

Collagenase: A novel therapy for improving coronary angioplasty results in chronic total occlusions

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March 26, 2015

5:00 pm - 6:00 pm

100 College St, Banting Institute, Room 131

Chronic total occlusions (CTO), defined as completely blocked arteries present for 3 months or longer, are commonly identified at coronary angiography (20% of all cases). These severe blockages can cause significant chest pains and adversely affect the quality of life of patients with coronary artery disease. Due to the complexity and difficulty of performing coronary angioplasty in these lesions, patients are frequently referred for bypass surgery or treated with (often inadequate) medical therapy. The main structural component of CTO is collagen, which acts as a barrier preventing the guidewire from crossing the blockage, which is required for a successful angioplasty. Extensive pre-clinical experimental work, beginning in 2000, has shown that injection of a bacterial collagenase formulation directly into CTO causes plaque softening and facilitates guidewire crossing without damaging deeper layers of the vessel wall. In 2011, Matrizyme Pharma completed a Phase I study in which 28 CTO patients (all with at least one previous PCI failure attempt) were locally injected with collagenase (MZ-004) directly into the CTO, with an encouraging 75% success rate. The company has now initiated a 90 patient Phase II Trial in 13 clinical sites in Canada and Holland. The market opportunities look very promising with approximately 720,000 new CTOs diagnosed in the US every year (and double that number worldwide).

BIOGRAPHY



Dr. Bradley Strauss was born in Kitchener, Ontario, Canada. He obtained his MD cum laude from the University of Toronto in 1982. He completed his Residency Training in Internal Medicine at the University of Toronto in 1986 and then a Clinical Fellowship in Cardiology at the University of Ottawa Heart Institute in 1988. Subsequently he was awarded a Research Fellowship from the Heart and Stroke Foundation to do research work at the world-famous Thoraxcenter in Rotterdam, the Netherlands under the supervision of Professor Patrick Serruys. During his time in Rotterdam, he obtained a PhD from Erasmus University for his work on coronary stenting and the arterial response to stenting injury.

He currently is Chief of the Schulich Heart Program and Head of the Division of Cardiology at Sunnybrook Health Sciences Centre in Toronto, Canada. He holds the Reichmann Chair in Cardiovascular Research, and is a Professor of Medicine and Professor of Laboratory Medicine and Pathobiology at the University of Toronto.

His main clinical activity is interventional cardiology. He is very active in both basic research (arterial response to injury, angiogenesis) and clinical research related to interventional research and coronary imaging. He has authored over 160 papers and 18 book chapters and serves on the Editorial Board of 5 journals. His main clinical interest is chronic total occlusions, including studies on pathophysiology, epidemiology, imaging and development of new chronic occlusion therapies. He has founded a company, Matrizyme Pharma, to commercialize the use of collagenase to soften the plaque in order to facilitate guidewire crossing in chronic total occlusions. Matrizyme Pharma is now coordinating a Phase 2 Trial in 10 Canadian centers.