Angioplasty (POBA) Versus Stenting for Superficial Femoral/Popliteal Disease: Late Outcomes Are Equivalent

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Introduction and objectives: Several trials have reported early superiority of stenting over balloon angioplasty (POBA), yet long-term data are sparse. The goal of this study was to contrast long-term clinical outcomes and costs of these two treatment options.

Methods: Consecutive patients undergoing POBA or stenting of the native femoral/popliteal arteries from January 2002 to May 2009 were included. Patients were divided into two groups, PTA alone or stenting. Study end points included actuarial 5-year primary patency (using strict criteria of any hemodynamic change regardless of symptoms or reintervention), 5-year limb salvage, 5-year survival, and hospital cost.

Results: During this period, 815 primary procedures were performed, 511 POBA and 304 stenting. The mean follow-up duration was 33 months (range, 0-98 months). Similar demographics were observed between two groups. Treatment indications and TASC status are reported in the Table. There was no difference in overall 5-year primary patency (POBA, 28% ± 4%; stenting, 24% ± 6%; $P = .31$), nor was there a difference in 5-year limb salvage in critical limb ischemia (CLI) patients (POBA, 80% ± 4%; stenting, 75% ± 10%; $P = .18$). There was no difference in 5-year survival in claudicants (POBA, 71% ± 6%; stenting, 76% ± 6%; $P = .65$) or CLI (POBA, 29% ± 5%; stenting, 36% ± 10%; $P = .4$). Procedural cost of stenting was 60% more than POBA ($P < .001$) regardless of treatment indications. When used for claudication, stenting added an additional 40% ($P < .001$) to the hospital cost compared with POBA.

Conclusions: Long-term outcomes between POBA and stenting were equivalent when stratified by indications. Stenting added significantly to overall costs. These data support a posture of selective stenting in the treatment of superficial femoral/popliteal lesions.

Table. Treatment indications and TASC status

Variable	*POBA* *No. (%)*	*Stents* *No. (%)*	P
Patients, total	511	304	
Indications			
Claudication	303 (59)	221 (73)	.02
CLI	210 (41)	86 (28)	.02
TASC			
TASC A	149 (29)	59 (19)	.05
TASC B	318 (62)	168 (55)	0.3
TASC C	33 (6)	52 (17)	.002
TASC D	19 (4)	29 (10)	.02
	Mean ± SD	*Mean ± SD*	
5-year outcomes			
Overall primary patency	28% ± 4%	24% ± 6%	.31
CLI limb salvage	80% ± 4%	75% ± 10%	.185
Claudication survival	71% ± 6%	76% ± 6%	.65
CLI survival	29% ± 5%	36% ± 10%	.405

Endovascular Management As First Therapy for Chronic Total Occlusion (CTO) of the Lower Extremity Arteries: 2-Year Results

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Introduction and objectives: The management of chronically occluded lower extremity (LE) arteries is one of the more challenging issues for endovascular therapy. Not only is the procedure more complicated, the long-term patency has been a concern. We reviewed our prospectively maintained database to evaluate the long-term effectiveness of the endovascular treatment of chronic total occlusions (CTOs).

Methods: We reviewed our prospectively maintained LE database between March 2004 and April 2010. All CTO lesions were evaluated. Treatments included angioplasty (PTA), atherectomy (Ath), or PTA with stent (PTA+S). A dedicated research team independently evaluated the preprocedure, intraprocedure, and postoperative angiographic and noninvasive duplex imaging, as well as clinical follow-up data. Primary (PP), primary assisted (PAP), secondary (SP) patency, and limb salvage (LS) were calculated.

Results: A total of 2800 lesions were treated in 1233 patients, with 688 CTOs identified. Lesions were divided by location SFA (n = 193), popliteal (n = 67), tibial (n = 217), and multilevel (n = 211). PP, SP, and LS at 2 years were 40.1 ± 6.7, 74.9 ± 6.1, and 81.1 ± 7.3 for SFA lesions treated with PTA+S and 44.0 ± 7.0, 79.9 ± 5.3, and 90.5 ± 6.7 for Ath, respectively. Tibial vessel PP, SP, and LS were 51.1 ± 6.2, 56.2 ± 6.2, and 66.8 ± 7.1 for PTA and 50.2 ± 5.6, 66.5 ± 5.1, and 76.5 ± 5.9 for Ath (Tables I, II and III)

Conclusions: The endovascular management of CTOs has excellent 2-year results for SP and good PP and PAP. PTA alone in the SFA has relatively poor long-term results and should be discouraged. Although reintervention maybe required, endovascular therapy should be considered the primary therapy for CTOs and surgical bypass reserved for failed endovascular therapy.

Table I. Patency of SFA CTO

Patency variable	*No.*	*6 mo*	*12 mo*	*18 mo*	*24 mo*
Primary patency					
PTA + stent	97	83.0 ± 4.2	51.2 ± 6.3	42.8 ± 6.5	40.1 ± 6.7
PTA	21	64.6 ± 10.8	53.9 ± 11.4	42.4 ± 11.5	30.3 ± 11.0
Ath	75	77.7 ± 5.1	56.2 ± 6.5	49.5 ± 6.8	44.0 ± 7.0
P (PTA+S vs PTA)		.044	.675	.621	.402
P (PTA+S vs Ath)		.483	.952	.964	.972
P (PTA vs Ath)		.137	.509	.413	.270
Primmary assisted patency					
PTA + stent	97	86.7 ± 3.8	69.3 ± 5.8	64.3 ± 6.4	61.1 ± 6.8
PTA	21	64.6 ± 10.8	53.9 ± 11.4	47.9 ± 11.6	35.9 ± 11.4
Ath	75	82.1 ± 4.7	67.6 ± 6.1	63.1 ± 6.4	55.2 ± 7.1
P (PTA+S vs PTA)		.012	.076	.076	.032
P (PTA+S vs Ath)		.538	.643	.640	.515
P (PTA vs Ath)		.045	.118	.115	.077
Secondary patency					
PTA + stent	97	91.7 ± 3.0	93.1 ± 4.6	78.0 ± 5.5	74.9 ± 6.1
PTA	21	69.7 ± 10.4	64.3 ± 10.9	57.9 ± 11.5	45.0 ± 12.0
Ath	75	84.6 ± 4.5	84.6 ± 4.5	79.9 ± 5.3	79.9 ± 5.3
P (PTA+S vs PTA)		.004	.027	.030	.010
P (PTA+S vs Ath)		.578	.948	.975	.814
P (PTA vs Ath)		.020	.021	.026	.004