn against patients using inhaled forms of medical marijuana. They advise patients that consuming pot in baked goods is likely the best option, since the high temperatures involved in cooking would probably destroy the pathogens.

Paul Armentano is deputy director of NORML, a marijuana advocacy group. He said, "It behooves producers, dispensers, regulators and consumers to have these products rigorously tested and analyzed so that patients and others are consuming a product of known potency and quality, and one that is free from potentially harmful molds, pesticides or pathogens."

Boffetta said the study findings indicate that improved regulation of medical marijuana is needed to make sure producers and dispensaries are selling pathogen-free products.

"I don't think we saw in this paper proof that patients are getting infections. It's just a possibility," Boffetta said. "It doesn't mean this is a major known risk, but it is a potential hazard that should be quantified."

The study was published online recently in the journal *Clinical Microbiology and Infection*.

More information: George Thompson III, M.D., associate professor of clinical medicine, University of California, Davis; Joseph Tuscano, M.D., professor, hematology/oncology, University of California, Davis; Paolo Boffetta, M.D., M.P.H., professor, Icahn School of Medicine at

Mount Sinai, and associate director for cancer prevention, Tisch Cancer Institute at Mount Sinai, New York City; Paul Armentano, deputy director, NORML; *Clinical Microbiology and Infection*, Dec. 9, 2016, online

For more about fungal infections, visit the U.S. Centers for Disease Control and Prevention.

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