

Watch Watchman? A Note of Caution

Michael Domanski, MD

Disclosures

- None

A Note of Caution

- 90% of atrial thrombi in non-valvular AF from LAA
- LAA occlusion is technically feasible



LAA occlusion is rational to investigate

	Intervention group (n=463)	Control group (n=244)
Characteristics		
Age (years)	71.7 (8.8;46.0-95.0)	72.7 (9.2;41.0-95.0)
Male	326 (70.4%)	171 (70.1%)
Race/ethnicity		
Asian	4 (0.9%)	1 (0.4%)
Black/African-American	6 (1.3%)	5 (2.0%)
White	425 (91.8%)	222 (91.0%)
Hispanic/Latin American	25 (5.4%)	15 (6.1%)
Hawaiian/Pacific Islander	1 (0.2%)	1 (0.4%)
Other	2 (0.4%)	0
Risk factors		
CHADS ₂ score*		
1	157 (33.9%)	66 (27.0%)
2	158 (34.1%)	88 (36.1%)
3	88 (19.0%)	51 (20.9%)
4	37 (8.0%)	24 (9.8%)
5	19 (4.1%)	10 (4.1%)
6	4 (0.9%)	5 (2.0%)
Congestive heart failure	124 (26.8%)	66 (27.0%)
History of hypertension	413 (89.2%)	220 (90.2%)
Age 75 years or more	190 (41.0%)	115 (47.1%)
Diabetes	113 (24.4%)	72 (29.5%)
Previous transient ischaemic attack/ischaemic stroke	82 (17.7%)	49 (20.1%)
Previous warfarin use		
Less than 1 year	254 (54.9%)	145 (59.4%)
1 year or more	203 (43.8%)	96 (39.3%)
No estimate	6 (1.3%)	3 (1.2%)
Atrial fibrillation pattern		
Paroxysmal	200 (43.2%)	99 (40.6%)
Persistent	97 (21.0%)	50 (20.5%)
Permanent	160 (34.6%)	93 (38.1%)
Unknown	6 (1.3%)	2 (0.8%)
Atrial fibrillation onset		
Less than 1 year	69 (14.9%)	50 (20.5%)
1 year or more	360 (77.8%)	182 (74.6%)
No estimate	34 (7.3%)	12 (4.9%)
Left ventricular ejection fraction (%)	57.3% (9.7; 30.0-82.0)	56.7% (10.1; 30.0-86.0)

	Intervention group		Control group		Rate ratio (Intervention/ control [95% CrI])	Posterior probabilities	
	Events/ patient- years	Observed rate (events per 100 patient-years [95% CrI])	Events/ patient- years	Observed rate (events per 100 patient-years [95% CrI])		Non-inferiority	Superiority
ITT population*							
Primary efficacy†	21/694.1	3.0 (1.9-4.5)	18/370.8	4.9 (2.8-7.1)	0.62 (0.35-1.25)	>99.9%	90.0%
Ischaemic stroke	15/694.6	2.2 (1.2-3.5)	6/372.3	1.6 (0.6-3.0)	1.34 (0.60-4.29)	71.8%	20.1%
Cardiovascular/ unexplained death	5/708.4	0.7 (0.2-1.5)	10/374.9	2.7 (1.2-4.4)	0.26 (0.08-0.77)	>99.9%	99.3%
Haemorrhagic stroke	1/708.4	0.1 (0.0-0.5)	6/373.4	1.6 (0.6-3.1)	0.09 (0.00-0.45)	>99.9%	99.8%
Systemic embolism	2/707.8	0.3 (0.0-0.8)	0/374.9	0
All stroke	16/694.6	2.3 (1.3-3.6)	12/370.8	3.2 (1.6-5.2)	0.71 (0.35-1.64)	99.3%	76.9%
All-cause mortality	21/708.4	3.0 (1.9-4.5)	18/374.9	4.8 (2.8-7.1)	0.62 (0.34-1.24)	>99.9%	90.7%
Primary safety‡	49/658.8	7.4 (5.5-9.7)	16/364.2	4.4 (2.5-6.7)	1.69 (1.01-3.19)
Successfully treated population§							
Primary efficacy	11/593.6	1.9 (1.0-3.2)	17/370.2	4.6 (2.6-6.8)	0.40 (0.19-0.91)	>99.9%	98.6%
Primary safety	9/592.1	1.5 (0.7-2.8)	16/363.6	4.4 (2.5-6.7)	0.35 (0.15-0.80)

Study Limitations

- Pts excluded if they could not take coumadin
 - What are the results if no coumadin in first 45 days?
 - Important question because these are the pts who are most interesting candidates
- Relatively low risk population
 - Relatively young (mean age about 71)
 - Low CHADS score (most were 1 or 2)
 - Only about 20% with prior CVA (lower risk population)
 - Well preserved LV function



What would be the result in a higher risk population?

- Very small numbers (example: 6 versus 1 for hemorrhagic CVA)

Therapeutic Implications

- LAA occlusion is untested in the populations most likely to benefit;
- Given the high rate of serious procedural complications coumadin remains the first line of therapy, including in patients of the type in the trial
- LAA probably reduces the risk of emboli and is reasonable to try in patients at high risk unable to take coumadin despite the absence of RCT evidence of benefit.

Future Investigation

- Device should be investigated in patients
 - Unable to take coumadin **
 - Higher CHADS2 scores
 - Prior CVA or TIA
 - Over a longer follow-up period
 - Patients on newer antithrombotic agents (if they prove at least as safe and effective as warfarin)
- Imaging is needed in future studies to look for occult embolic CVA