TRA Is an Alternative to a TFA for PCI in Patients with ULMCA Stenosis

Written by Maria Vinall

Compared with a transfemoral approach (TFA), using a transradial approach (TRA) for unprotected left main coronary artery (ULMCA) disease results in a comparable procedural success rate, a lower rate of vascular complications, similar fluoroscopy time, and shorter hospital stays. TRA should be considered as an alternative to TFA in performing percutaneous coronary intervention (PCI) for ULMCA diseases.

Ali A. Youssef, MD, Suez Canal University Hospital, Ismailia, Egypt, presented the results of a retrospective analysis of patients (mean age 67 years; mostly men) with LM stenosis ≥50% who were not eligible for coronary artery bypass graft (CABG) and underwent either TRA (n=116) or TFA (n=15) for ULMCA stenting. Patients were stratified for risk of death at 30 days using the EuroSCORE, with high risk being a score ≥6. Angiographic success was defined as TIMI 3 flow with residual diameter stenosis <30%. Procedural success was defined as angiographic success that was achieved without procedure-related death, myocardial infarction (MI), repeat PCI, or emergent CABG during hospitalization. Other study endpoints included vascular complications (eg, local hematoma, regional ischemic changes, peripheral artery occlusion, TIMI major and minor bleeds) and early (in-hospital and 6-month) outcomes (eg, postprocedural MI, stent thrombosis, pulmonary edema, stroke). With the exception of significantly higher rates of hypertension (p=0.043) and prior stroke in the TFA group (p=0.019), patients were well matched on demographics and clinical characteristics. Almost two-thirds of the patients in both groups were high-risk (mean EuroSCORE 7.3 ± 3.7 in the TRA group vs 8.7 ± 5.1 in the TFA group; p=NS).

There were no differences in procedural time, angiographic or procedural success, TIMI 3 flow rates, percent residual stenosis, or achievement of complete revascularization (Table 1). In general, smaller catheter sizes were used with the TRA (85.3% of procedures used a 6 French in the TRA approach vs only 20% of TFA procedures). Local vascular complications were significantly (p<0.001) more common among patients in whom a TFA was used (26.6%) compared with those in whom a TRA was used (1.7% of patients). Events that were significantly more common in the TFA group were hematoma/ecchymosis >5 cm (20% of patients vs 1.7% of TRA patients; p=0.001) and pseudoaneurysm and TIMI minor bleeding (both 6.7% vs 0%; p=0.005). There were no TIMI major bleeds in either group.

Table 1. Angiographic Outcomes.

	TRA n-116	TFA n=15	p value
Angiographic success (%)	114 (98.3)	14 (93.3)	0.876
TIMI 3 flow (%)	106 (91.4)	14 (93.3)	0.797
Residual stenosis (%)	10.0 ± 9.9	8.0 ± 6.8	0.449
Complete revascularization (%)	56 (48.3)	9 (60.0)	0.393
Procedural success (%)	114 (98.3)	14 (93.3)	0.876
Procedure time (min)	84.6 ± 34.4	83.7 ± 41.1	0.924

Unadjusted event rates between the two groups during hospitalization and at 6 months are shown in Tables 2 and 3. In-hospital cardiovascular (CV) events were significantly (p=0.003) more common among patients in the TFA group. Mortality was also significantly higher in the TFA group (13.3% of patients) compared with the TRA group (0.9%; p=0.002). There were no differences in mean duration of hospitalization (6.9 ± 13.3 days for TRA and 7.5 ± 9.1 days for TFA; p=NS) or outcomes at 6 months.

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Table 2. In-Hospital Outcomes.

	TRA n=116	TFA n=15	p value
In-hospital CV event (%)	9 (7.8)	5 (33.3)	0.003
Post-PCI MI (%)	7 (6.0)	2 (13.3)	0.293
Repeat PCI (%)	1 (0.9)	1 (6.7)	0.084
CABG (%)	0 (0.0)	0 (0.0)	1.000
Acute/subacute thrombosis (%)	1 (0.9)	1 (6.7)	0.084
Stroke (%)	0 (0.0)	0 (0.0)	--
Ventricular tachyarrhythmia (%)	1 (0.9)	2 (13.3)	0.002
Cardiac death (%)	1 (0.9)	2 (13.3)	0.002
Total death (%)	1 (0.9)	2 (13.3)	0.002

Table 3. Clinical Outcomes at 6 Months.

	TRA n=116	TFA n=15	p value
MACE (%)	9 (8.0)	3 (23.1)	0.299
TVR			
PCI (%)	4 (3.5)	2 (15.4)	0.468
CABG (%)	0 (0.0)	0 (0.0)	--
Acute/subacute thrombosis (%)	0 (0.0)	0 (0.0)	--
Stroke (%)	1 (0.9)	0 (0.0)	0.733
Admission due to CHF (%)	0 (0.0)	0 (0.0)	--
Cardiac death (%)	3 (2.7)	1 (7.7)	0.327
Total death (%)	4 (3.6)	1 (7.7)	0.468

CABG=coronary artery bypass graft; MACE=major adverse cardiac events; CHF=congestive heart failure.

Limitations to this study include its modest size, the lack of randomization to TRA or TFA, and the assessment at a single center, where the majority of approaches that were reported was a TRA. While the data that were presented are promising, in that they suggest that TRA may be considered as an approach for ULMCA interventions, larger randomized trials will be necessary to ascertain differences in outcomes between these two approaches.

Safety and Feasibility of Transradial Angioplasty of Brachiobasilic Hemodialysis Access Grafts

Written by Phil Vinall

Arteriovenous grafts in hemodialysis patients are prone to recurrent stenosis and require interventions to optimize their long-term patency. However, traditional intervention approaches have several limitations, including the risk of early rethrombosis due to the need for direct compression after the intervention and the risk of distal embolization [Lilly et al. *Am J Kidney Dis* 2001; Turmel-Rodrugues et al. *Nephro Dial Transplant* 2000]. Ali A.Youssef, MD, Suez Canal University Hospital, Ismailia, Egypt, presented the results of a study that showed that transradial percutaneous transluminal angioplasty (PTA) of brachiobasilic hemodialysis access grafts is feasible and safe and has a high success rate.

This prospective study enrolled 35 consecutive patients (63 procedures) with dysfunctional brachiobasilic hemodialysis access grafts between January 2003 and January 2007. Technical success was defined as >50% residual stenosis and normal flow, as defined by the protocol. Clinical success was defined as the ability to complete one full hemodialysis session using the repaired access. The data were analyzed on an intent-to-treat basis (ie, all 35 patients [63 procedures] were included). Subjects had a mean age 58 years; 43% was male. The mean shunt age was 22.14 ± 15.8 months (range 7 to 38). Forty percent of patients were diabetic, and 46% had hypertension. In the vast majority of cases, thrombosis was present in the venous outflow (91%) and/or at the graft site (88.7%). Approximately 40% of patients were being treated for a restenosis after a prior intervention, mostly a second occurrence (25%). The mean duration of access dysfunction was 2.2 ± 1.1 days.

Access time was ~3 minutes; mean procedure time was 47.4 ± 29.1 minutes. Balloon size was 7 mm in 66% of procedures and 6 mm in 21.3% of procedures. Central vein PTA was required in 3.3% of procedures. Mean residual stenosis was 24.2% ± 20.5. Final residual stenosis was <30% in 66% of procedures and <50% in 89% of procedures. Clinical success was achieved in 89% of procedures in the cases. Primary and primary assisted patency rates at 3, 6, 9, and 12 months are shown in Table 1. There was one case of access failure and one case of wiring failure. Complications occurred in 9.5% (6/63) of procedures: 3 cases of venous dissection and one case each of extravasation, perforation, and radial artery dissection.

Table 1. Patency Rates.

	Primary	Primary Assisted
3 months	76.0%	88.0%
6 months	56.0%	84.0%
9 months	35.4%	83.3%
12 months	31.9%	80.9%

The results of this modestly sized feasibility study support PTA of brachiobasilic hemodialysis access grafts as a potentially safe and effective method for restoring graft patency.