

# The impact of re-do ablation procedures on long-term stroke and mortality risks

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# Penn non-paroxysmal AF ablation project

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- Retrospective data base review of 400 patients (200 consecutive persistent, 200 LS persistent) treated with first catheter ablation (2004-2012)
- Mean age  $68 \pm 9.7$  years, mean CHADSVASc 2.2
- 524 procedures performed; 100 patients with at least 1 repeat procedure
- Follow up  $3.1 \pm 2.2$  years from first ablation

# Penn non-paroxysmal AF ablation project

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- Three groups determined by ablation outcome (following final procedure)
- Group A: free of AF recurrence – 238 (59.5%)
- Group B: AF transformed to paroxysmal – 100 (25%)
- Group C: continued persistent AF – 62 (15.5%)

# Indications/rationale for AF ablation

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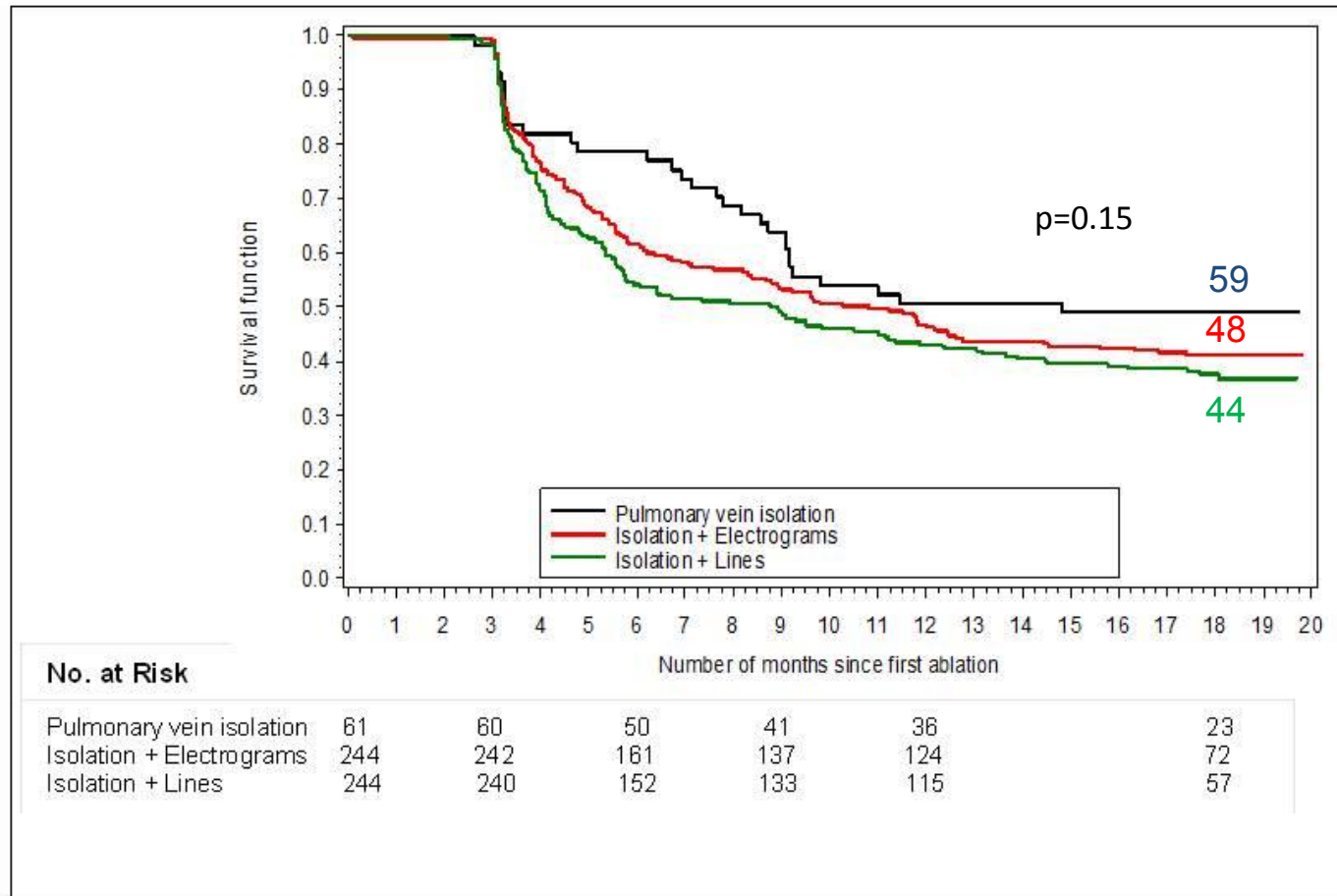
## Recent past

- Ablation indicated for symptom control
- Success judged by elimination of AF (30 second rule)
- Guideline directed management of anticoagulation

## Present to near-term future

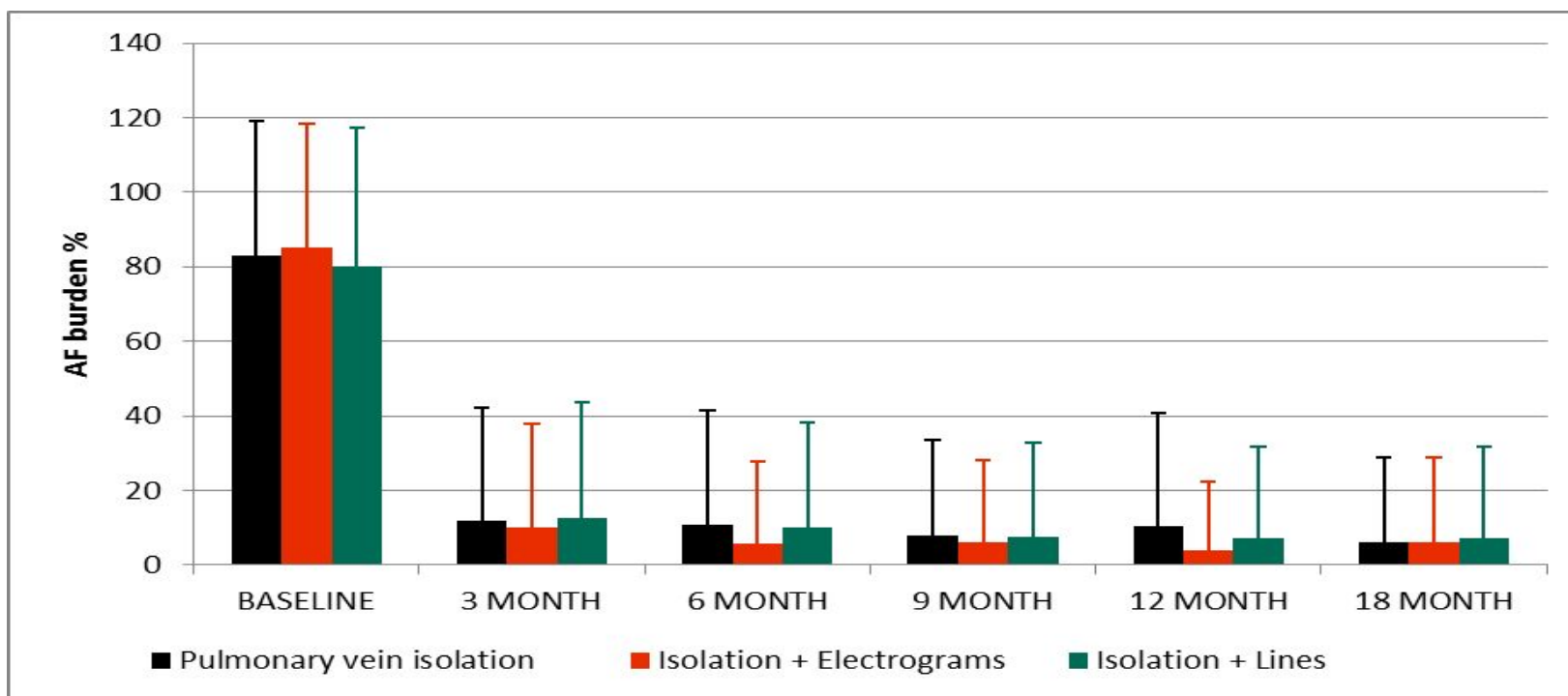
- Ablation indicated for symptom control and management of CV risk
- Success judged by reduction in AF burden
- Working towards establishing data and understanding work-flow of discontinuation of anticoagulation

# Ablation in persistent AF



Documented AF > 30 seconds after one procedure with or without AAD

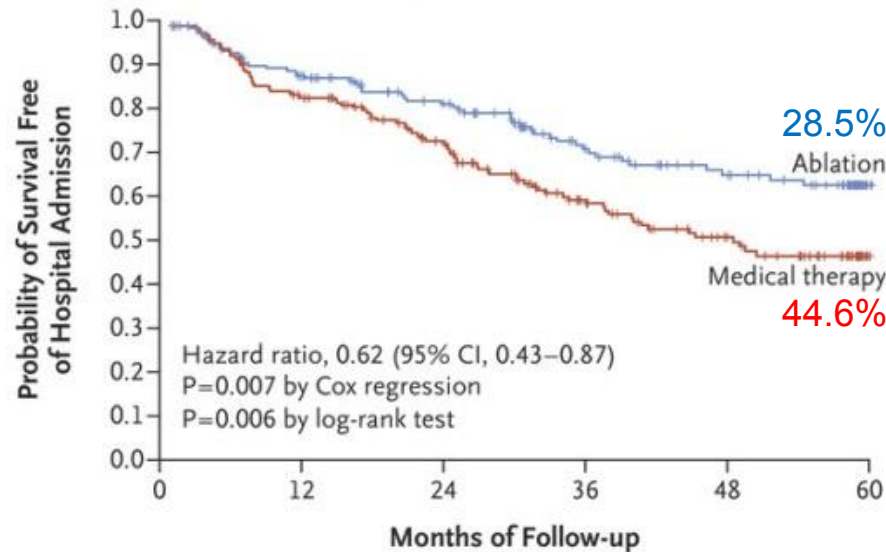
# AF Burden Reduction



Burden calculation based on maximum of burden calculated from all follow-up Holters or # of weeks with at least one TTM of AF or number of days in AF from CRF

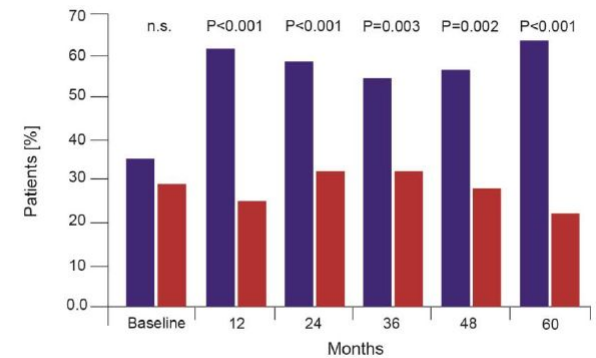
# CASTLE AF

## A Death or Hospitalization for Worsening Heart Failure



No. at Risk	0	12	24	36	48	60
Ablation	179	141	114	76	58	22
Medical therapy	184	145	111	70	48	12

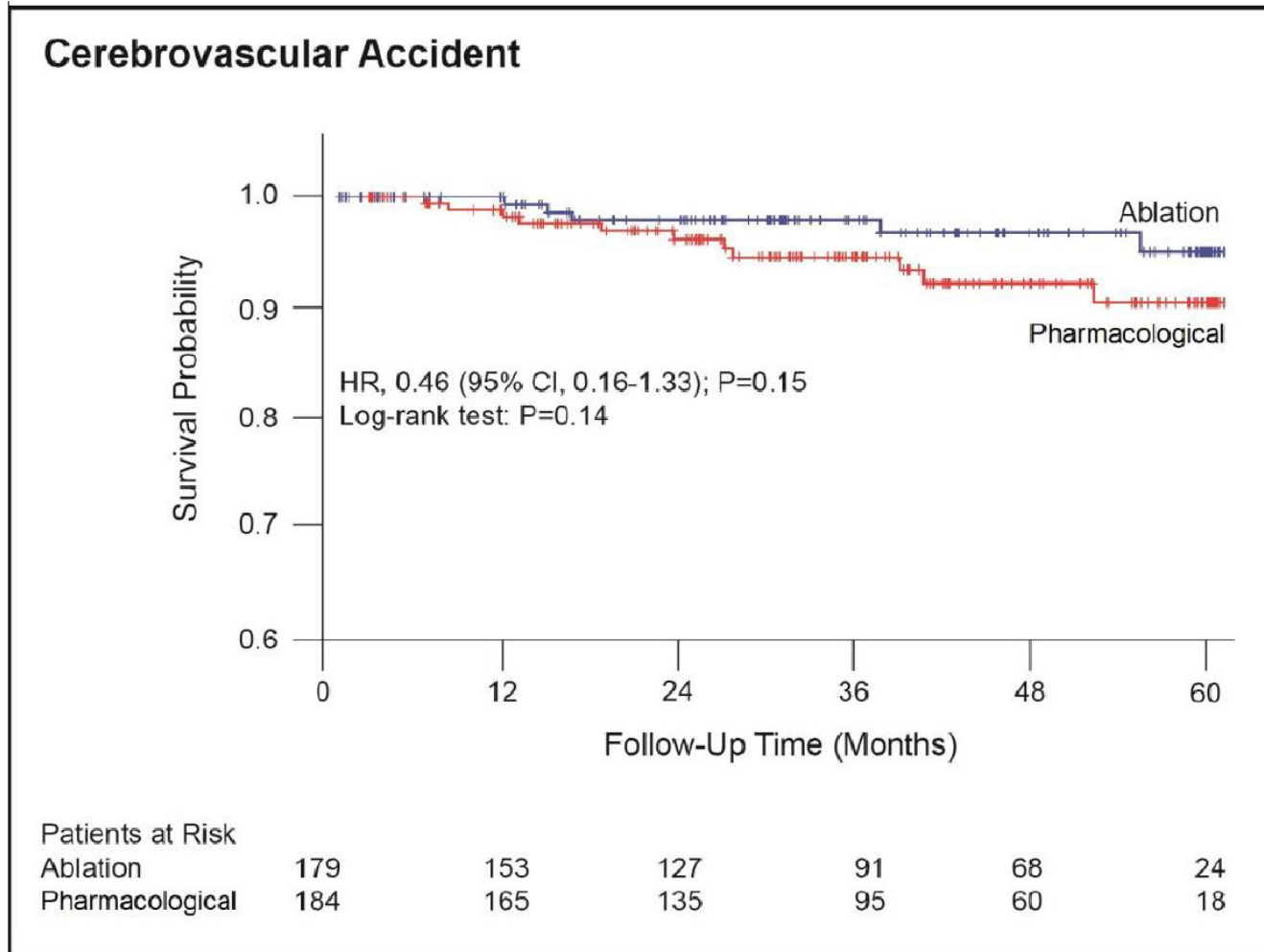
## Maintenance of Sinus Rhythm



Patients at Risk	Baseline	12	24	36	48	60
Ablation	164	150	121	89	64	48
Pharmacological	175	166	129	91	60	36

- Stratified by < vs > 5% AF burden in ablation group primary endpoint in 24 vs 35%

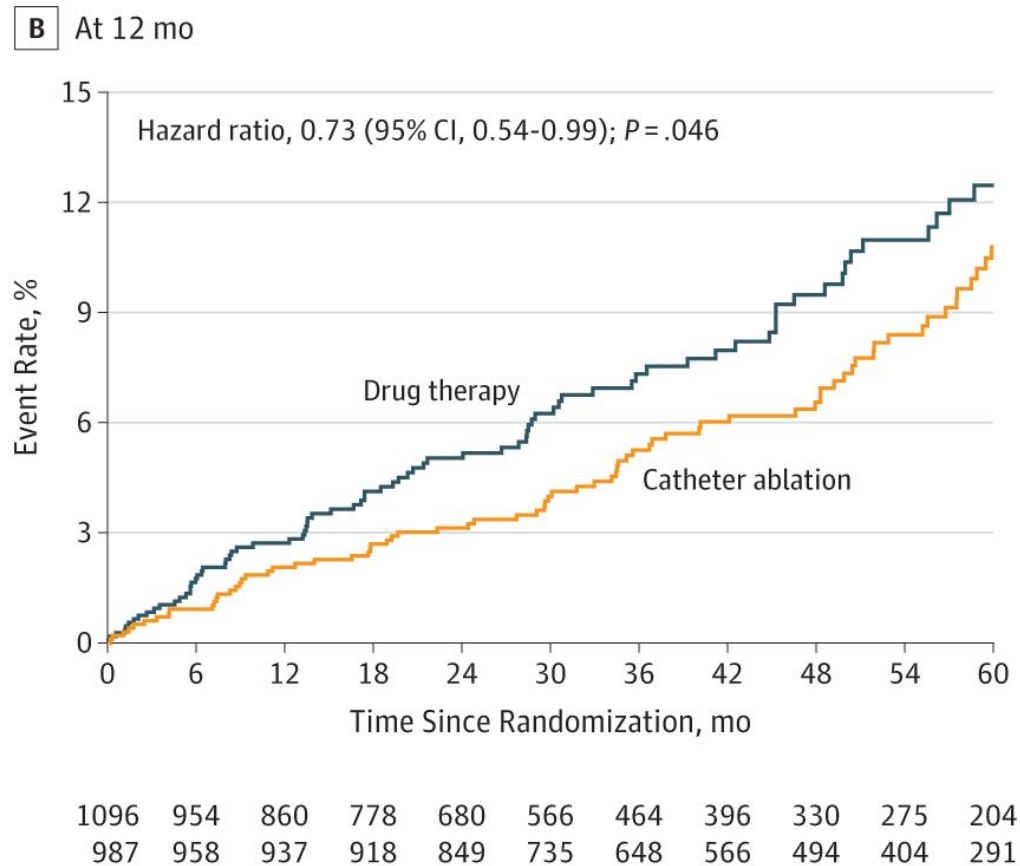
# CASTLE AF





# CABANA trial

Kaplan-Meier estimates of the primary end point: cumulative risk of death, disabling stroke, serious bleeding, or cardiac arrest; per protocol analysis

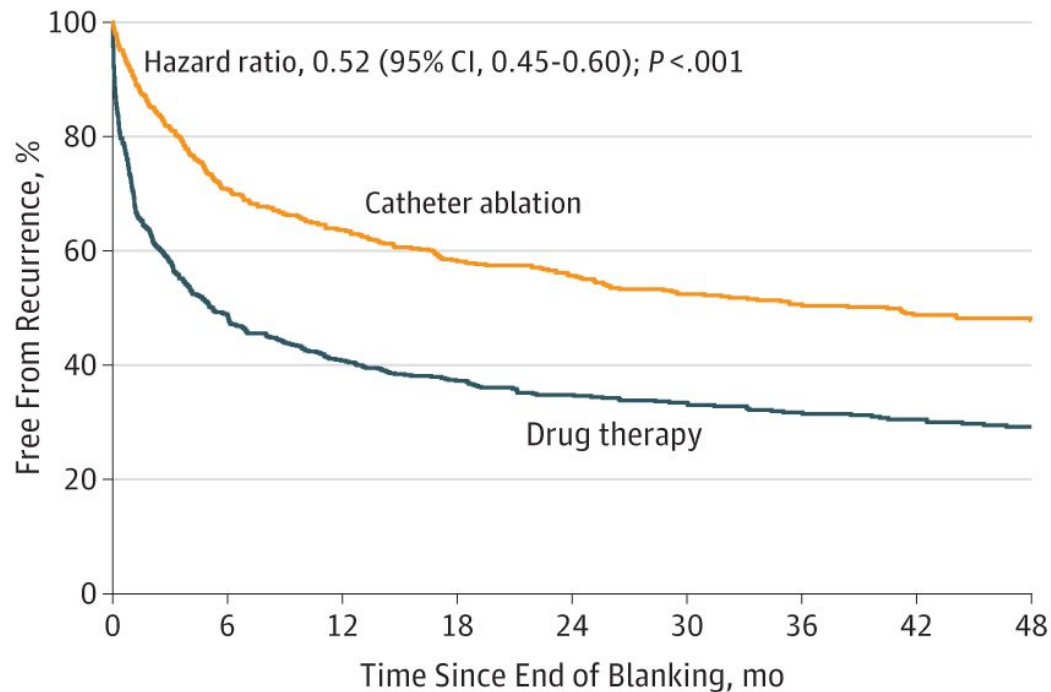


# CABANA results in patients with HF by ITT

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	<b>HR</b>	<b>95% CI</b>
Primary endpoint	HF	0.660.43 – 0.99
	no HF	1.060.71 – 1.58
Mortality	HF	0.590.36 – 0.96
	no HF	1.270.75 – 2.16
Mortality or CV hosp.	HF	0.840.71 - 1.00
	no HF	0.820.70 – 0.95
Recurrent AF	HF	0.580.44 – 0.74
	no HF	0.500.41 – 0.59

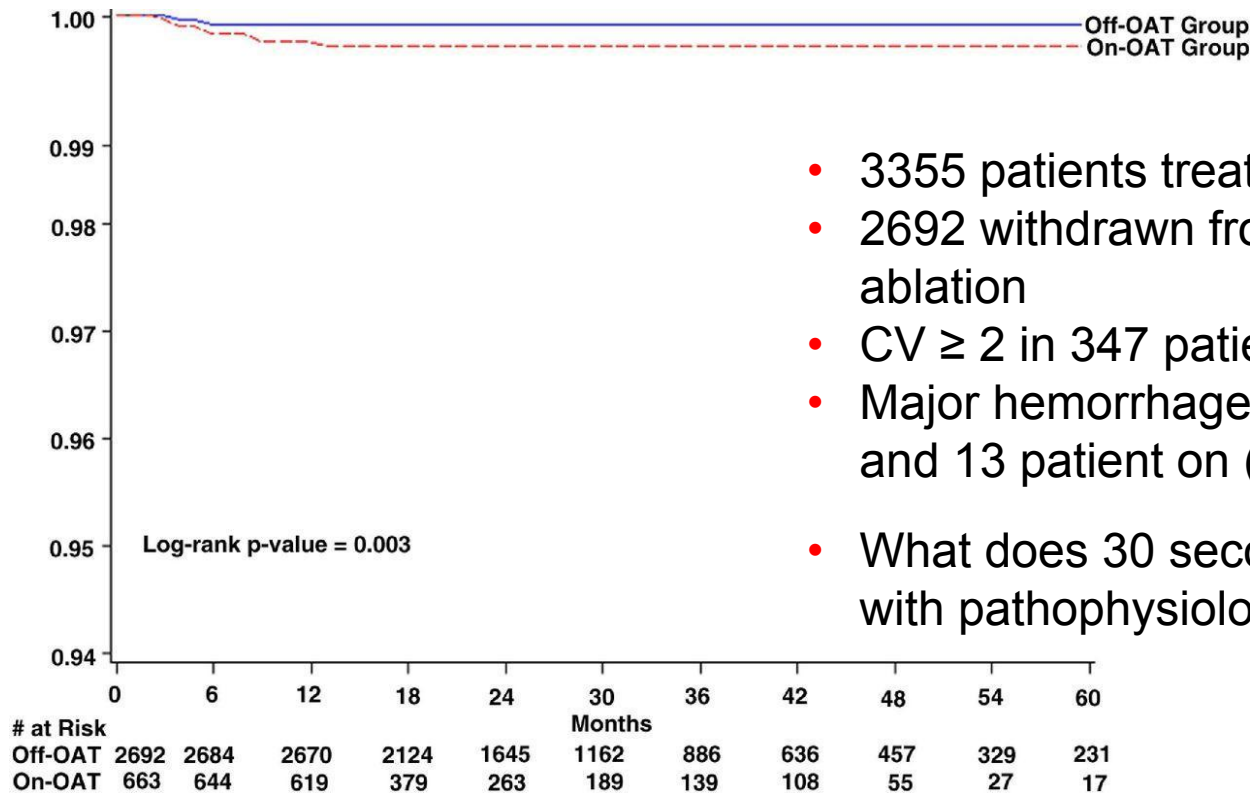
# CABANA trial: AF recurrence



No. at risk	0	6	12	18	24	30	36	42	48
Drug therapy	629	304	252	212	181	157	131	115	94
Catheter ablation	611	432	381	328	291	241	201	163	134

# Withdrawal of anticoagulation after ablation

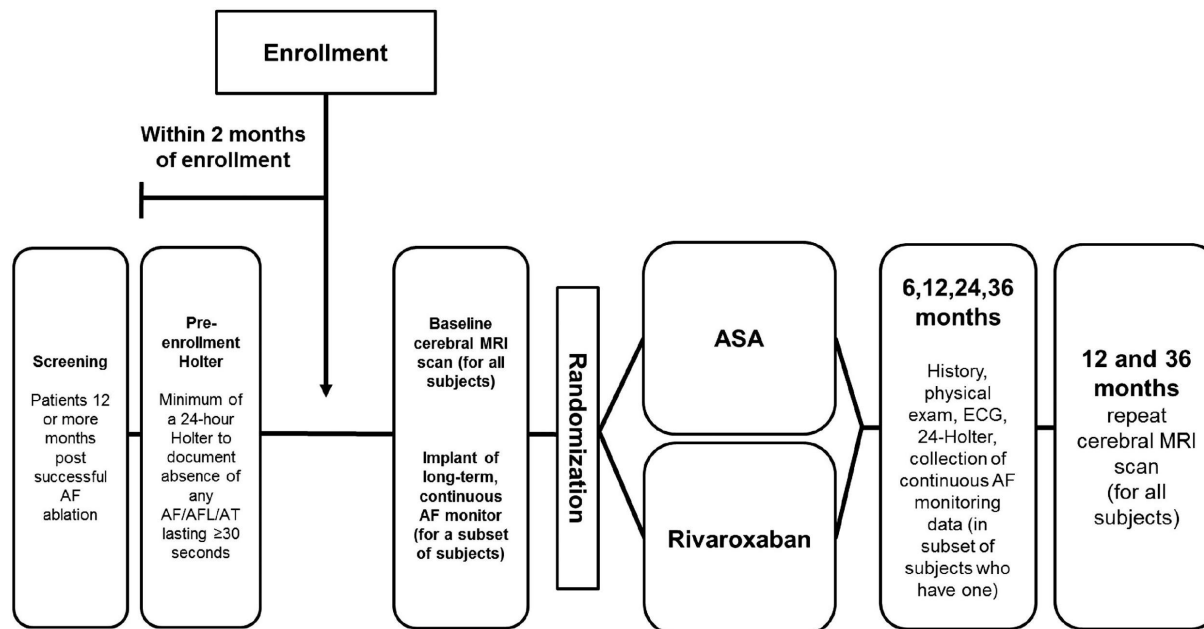
## Freedom from stroke



- 3355 patients treated with AF ablation
- 2692 withdrawn from AC 3-6 months post ablation
- CV  $\geq 2$  in 347 patients off AC – no strokes
- Major hemorrhage in 1 patient off (0.04%) and 13 patient on (2%) anticoagulants
- What does 30 seconds of AF have to do with pathophysiology of stroke?

# OCEAN trial

- Optimal Anticoagulation for Enhanced Risk Patients Post Catheter Ablation for Atrial Fibrillation (NCT02168829)
- Rivaroxaban (15 mg) vs. aspirin (75-160 mg), 1573 subjects, 3 year follow up



# AF ablation for mortality and stroke reduction

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- Trial effect size inherently dependent on subject risk (and duration of follow up)
- Consistent profile of favorable effects of ablation in patients with HFrEF
- Improvements not dependent on elimination of AF
- Stroke and hemorrhage are major components to AF related mortality. More data is necessary to inform anticoagulation strategies post AF ablation