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## Imaging

### CARDIAC STRUCTURE AND FUNCTION AND CHADS2 RISK SCORE IN PATIENTS WITH ATRIAL FIBRILLATION: THE EFFECTIVE ANTICOAGULATION WITH FACTOR XA NEXT GENERATION IN AF-THROMBOLYSIS IN MYOCARDIAL INFARCTION 48 (ENGAGE AF -TIMI 48) ECHOCARDIOGRAPHIC STUDY

Poster Contributions

Poster Sessions, Expo North

Sunday, March 10, 2013, 9:45 a.m.-10:30 a.m.

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**Background:** The CHADS2 index is a validated scoring system for estimating stroke risk in patients with atrial fibrillation (AF). However, the relationships between CHADS2 and cardiac structure and function are less understood.

**Methods:** The ENGAGE AF -TIMI 48 study tests the oral factor Xa inhibitor edoxaban in comparison to warfarin for the prevention of thromboembolism in 21,107 subjects with nonvalvular AF. In a prospective substudy, we evaluated 971 subjects with baseline echocardiograms, stratified by CHADS2 score: 2 (49%), 3 (29%), or 4-6 (22%). We assessed cardiac structure and function across CHADS2 groups, using ordinal logistic regression adjusted for the presence of AF at the time of echo.

**Results:** As compared to those in sinus rhythm, subjects in AF at the time of echo had lower left ventricular ejection fraction (LVEF) and larger LV size, mass, and higher diastolic relaxation velocities ( $e'$ ). Similarly, left atrial (LA) size was larger, while LA emptying fraction was lower in those in AF. Regardless of the presence of AF, LV size and LVEF did not differ between CHADS2 groups; however, LV  $e'$  were lower while LV filling pressures ( $E/e'$ ) were higher with higher CHADS2. LA volume index increased and there was a trend towards lower LA emptying fraction with higher CHADS2 (Table).

**Conclusions:** Independent of rhythm at the time of echo, higher CHADS2 scores were associated with abnormalities of LV diastolic function, as well as increases in LA volumes.

	CHADS2 2	CHADS2 3	CHADS2 4-6	
Parameter	N = 475 (49%)	N = 283 (29%)	N = 213 (22%)	*P
Age, years	70 (63-77)	75 (67-80)	76 (70-80)	n/a
LV ejection fraction, %	58.9 (54.2-60.8)	58.7 (48.4-60.3)	58.2 (53.8-60.8)	0.86
LV End Diastolic Diameter, cm	4.6 (4.4-4.9)	4.7 (4.4-4.9)	4.6 (4.3-4.8)	0.56
LV mass, g	137 (114-165)	134 (115-173)	145 (110-184)	0.22
$e'$ avg, cm/s	7.8 (6.4-9.3)	7.6 (6.1-9.2)	7.2 (6.0-8.6)	<0.001
LV filling pressures, $E/e'$ avg	10.1 (8.1-13.4)	11.1 (9.1-14.8)	11.6 (9.5-14.2)	<0.001
LA diameter, cm	3.6 (3.4-3.8)	3.6 (3.4-3.8)	3.6 (3.4-3.9)	0.06
LA volume index, ml/m <sup>2</sup>	31.1 (25.4-37.7)	33.8 (27.2-40.2)	33.6 (27.4-40.9)	0.005
LA emptying fraction, %	38.7 (31.9-45.5)	36.9 (29.3-45.1)	37.2 (28.8-45.2)	0.053
LA expansion index, %	63.2 (46.8-83.5)	58.5 (41.5-82.0)	59.1 (40.4-82.6)	0.20
LA conduit fraction, %	25.0 (20.3-31.1)	24.6 (19.0-31.8)	23.2 (18.1-30.5)	0.43
LA contractile fraction, %	22.6 (17.3-29.2)	21.3 (16.0-26.7)	24.7 (14.2-29.0)	0.47
Values: Median (25-75%)				
*Adjusted for AF at time of echo				