

# Health

## Distinct virus found in cancer tissue of HIV-positive patients with lymphoma

University of Florida researchers studying samples from HIV-positive patients who died with a type of cancer called non-Hodgkins lymphoma have discovered the existence of two different HIV-1 populations — one that infects normal tissues and another that infects cancerous tissues.

The finding shows for the first time that the HIV-1 at work in cancer cells is genetically different than the HIV-1 infecting other cells, a possible insight into the cause and progression of lymphoma. The finding may help with the development of cancer therapies for both HIV-positive and non-infected people.

About 10 percent of HIV-positive patients will develop lymphoma, a type of blood cancer that occurs when white blood cells that help protect the body from infection and disease behave abnormally, often forming tumors in the lymph nodes, spleen, bone marrow, blood or other organs.

The National Cancer Institute predicted that 74,000 people would be diagnosed with lymphoma in 2010.

"Lymphoma is very aggressive and does not respond well to therapy in HIV patients," said Marco Salemi, an assistant professor in the department of pathology, immunology and laboratory medicine at the UF College of Medicine. "Surprisingly, we saw two different populations of HIV — one that infects tumors and one that infects healthy tissues. This suggests there is a specific HIV population associated with onset of lymphoma. If true, that would be an ideal target for

medical interventions to fight cancer."

Researchers investigated HIV in healthy tissues and tumors from two patients. Samples were obtained through the AIDS and Cancer Specimen Resource. Analysis showed the virus subtypes intermixed only in the lymph nodes. Tumor tissue showed a 100-fold increase in the HIV population associated with lymphoma, indicating a significant relationship between HIV evolution and tumor growth.

Furthermore, researchers used a computational technique to track how the "lymphoma" HIV moved from one tissue to the next over time, essentially mapping how the cancer spread, or metastasized. The findings were first published in the December edition of the online journal PLoS ONE.

"Truly something different is going on in the evolution of the subtypes of HIV-1," said Salemi, who is affiliated with the UF Genetics Institute and Emerging Pathogens Institute, and the UF Shands Cancer Center. "We found in patients the metastasis was restricted to a specific HIV type, and this helped us track how the cancer moved. We hope this means HIV can be used as a genetic marker to allow us to track how cancer can spread from one tissue to another."

The research was funded in part by grants from the National Institutes of Health, the Laura McClamma Fellowship, the Center for Research in Pediatric Immune Deficiency and the Stephany W. Hollaway university chair for AIDS research.

## Stroke study finds neck stents safe, effective

Stroke study finds neck stents safe, effective People at risk of a stroke because of narrowed neck arteries can be safely treated with a less drastic option than the surgery done now, the largest study ever done on these treatments concludes.

If Medicare agrees to cover it, hundreds of thousands of Americans a year might be able to have an artery-opening procedure and a stent instead of surgery to remove built-up plaque, doctors say. A stent is a wire-mesh tube that props the blood vessel open.

Stents have long been used to fix heart arteries but are approved for use in the neck only for people too sick for surgery. The new study, in people with less severe disease, suggests stents may find much wider use.

"The sea of people is gigantic" who could benefit, said Dr. Walter Koroshetz, deputy director of the National Institute of Neurological Disorders and Stroke, the study's main sponsor.

"We now have two safe and effective methods" to treat neck vessels, said Dr. Thomas Brott of the Mayo Clinic in Jacksonville, Fla. He led the study and gave results Friday at an American Stroke Association conference.

However, the treatments have different complications, and not all doctors are convinced stents are as safe. Three previous studies found they were not, including one published online Thursday by the British journal The Lancet.

The reason: Even though stents prevent strokes in the long run, the procedure itself can trigger a stroke if a bit of plaque travels to the brain.

The new study revealed a tradeoff: Strokes were a more frequent complication with stents, while heart attacks were more common after surgery.

Doctors say which option a patient chooses may depend on their general health, what risks they are willing to accept and how badly they want to avoid surgery.

Surveys show that people worry more about stroke than a heart attack, said Dr. Lee Schwamm, a top neurologist at Massachusetts General Hospital.

"They're terrified of surviving a stroke with major disability ... ending their years in a nursing home," he said.

In the study, "stroke was by far the more disabling complication," said Dr. Wesley Moore, a University of California at Los Angeles doctor who oversaw the surgery part of the study.

About 795,000 Americans each year suffer a stroke. Many are caused by a clot that forms in a narrowed neck artery and travels to the brain. Doctors can check for narrowed arteries by using a stethoscope to listen for abnormal sounds in neck arteries, and a painless ultrasound test can show blockages.

The top treatment has been surgery: with the patient under general anesthesia, the artery is cut open, the plaque removed, and the vessel sewn back together. Stents won approval as an alternative for certain patients in 2004; half a dozen companies make the devices now, although Abbott Laboratories stands to benefit most because its stents were in the study.

To place them, doctors put a tube in a blood vessel in the groin and push it to the narrowed artery. A parachute-like filter is placed to trap bits of

plaque that dislodge and keep them from traveling to the brain. A balloon is inflated to flatten the clog, the stent is placed to hold the artery open, and

the filter is removed. The patient is awake but sedated.

The study involved 2,502 patients in the United States and Canada. Half had recent symptoms such as a ministroke. The rest had no symptoms but significantly narrowed neck arteries. They were given either surgery or a stent made by Abbott Vascular, a division of North Chicago, Ill.-based Abbott Labs, which helped sponsor the trial.

A month later, about 4 percent of the stent group had suffered strokes versus 2 percent of those who had surgery. About 2 percent of the surgery group had heart attacks compared to 1 percent of those given stents.

There were nine deaths in the stent group versus four in the surgery group, but the difference in a study this size was so small that it could have occurred by chance alone, Brott said.

Age mattered. "If you were younger than 70, you were slightly better off with a stent," while older patients fared better with surgery, Brott said.

There is no age limit for the surgery, said UCLA's Moore. "I've operated on people who are centenarians. If somebody lives to be 100 years old, they've got something going for them."

The study did not include a group of patients treated only with medicines to control stroke risk factors, such as high blood pressure and cholesterol. Without such a comparison group, it's impossible to know just how many strokes either treatment prevented.

Dr. Charles Simonton, chief medical officer of Abbott Vascular, said the results "are particularly impressive" because the study started a decade ago, when neck stents were still a new technology.

## Study of isolated snakes could help shed light on venom composition

While studying a way to more safely and effectively collect snake venom, University of Florida researchers have noticed the venom delivered by an isolated population of Florida cottonmouth snakes may be changing in response to their diet.

Scientists used a portable nerve stimulator to extract venom from anesthetized cottonmouths, producing more consistent extraction results and greater amounts of venom, according to findings published in August in the journal Toxicon.

The study of venoms is important for many reasons, scientists say.

"The human and animal health benefits include understanding the components of venom that cause injury and developing better antivenin," said Darryl Heard, an associate professor in the UF College of Veterinary Medicine's department of small animal clinical sciences. "In addition, the venom components have the potential to be used for diagnostic tests and the development of new medical compounds."

But in addition to showing the extraction method is safer, more effective and less stressful to both snake and handler than the traditional "milking" technique, Heard and Ryan McCleary, a Ph.D. candidate in biology in UF's College of Liberal Arts and Sciences, discovered the venom from these particular snakes differs from that of mainland snakes, likely because of their unique diet of dead fish dropped by seabirds.

Heard and McCleary collaborated to develop a safe, reliable and humane technique for collecting venom from cottonmouths as part of a larger study on a specific population of snakes that reside on Seahorse Key, an isolated island near Cedar Key on the Florida's Gulf Coast.

The venom collection study included data from 49 snakes on Seahorse Key.

"Snakes on this island are noted for their large size," said Heard, a zoological medicine veterinarian with additional expertise in anesthesia. He added that Harvey Lillywhite, a professor of biology at UF and McCleary's postdoctoral adviser, has confirmed that cottonmouths on Seahorse Key eat primarily dead fish dropped by birds in a large seabird rookery.

Lillywhite also directs UF's Seahorse Key Marine Laboratory, located in the Cedar Keys National Wildlife Refuge. McCleary hopes to build on earlier studies about the snakes' ecology and to explore whether evolutionary changes may have affected the composition of the snakes' venom.

"My interest is in the evolutionary aspect," McCleary said. "If these snakes already have an abundant

unit's pump. They remain on that table for an hour while the cuffs or pants squeeze their lower body with each heartbeat.

A full course of EECF therapy requires patients to receive these treatments daily for seven weeks.

Studies have shown that 75 to 80 percent of patients completing a course of therapy experience prompt and significant reduction in their symptoms and improvement in their activity levels.

For the majority of patients, these benefits persist for more than two years.

EECF therapy is typically prescribed for patients suffering from chest pain (angina) caused by insufficient blood supply to the heart muscle (ischemia) due to a narrowing of, or blockages in, the coronary arteries. EECF is an established, noninvasive treatment that is FDA-approved as a safe and effective alternative or addition to heart bypass surgery and balloon angioplasty in certain patients.

Research shows this therapy appears to be beneficial for patients with hard-to-treat heart disease and ischemia.

## Health stories by experts more credible than blogs

Health information written by a doctor is rated as more credible when it appears on a Web site than in a blog or a homepage, according to a study of college students.

The findings highlight the relative importance of different online sources to people who seek health information on the Internet.

"Most people look for health information online by keying disease symptoms into various search engines," said S. Shyam Sundar, distinguished professor of communications, Penn State. "But the results of that search could range from experts at the Mayo Clinic to somebody's personal blog."

Sundar and his colleague Yifeng Hu, lead author and assistant professor of communications, College of

New Jersey, Ewing, N.J., study how people evaluate and act on online health information.

"We are looking at accuracy and believability," explained Sundar. "We want to see how people act on the advice they receive, and whether they recommend it to others or forward it to friends online." Researchers found that study participants were more likely to believe -- and make use of -- information on a website from a source identified as an expert than from a layperson. Health information on the websites of TV, radio, and newspapers was not included in the study.

Participants also believed that editors and moderators help websites present accurate and complete information. Blogs, homepages, and social networking sites were seen as lacking such gatekeeping. The findings appear in the February issue of Communication Research.

Sundar and Hu presented 555 college students with screenshots of one of two health articles, attributed either to a doctor or to a layperson. Students received these articles as either from a formal website, individual homepage, a blog, a bulletin board -- a chat site where people can post messages -- or were simply told that they came from the Internet.

The first article discouraged the use of sunscreen to avoid Vitamin D deficiency, while the second advocated the consumption of raw milk over pasteurized milk.

"We wanted to find out if users differentiate between various sources of online information and how that choice impacts their decisions," said Sundar. "The health topics were controversial enough to raise questions of credibility among readers."

Statistical analyses of student questionnaires suggest that screenshots of both health topics were seen as significantly more reliable when attributed to a doctor and featured on a website rather than on a blog, individual homepage or a bulletin board.

"It tells us that young people are actually differentiating between different online sources when evaluating health information on the Internet," said Sundar. Students were also significantly more likely to follow up on the advice they had received through websites and bulletin boards -- compared to blogs and homepages -- by acting on it and sharing it with friends.

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## Medical Minute

### Squeezing 'pants' good fit for some heart patients

BY PETER ALAGONA JR.

Squeezing into a tight pair of pants can be a painful experience, but a new type of "pants" recommended for certain heart patients actually squeezes back and provides pain relief.

Called enhanced external counter pulsation (EECP), the outpatient therapy uses three sets of blood pressure-like cuffs wrapped around the legs and buttocks that inflate and deflate with the patient's heartbeat.

The squeezing action increases blood flow and oxygen to the heart and other organs, often reducing or even eliminating symptoms such as chest pain, shortness of breath and fatigue.

To receive the therapy, patients recline on a special table that houses the

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