CHICAGO, Illinois, April 2018 – A new Harvard research study suggests that vascular surgeons should consider insulin dependency when determining treatment for chronic limb-threatening ischemia in patients with diabetes.

Many previous studies have documented worse outcomes for diabetics compared to those without the disease. Less well known, however, is the differing outcomes for patients dependent on insulin for treatment versus those treated with oral medications.

As reported in the April 2018 edition of the Journal of Vascular Surgery, researchers from the Beth Israel Deaconess Medical Center at Harvard Medical School, led by vascular surgeon Dr. Marc Schermerhorn, studied the outcomes of 1,294 limbs re-vascularized at their institution (2005-2014) for chronic limb-threatening ischemia. Patients were categorized by the presence of insulin-dependent (n=703), non-insulin dependent (n=262), and non-diabetic (n=329) status. Treatments included both bypass grafting (n=646) and angioplasty/stenting (n=648).

Significant findings on presentation revealed that those with insulin-dependent diabetes (compared to non-insulin dependent diabetes and patients without diabetes):

• Were younger (69 vs 73 vs 77 years old)
• Had more tissue loss (89 vs 77 vs 67%) 
• Suffered higher incidences of coronary and end-stage renal disease

Although peri-operative morbidity and mortality was similar, long-term outcomes revealed that insulin-dependent diabetics:

• Had less complete wound healing at six months (41 vs 49 vs 61%)
• Required more major amputations at three years (23 vs 11 vs 8%).

Interestingly, further breakdown of treatment strategy revealed that those insulin-dependent diabetics treated initially...
with an endovascular strategy had significantly increased rates of amputation, re-intervention and non-healing compared to non-diabetics; however, if treated initially with surgical bypass, only decreased wound healing at six months was significant.

“Overall, this study demonstrates the importance of distinguishing between diabetes type, as each of the three cohorts presented with differing degrees of disease and comorbid conditions that harbor varying degrees of limb-based and patient-based risk.” Dr. Schermerhorn notes. “Although insulin dependence is associated with the greatest risk of adverse outcomes, these data suggest that these adversities may be most mitigated by initial bypass, provided the patient is appropriately selected and anatomically suitable for such treatment.”

The systemic nature of diabetes presents significant challenges to those treating diabetic patients suffering from chronic limb-threatening ischemia. The diabetic may have coronary and renal disease, making invasive surgeries risky. In addition to peripheral artery occlusions, healing can be obfuscated by small vessel disease as well as a diminished capacity to fight infection. The presence of neuropathy often results in delayed diagnosis as an infected foot ulcer may go unnoticed for days.

The authors point out their study is limited by its retrospective nature, single-center data, and inability to precisely define disease onset and severity.

As different as diabetics treated with insulin versus oral medications may be, better understanding of their differential outcomes suggests this should be considered when planning a limb-salvage strategy.

To download the complete article (open source link available from March 21 - May 31), click: Vsweb.org/JVS-DMvCLTI.

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