Vascular Cures Research Network Discovers the First Genetic Marker to Predict Treatment Outcomes of Patients with Peripheral Artery Disease

Peripheral Artery Disease (PAD) results from the build-up of plaque in the arteries of the leg. Hundreds of thousands of procedures – bypass surgery, angioplasty and stents - are performed each year in the U.S. to improve leg circulation in patients suffering from PAD, yet up to half of these fail within a few years due to excessive scarring that leads to reduced blood flow. The reasons for the variability in the outcome of PAD treatments have been poorly understood.

Doctors in our Vascular Cures Research Network, led by vascular surgeons Michael S. Conte, MD and Alec Clowes, MD, demonstrated a potential genetic basis for why some patients experience blockage of their bypass grafts faster and more frequently than others.

“The results of this study, together with similar findings in a Dutch study of patients who underwent coronary stent angioplasty (van Tiel et al, 2009), strongly support the hypothesis that the formation of scar tissue in blood vessels is genetically regulated by the gene p27,” stated Dr. Conte.

Dr. Conte is Chief Medical Officer of Vascular Cures, Chief of UCSF’s Division of Vascular and Endovascular Surgery and Co-Director of the UCSF Heart and Vascular Center. Dr. Clowes is Professor of Surgery at the University of Washington and Vice Chair for Research in the Department of Surgery.

“These studies represent a major breakthrough in our understanding of arteries closing after angioplasty and bypass grafting,” added Dr. Clowes. “More importantly, they may help us identify patients at increased risk of treatment failures. These results may also accelerate drug development to prevent renarrowing of vascular reconstructions.”
Experts are becoming increasingly concerned about the growing number of people in their 20s and 30s coping with type 2 diabetes, which used to be rarely seen in those under 40. In 2010, about 465,000 20-40 year olds were newly diagnosed.

The longer you live with diabetes, the more likely you are to develop complications. Vascular complications include high blood pressure, high cholesterol, kidney failure, blindness and lack of blood flow to the legs that can lead to amputation.

Vascular Cures’ Wylie Scholar Eric Choi, MD, Chief of Vascular Surgery and Director of the Limb Salvage Center at Temple University, says he is seeing more younger diabetic patients who require limb salvage work. “It’s alarming how many young adults are on the verge of amputation,” stated Dr. Choi. “About 20% of the amputations that we did last year were in patients 45 or under.”

Dr. Choi does everything in his power to save a limb, offering a comprehensive program with cutting-edge treatments including angiogenesis, a technique which entails improving blood flow to the leg using innovative therapies designed to grow new blood vessels. He is currently in a clinical trial that uses a therapy that stimulates bone marrow to create stem cells as a means to grow new blood vessels and improve blood flow to the leg.

Wylie Scholar Selected for Genetic Research in Blood Vessel Growth

Gale Tang, MD of the University of Washington has been named the 2011 Wylie Scholar in Academic Vascular Surgery. This $150,000 grant was awarded to support her research in understanding the mechanisms that promote blood vessel growth, and to develop new non-surgical therapies for people suffering from an advanced form of peripheral artery disease (PAD). Dr. Tang is investigating the role of the syndecan-1 protein encoded by the SDC1 gene.

“My research is focused on understanding how blood vessel growth may be stimulated by syndecan-1,” states Dr. Tang. “My goal is that this knowledge will lead to new and better treatments for patients who are at risk of amputation.”

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