Subintimal Angioplasty Highly Efficacious in Legs

BY MITCHEL L. ZOLER
Philadelphia Bureau

BALTIMORE — Subintimal angioplasty is effective for revascularizing chronic, total occlusions in legs, based on experience with more than 600 procedures in more than 500 patients at one center.

Subintimal angioplasty "is successful in most patients regardless of where the occlusion is located, it produces acceptable secondary patency after 3 years, and it provides excellent limb salvage and relief of claudication," Dr. Eric C. Scott said at the Vascular Annual Meeting.

"Subintimal angioplasty is an appropriate first-line therapy that obviates the need for bypass in most patients," said Dr. Scott, a vascular surgeon at Eastern Virginia Medical School, Norfolk. It's a particularly attractive option in patients for whom bypass is a problem, such as those with multiple comorbidities and patients who lack a good vein for bypass.

From December 2002 to July 2006, subintimal angioplasty was used to treat 639 lower extremity occlusions in 591 patients at the school. The median age of the patients was 69 (range 35-99 years old), and the average follow-up was slightly more than 1 year. About half the patients had coronary artery disease, about half had diabetes, and 14% had end-stage renal disease. About two-thirds of the patients had critical limb ischemia, and the remaining third had claudication.

The 639 affected limbs had 1,006 occlusions, with 515 in the superficial femoral artery, 314 in the popliteal artery, 124 in the tibial artery, and 53 in the iliac artery. Technical success of subintimal angioplasty was achieved in 80%-87% of patients, varying slightly depending on the location of the occlusions.

Only a very small percent of patients were treated using a reentry device. Stents were placed only when angioplasty produced suboptimal results; about 20% of the patients in the series received stents, with an average of 1.6 stents per patient receiving stents. Following angioplasty, patients received clopidogrel (Plavix) for 1 month, and they also started aspirin treatment, which continued indefinitely.

Occlusions of the superficial femoral artery were treated in 79% of the patients in the series. For simplicity, Dr. Scott focused the remainder of his review on this subgroup. The overall complication rate (in the subgroup) was 6%; three patients required an operative intervention because of a complication. The 30-day mortality rate was 1%. Before the intervention, the average ankle-brachial index in the subgroup was 0.5. After subintimal angioplasty, the average index was 0.78.

Primary patency was 45% after 1 year and 25% after 3 years of follow-up. In a multivariate analysis, two factors were significantly linked with an increased risk of poor primary patency: tibial artery reentry, which increased the risk of failed primary patency by 57%, and critical limb ischemia, which made failed primary patency 39% more likely.

Secondary patency rates were much higher: 76% after 1 year and 50% after 3 years. A second procedure to improve blood flow to the original extremity was required in 28% of patients in the subgroup.

The limb salvage rate in the patients in the subgroup who began with critical limb ischemia was 87% after 1 year and 75% after 3 years, Dr. Scott said. In the patients with disabling claudication, 90% had improvement after 1 year, and 67% were still improved after 3 years.

The survival rate after 3 years was 43% in the patients with critical limb ischemia, and 81% in the claudicants. Bypass surgery was avoided in 89% of the patients during the first year after angioplasty, and 77% continued to avoid bypass by 3 years after their procedure.

"The critical limb ischemia patients are quite sick, and they are probably best served by a low impact, minimally invasive procedure such as subintimal angioplasty," Dr. Scott said. Given the high technical success rate that he and his associates have had with subintimal angioplasty, they have not used a transluminal approach for most patients.

"In our experience with subintimal angioplasty, we have survival rates, limb salvage rates, reintervention rates, and secondary patency rates that are very similar" to the Eastern Virginia Medical School data, commented Dr. Richard P. Cambria, chief of vascular and endovascular surgery at Massachusetts General Hospital in Boston. "We agree that the survival rates argue for using the subintimal angioplasty approach over bypass." ■