

New way to image bleeding in arteries of the brain

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New research from the University of Calgary's Hotchkiss Brain Institute shows that by using a CT scan (computerized tomography), doctors can predict which patients are at risk of continued bleeding in the brain after a stroke. This vital information will allow doctors to utilize the most powerful blood clotting medications for those with the highest risk.

One in three individuals will continue to accumulate blood in the [brain](#) from a leak in a small artery. Pooling blood in the brain has serious consequences, and could lead to disability or even death. Previously, doctors in emergency [stroke](#) situations could not discern whether or not a patient's brain bleeding had stopped. Using [CT scan](#) images, researchers can now identify "spot signs" that are seen as a small area of contrast on the CT scan. This spot sign is the actual location of bleeding within an artery in the brain.

"Technology that has emerged has allowed us to see the brain's [blood flow](#) system in exquisite detail to precisely identify the source of the problem," explains Dr. Andrew Demchuk, Professor in the departments of clinical neurosciences and [radiology](#), and lead author of this study.

"We are now at a point where we can harness this technology to develop better treatments for patients with a blockage or breakage in a brain artery. Ultimately this research will confirm when immediate treatment is necessary – essentially, as soon as you see the spot sign."

This research provides validation of a new imaging marker to identify patients that may need to be treated with clotting medications versus

those that don't. "We must be very careful when and to whom these drugs are administered because they are so powerful at forming clots. These drugs can cause clots not only where there are holes and leaks – but also in intact arteries –potentially causing stroke and heart attacks," says Demchuk. "Therefore this CT scan selection is critical for targeting only those patients at highest risk of continued bleeding."

Clinical trials have now begun to test powerful clotting drugs in these [patients](#).

This University of Calgary-led "PREDICT" study was coordinated with researchers at the Universities of Ottawa and Toronto, along with collaboration amongst nine other centres around the world. Their results were published in the March 8th online edition of the prestigious journal *Lancet Neurology*.

Provided by University of Calgary

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