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## FRIDAY, SEPTEMBER 11, 2009

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**7:30 A.M. – 8: 00 A.M.**

**CONTINENTAL BREAKFAST**

**WITH EXHIBITORS** - Cotillion Ballroom

**8:00 A.M. – 9:45 A.M.**

**SESSION II** - Wellington Ballroom

*PRESIDING: Gary R. Seabrook, MD, President*

*Sandra C. Carr, MD*

**9. Application of Intravascular Ultrasound (IVUS) For Carotid Stent Angioplasty: An Assessment of Procedural and Clinical Outcomes.**

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**OBJECTIVES:** Intravascular ultrasound (IVUS) provides vessel dimensions, characterizes plaque, identifies disease distribution and has been shown to improve the results of angioplasty (PTA) and stenting. This study evaluates carotid artery stenting (CAS) with and without intravascular ultrasound (IVUS) interrogation.

**METHODS:** Review of registry data identified 220 consecutive CAS procedures (215 patients) performed with digital C-arm fluoroscopy alone (n=110) or in conjunction with IVUS (n=110). Groups were comparable for CAS indication, stenosis severity, and risk profile. IVUS was performed prior to and following stent / PTA. Outcome measures included procedure time, final PTA balloon diameter, contrast dye volume, duplex testing for residual and recurrent stenosis, and adverse event rate.

**RESULTS:** All patients achieved single CAS deployment. Mean procedure times were similar. IVUS altered procedural conduct resulting in lower contrast agent volume; directed use of larger diameter balloons for PTA; and identified more residual stent abnormalities (n=12, 11%) versus angiogram alone (n=2, 1.8 %). Duplex surveillance at 30-days and last surveillance interval is recorded in Table I. Mean follow-up was 34 mo. (range 9-66 mos.)

	30-day Duplex Scan			Most Recent Duplex Scan		
	< 50% DR	50-75% DR	> 75% DR	< 50% DR	50-75% DR	>75% DR
Angio Alone	98	12	0	85	22	3
Mean PSV (cm/s)	118 +30	202+48	-	114 +32	186 +22	431+44
Angio+IVUS	102	8	0	103	7	0
Mean PSV (cm/s)	90 +32	178 +25	-	88 +31	172 +20	-

At last CAS surveillance DR > 50% were recorded for 25 (22.7 %) angio alone and 7 (6.4%) angio+IVUS ( $p=.001$ ). Four sites in the angio alone group developed >75% asymptomatic re-stenosis requiring repeat PTA with one later developing stent thrombosis. No procedural or early (< 30 day) cardiac events or deaths occurred. Four post-procedural neurologic events all in symptomatic patients occurred; two early events (1 stroke, 1 reperfusion) in angio+IVUS and two late events (1 stroke, 1 TIA) in angio alone group.

**CONCLUSION:** Our experience indicates IVUS facilitated the performance of CAS by providing detailed vessel anatomy - useful for evaluating the landing zones and directing stent sizing. IVUS also is capable of confirming stent-wall apposition and also allows for assessment of residual stent deformity after stent angioplasty. IVUS did not increase procedure time or adverse events. The wall anatomy and measurements provided by IVUS resulted in use of larger diameter angioplasty balloons which correlated with duplex scan interpretation of less residual stenosis after CAS.

## NOTES