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FOOD & ARRHYTHMIAS

Long term outcome of AF ablation in different clinical settings:

Hypertrophic Cardiomyopathy

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NO CONFLICT OF INTEREST TO DECLARE

Prevalence of AF in HCM

- The prevalence of atrial fibrillation in hypertrophic cardiomyopathy patients is high

range 18%–22%

- It may be related to atrial dilation and atrial fibrosis, in the setting of remodeling for diastolic dysfunction and mitral regurgitation

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

Effects of AF in HCM

- AF it is often poorly tolerated by HCM patients because of loss of atrial contraction and reduced filling time with rapid ventricular rates.
- AF is associated with increased morbidity and mortality from heart failure and stroke

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

Incidence of TE for AF in HCM

- annual incidence of thromboembolism (stroke and peripheral embolism) in patients with AF were

3.8%

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

OAT for AF in HCM

- patients with HCM have not been included in clinical trials, use of the CHADS-VASC score risk is not recommended
- it is recommended that all patients with AF should receive OAT lifelong

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

Diagnosis of AF in HCM

48-hour ambulatory ECG monitoring every 6–12 months to detect AF should be considered in patients who are in sinus rhythm and have an LA diameter of ≥ 45 mm

IIa

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

Major clinical features associated with risk of SCD

- Age
- NSVT
- LV wall thickness
- Family history of SCD
- Syncope
- **LA diameter**
- Left ventricolat outflow tract obstruction
- Exercse blood pressure response

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

Therapy of AF in HCM

- Current guidelines for management of AF recommend a rhythm control strategy in HCM patients

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

AADs for the managment of AF in HCM

- Antiarrhythmic drugs are often used despite minimal evidence

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

AADs for the managment of AF in HCM

Amiodarone should be considered for achieving rhythm control and to maintain sinus rhythm after cardioversion

IIa

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

RF ablation for the managment of AF in HCM

Catheter ablation for atrial fibrillation should be considered in patients without severe left atrial enlargement, who have drug refractory symptoms

IIa

2014 ESC Guidelines on diagnosis and management of hypertrophic cardiomyopathy

Catheter ablation for atrial fibrillation in hypertrophic cardiomyopathy patients: a systematic review

Ha, HSK et al

J Interv Card Electrophysiol. 2015 Nov;44(2):161-70 (Epub 2015 Aug 25)

- 8 studies
- 241 HCM pts underwent AF ablation

Results (241 pts)

		Number of patients	Prevalence of SR (%)	Maintenance of AADs (%)
Hayashi	2014	17	82	47
Santangeli	2013	43	53	76
Derejko	2013	30	53	37
Di Donna	2010	61	67	36
Bunch	2008	33	47	48
Gaita	2007	36	64	23
Kilicaslan	2006	27	70	22
Liu	2005	4	75	23

Results (241 pts)

- The mean follow up 18-19 months
- Efficacy in paroxysmal AF: 71 %
- Efficacy in nonparoxysmal AF: 59 %
- Redo procedures: 43 %
- Pts still requiring AADs: 25 – 36 %

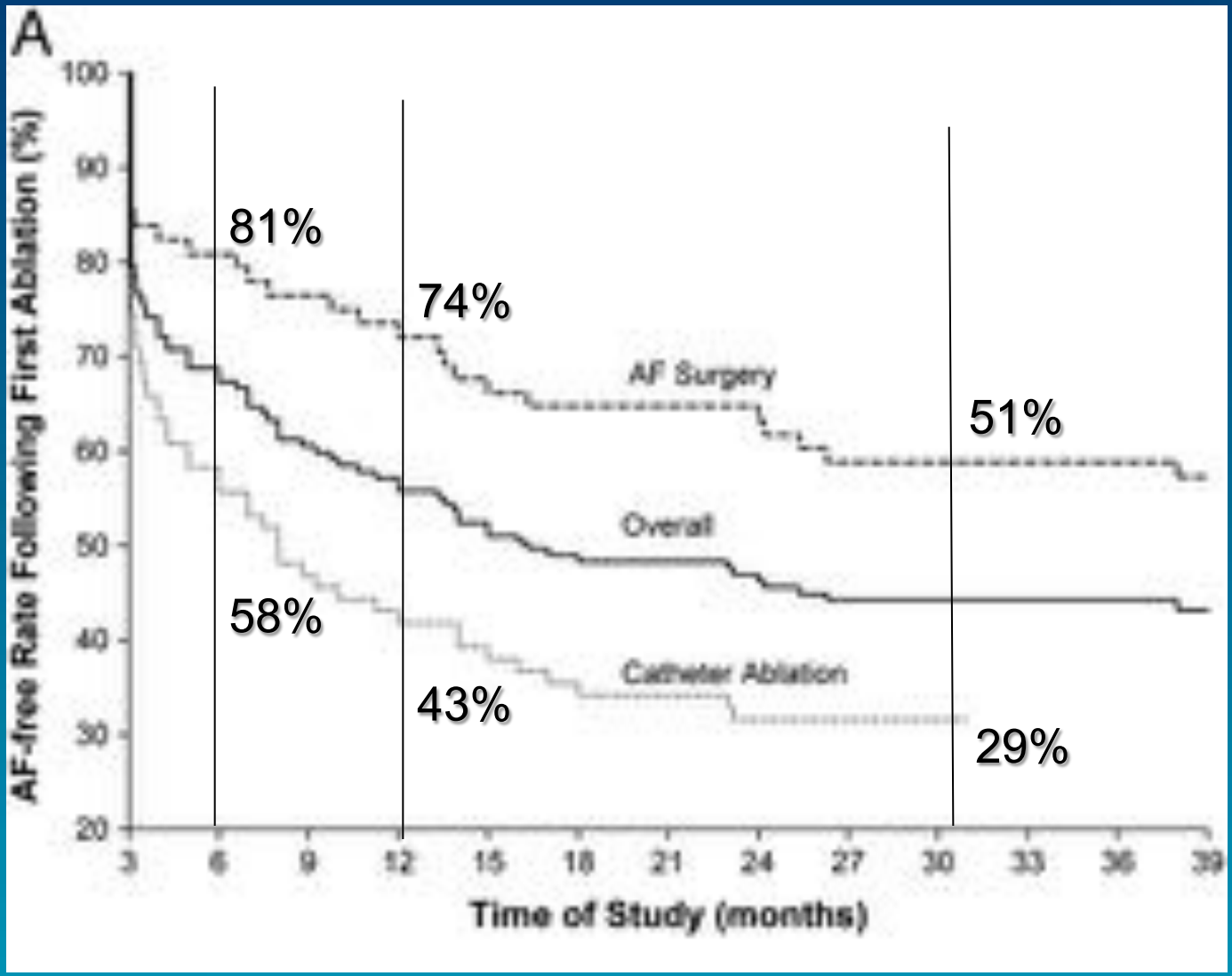
Outcomes of non pharmacologic treatment of atrial fibrillation in patients with hypertrophic cardiomyopathy

Bassiouny M, et al

Heart Rhythm 2015;12:1438–1447

- 147 HCM pts underwent AF ablation
  - 79 catheter ablation
  - 68 surgical ablation
- Follow up 36 months

Results (after first ablation)



Results (major complications)

- Major complications:
  - Catheter group 6%

    2 PVI stenosis - stent, 1 tamponade,
    1 stroke, 1 goin hematoma - transfusion
  - Surgical group 18%

    3 died (1 sepsis, 1 heparin induced thrombocytopenia, 1 at home - unknown)
    3 tamponade, 1 stroke, 1 SVT pulseless,
    1 complete AVB, 1 pulmonary embolism,
    1 severe mitral regurgitation, 1 pericarditis

Results

- On last FU, patients reported symptomatic improvement with decrease in NYHA functional class (from 2.55 to1.14).
- NYHA class improved in both patients who had a successful PVI as well as in those who had recurrent arrhythmia. AF became better controlled with decrease in prevalence of persistent AF.

Results (predictors of success)

- Male
- Higher baseline EF
- Paroxismal AF
- Short of AF duration
- Lower stage of diastolic dysfunction

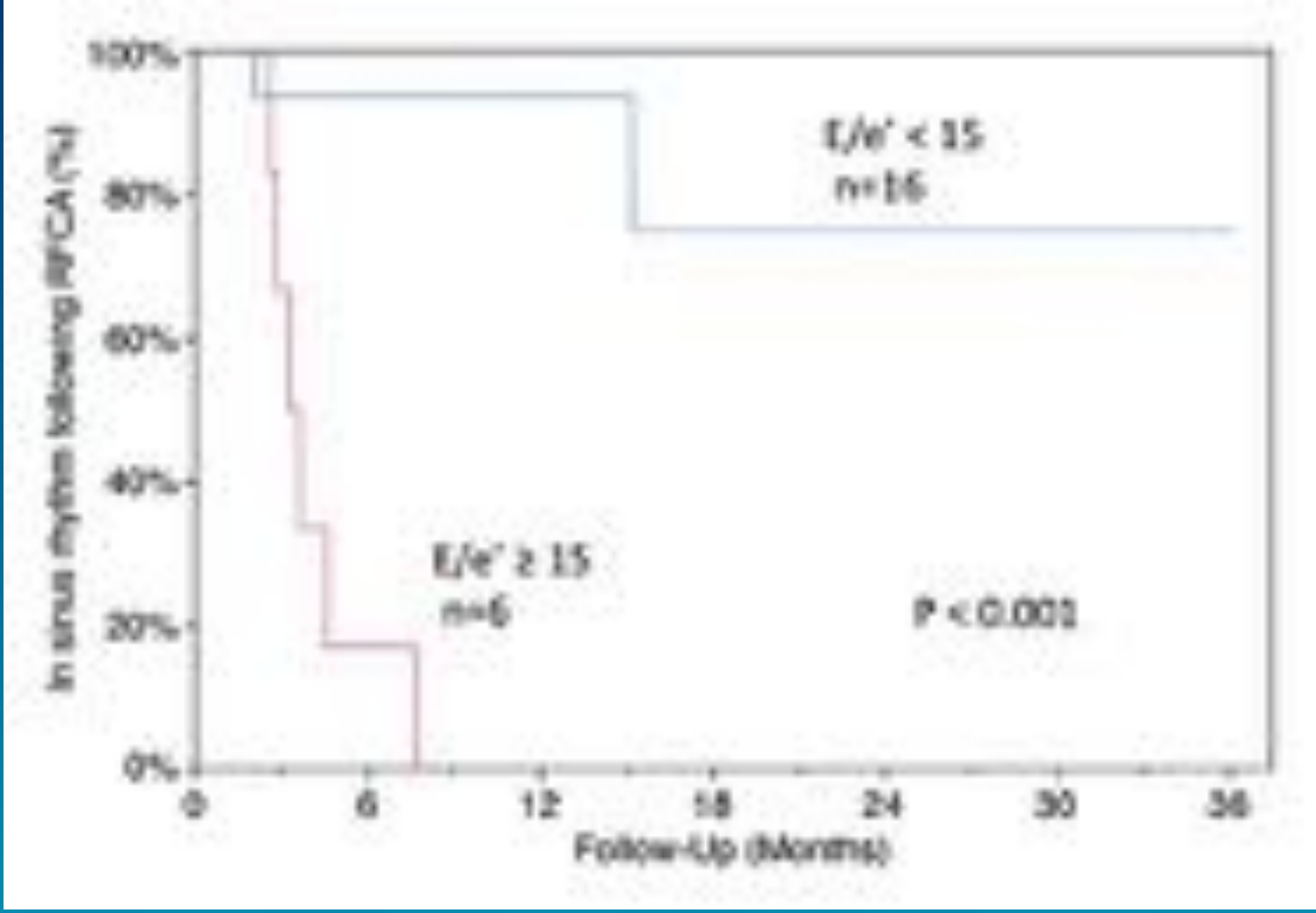
Impact of Left Ventricular Diastolic Dysfunction on Outcome of Catheter Ablation for Atrial Fibrillation in Patients With Hypertrophic Cardiomyopathy

Okamatsu H, et al

Circ J. 2015;79(2):419-24

- 22 HCM pts underwent AF ablation
- Median follow up 21 months
- Sinus rhythm was maintained in 59% of patients
- LV diastolic dysfunction was associated with difficulty of rhythm control after ablation

Results


100%
80%
60%
40%
20%
0%
In sinus rhythm following RFCA (%)
E/e' < 15
n=16
E/e' ≥ 15
n=6
P < 0.001
0
6
12
18
24
30
36
Follow-Up (Months)

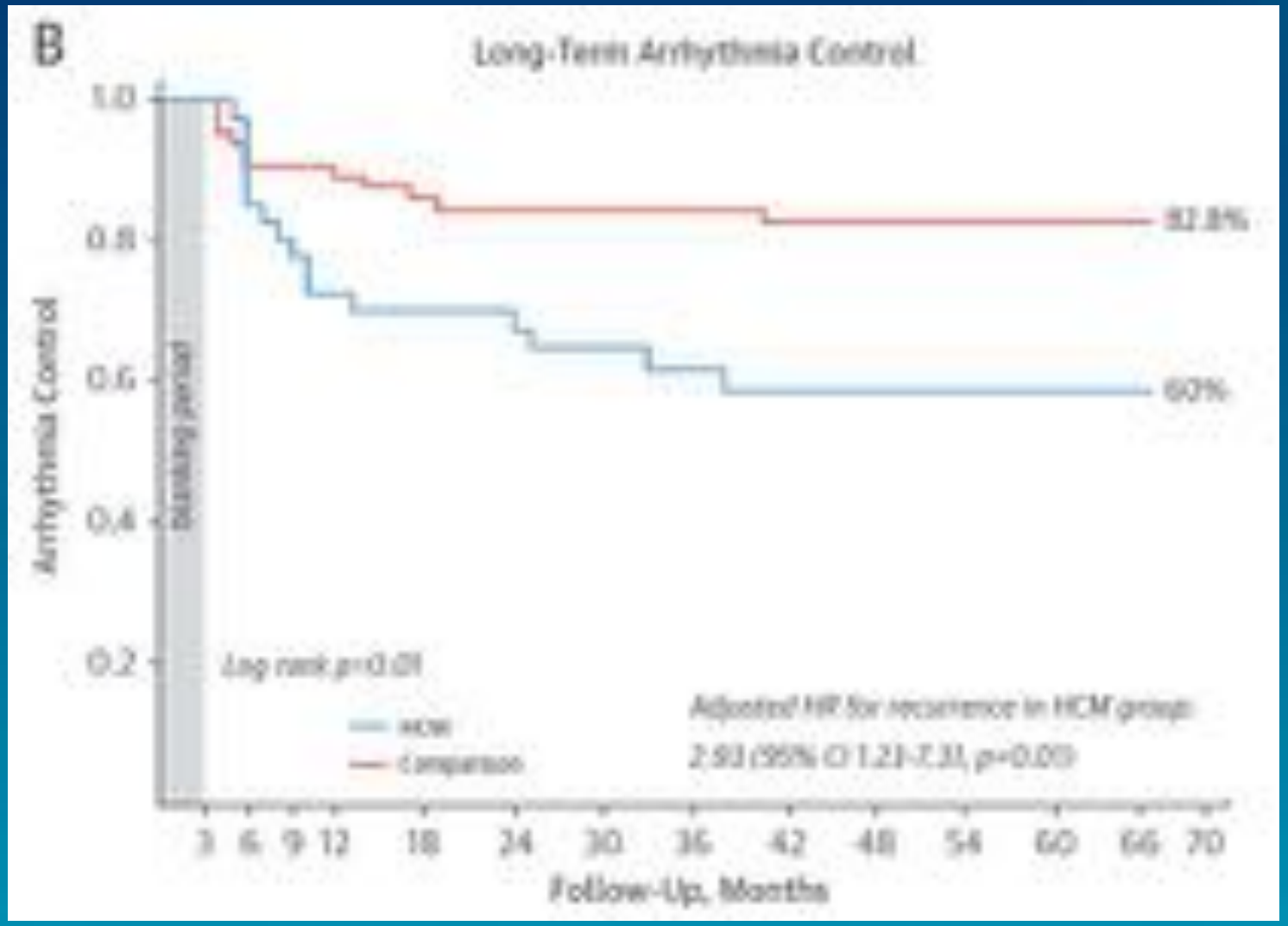
Atrial fibrillation ablation in patients with hypertrophic cardiomyopathy long-term outcomes and clinical predictors

Contreras-Valdes, FM, et al

JACC 2015;65:1984–94

- 40 HCM pts underwent AF ablation
- 64 pts underwent AF ablation without HCM but similar AF characteristics
- Median follow up 54 months

Results


B
Long-Term Arrhythmia Control
1.0
0.8
0.6
0.4
0.2
Arrhythmia Control
Blanking period
82.8%
60%
Log rank p=0.01
HCM
Comparison
Adjusted HR for recurrence in HCM group:
2.93 (95% CI 1.21-7.31, p=0.02)
3
6
9
12
18
24
30
36
42
48
54
60
66
70
Follow-Up, Months

Conclusions

- efficacy of AF ablation in HCM patients is significantly lower compared with non affected patients
- independent predictors of arrhythmia recurrence:
  - higher LV outflow obstruction
  - higher baseline left atrial pressure
  - higher dilatation of left atrium

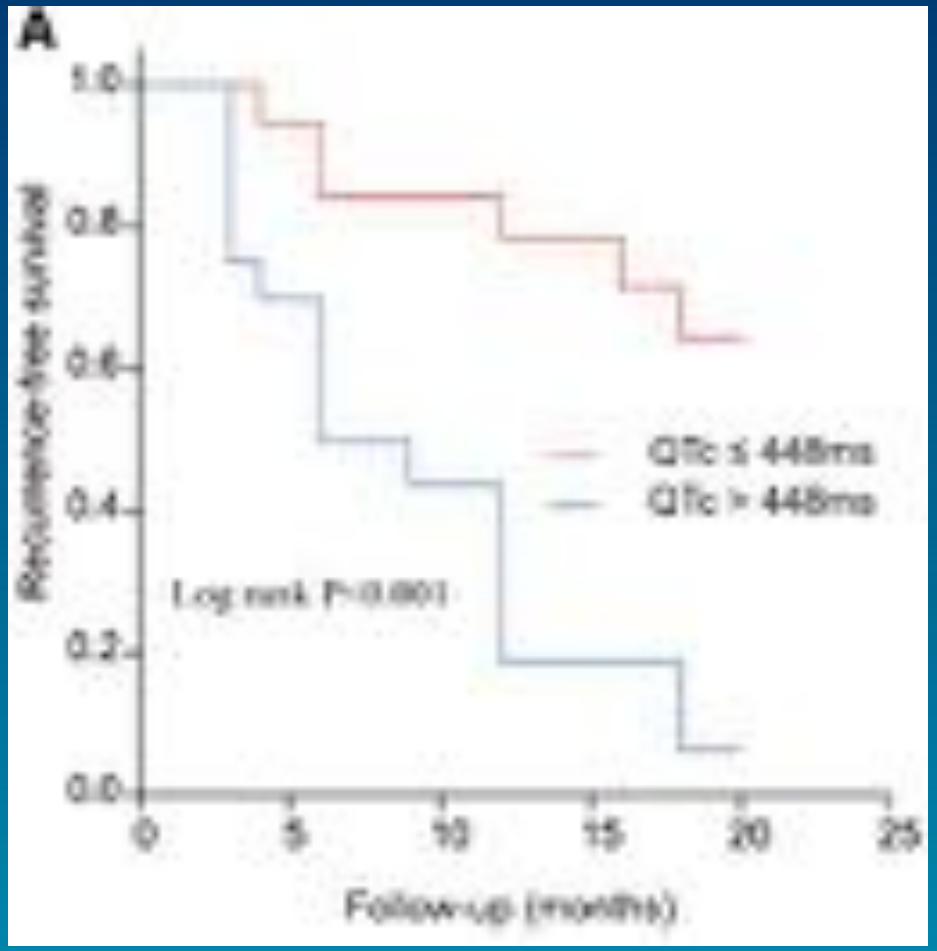
QTc Interval Prolongation Predicts Arrhythmia Recurrence After Catheter Ablation of Atrial Fibrillation in Patients With Hypertrophic Cardiomyopathy

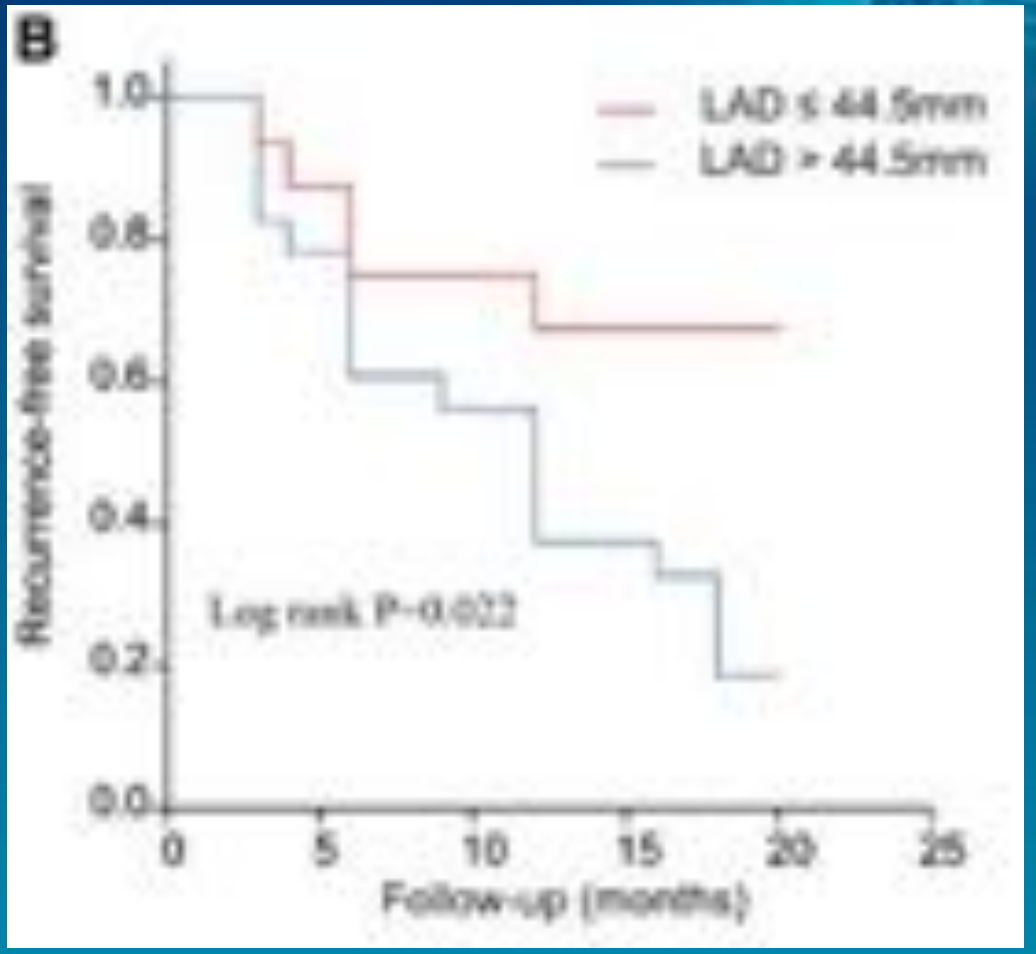
Wen SN, et al

Circ J 2015; 79: 1024 – 1030

- 39 HCM pts underwent AF ablation
- follow up 15 months
- Efficacy 41% of patients
- QTc prolongation resulted to be an independent predictor of arrhythmia recurrence

Results


A
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
QTc ≤ 448ms
QTc > 448ms
Follow-up (months)


B
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
LAD ≤ 44.5mm
LAD > 44.5mm
Log rank P=0.022
Recurrence-free survival
Follow-up (months)

Left atrial wall thickness and outcomes of catheter ablation for atrial fibrillation in patients with hypertrophic cardiomyopathy

Hayashi H, et al

J Interv Card Electrophysiol. 2014 Aug;40 (2):153-60

- 17 HCM patients vs 34 control patients without heart disease
- age, gender, type of AF, and LA dimension were matched
- the LA wall in the HCM patients was not thicker than that of the matched patients without structural heart disease
- efficacy did not differ between the two groups (53 vs. 56 %)

AF ablation in HCM: yes or not?

- Worse results in term of mantainig SR
  - large atrium
  - dystolic disfunction
  - atrial fibrosis

AF ablation in HCM: yes or not?

- Worse results in term of mantainig SR
  - large atrium
  - atrial fibrosis

- Better results in terms of QoL
  - pts very symptomatic
  - AADs poorly efficacy

AF ablation in HCM: when?

- Early procedure
  - Shorter hystory of AF
  - Atrium less then 45 mm
  - Less degree of dystolic dysfunction

Thank you for attention