

SUNNYBROOK SCIENTIST FINDS PASSAGE THROUGH BLOCKED ARTERIES, GIVING HEART PATIENTS NEW LEASE ON LIFE

TORONTO, Ontario – June 12, 2008 — A Sunnybrook scientist may have solved a cardiologic mystery with the development of a unique method that grants physicians lifesaving access through an otherwise impenetrable passage.

Coronary arteries that have been totally blocked for at least six weeks are called chronic total occlusions (CTOs). A major cardiovascular problem, CTOs are relatively common. Indeed, some 30 per cent of coronary angiograms and 50 per cent of leg angiograms reveal CTOs in patients. These sticky medical conditions frequently cause major cardiac symptoms in their victims, including chest pain and shortness of breath, and likely contribute to decreased survival. What's more, they're not well understood by the general public and are very difficult to treat. Angioplasty success rates in coronary CTOs hover around 50 per cent, far lower than the 95 per cent achieved through treating arteries that are narrowed but not fully blocked. As such, CTO patients are usually referred for more invasive bypass surgery or treated with medications and forced to live a restricted lifestyle.

Until now.

Dr. Bradley Strauss, a clinician-scientist at Sunnybrook Health Sciences Centre, is heading a team that has developed a promising new therapy for treating CTOs. It involves the injection of an enzyme called collagenase into the occlusion to soften the dense fist of collagen that has entirely obstructed the artery. This allows a physician to draw a guidewire used during angioplasty elegantly across the occlusion successfully, without damaging any of the normal layers of the blood vessel.

"Most of the time with arteries that are not totally blocked, running a wire through isn't terribly hard to do," says Strauss. "The problem with these CTOs is that there's no space. The stuff blocking the artery is often like cement and you can't get the wire through."

Up until now, technicians bent on solving the CTO problem have concentrated their efforts on mechanical solutions, developing stronger, more deliberate guidewires. Strauss's strategy, eight years in the making, is unique for being a biological solution.

Having proven that this therapy works to improve angioplasty success rates in animals, Strauss is now poised to test a collagenase formulation suitable for use in people in a clinical trial—the first of its kind—with patients this fall at Sunnybrook and St. Michael's Hospital. With a careful eye on adverse effects, scientists will test a total of four doses, in 20 patients, in increasing amounts. These results will then be used to determine the best dose for a large-scale clinical trial.

This research received full play on June 4, 2008, when Strauss and his team hosted the Canadian CTO Summit: Translating Science to the Clinic, at Sunnybrook. Backed by substantial funding from the Canadian Institutes of Health Research (CIHR), the CIHR Team in Occlusive Vascular Disease will bring together leading cardiologists, biologists, imaging scientists and professionals interested in health outcomes from across the country, all of them keen to exchange ideas on solving the unique conundrum of CTOs.

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About Sunnybrook

Sunnybrook is transforming health care through the dedication of its more than 10,000 staff,

physicians and volunteers. An internationally recognized leader in research and education and an affiliation with the University of Toronto distinguishes Sunnybrook as one of Canada's premier academic health sciences centres. Sunnybrook specializes in caring for critically-ill newborns, adults and the elderly, treating and preventing cancer, cardiovascular disease, orthopaedic and arthritic conditions and traumatic injuries.

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