



Outcomes of the **VANISH** substudies

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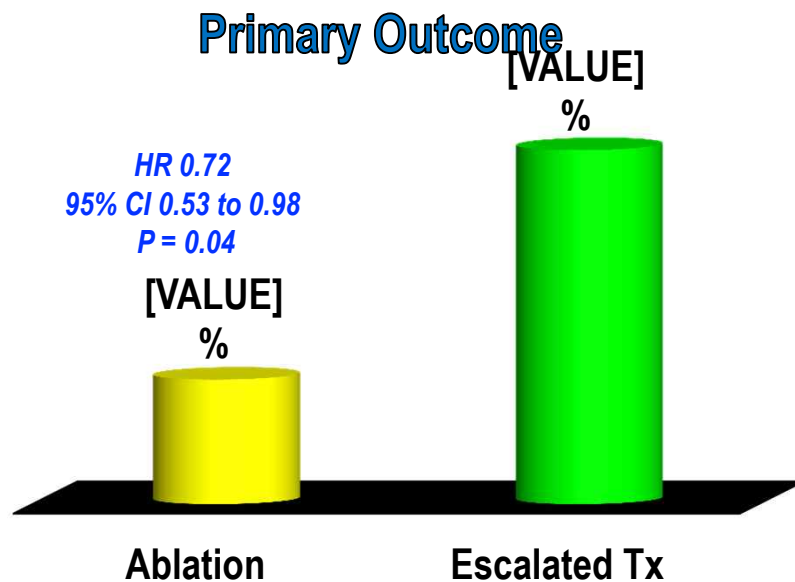
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Ventricular Tachycardia Ablation versus Escalation of Antiarrhythmic Drugs

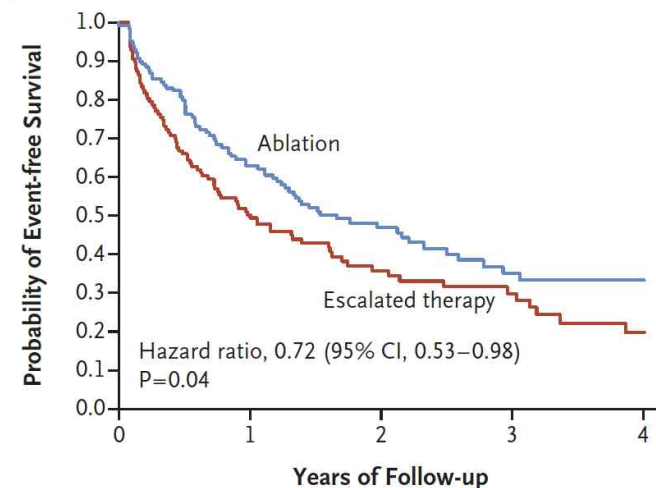
- ❖ To evaluate the most effective treatment modality for recurrent VT after MI
- ❖ Multicenter (22 centers), randomized, controlled trial
- ❖ Ischemic CM with an ICD: VT despite the use of AA drugs
 - ✓ Randomized to ~
 - ✓ **Ablation group**: continuation of baseline AA drugs
 - ✓ **Escalated therapy group**
 - Another agents: initiate amiodarone
 - Amiodarone < 300mg/d: increase the dose
 - Amiodarone ≥ 300mg/d: add Mexiletine

Ventricular Tachycardia Ablation versus Escalation of Antiarrhythmic Drugs

- ❖ 259 patients: ablation (132) vs escalated Tx group (127)
- ❖ **Primary outcome:** Composite of death, ≥ 3 VT within 24 hours (VT storm), or appropriate ICD shock
- ❖ Mean FU duration: 27.9 ± 17.1 months



A Primary Outcome



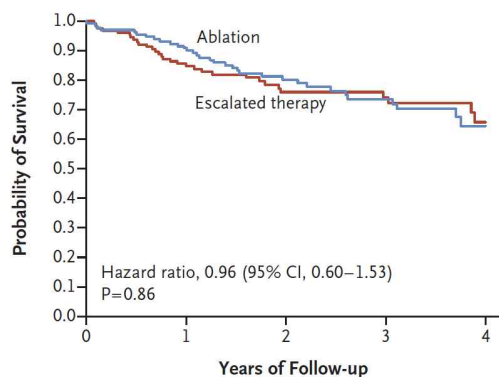
No. at Risk
Ablation
Escalated
therapy

	132	80	40	20	8
	127	61	25	17	6

Ventricular Tachycardia Ablation versus Escalation of Antiarrhythmic Drugs

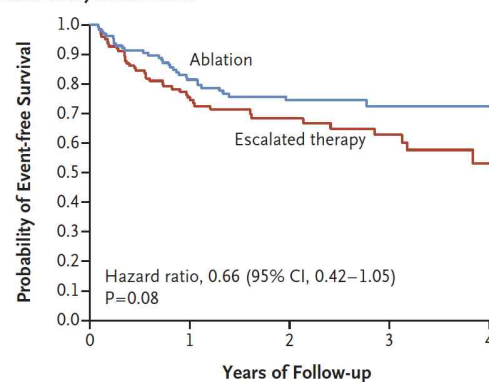
Outcome	Escalated Therapy (N=127)	Catheter Ablation (N=132)	Hazard Ratio (95% CI)	P Value
	<i>no. (%)</i>			
Primary outcome†	87 (68.5)	78 (59.1)	0.72 (0.53–0.98)	0.04
Death	35 (27.6)	36 (27.3)	0.96 (0.60–1.53)	0.86
From cardiovascular causes‡	26	24		
From noncardiovascular causes	8	12		
From unknown cause	1	0		
Appropriate ICD shock after 30 days	54 (42.5)	50 (37.9)	0.77 (0.53–1.14)	0.19
Ventricular tachycardia storm after 30 days	42 (33.1)	32 (24.2)	0.66 (0.42–1.05)	0.08

B Death



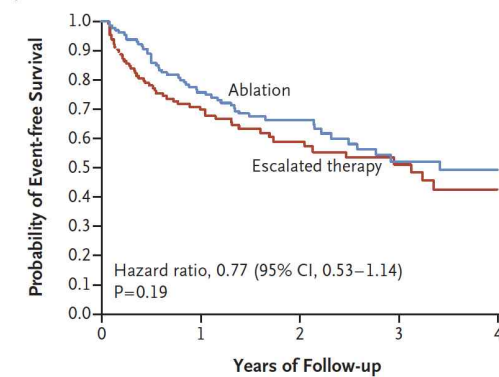
No. at Risk	0	1	2	3	4
Ablation	132	115	70	46	19
Escalated therapy	127	100	56	40	18

C Ventricular Tachycardia Storm



No. at Risk	0	1	2	3	4
Ablation	132	95	53	34	13
Escalated therapy	127	77	40	28	9

D Appropriate ICD Shock

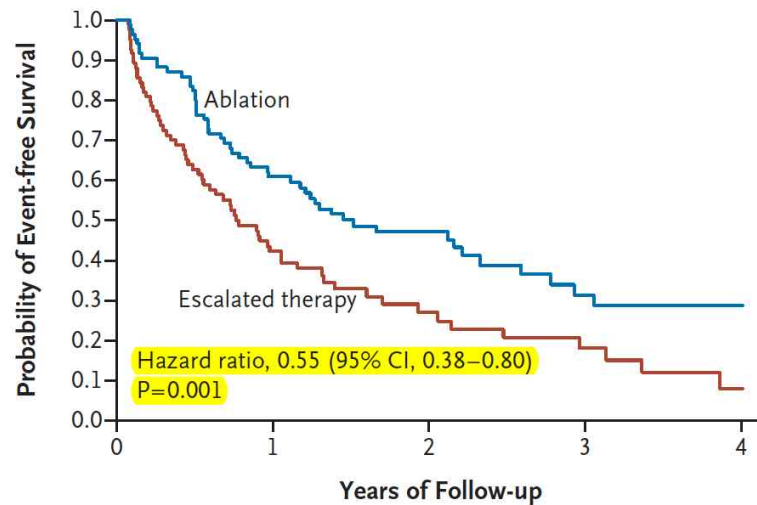


No. at Risk	0	1	2	3	4
Ablation	132	89	46	24	10
Escalated therapy	127	74	34	22	9

Ventricular Tachycardia Ablation versus Escalation of Antiarrhythmic Drugs

Primary Outcome, According to Receipt of Amiodarone @ baseline

A Use of Amiodarone at Baseline

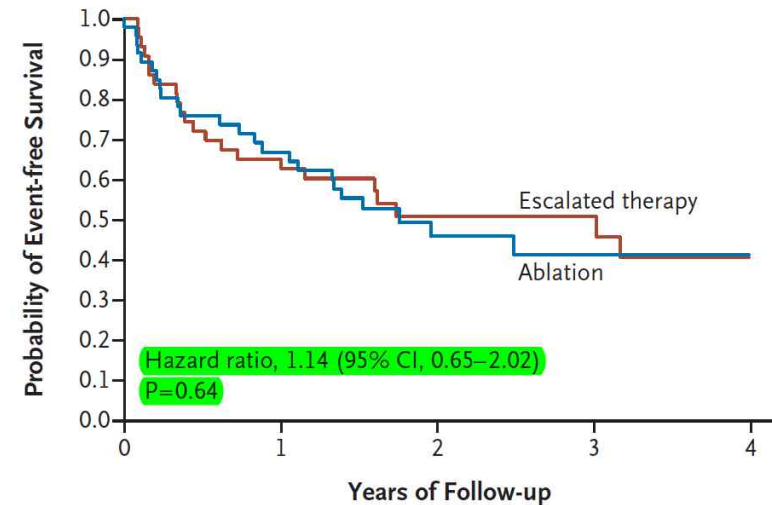


No. at Risk

Ablation	85	50	25	12	3
Escalated therapy	84	33	13	7	2

ablation substantially reduced the incidence of the outcome

B No Use of Amiodarone at Baseline



No. at Risk

Ablation	47	30	13	8	3
Escalated therapy	43	28	14	10	4

no significant between-group difference

Ventricular Tachycardia Ablation versus Escalation of Antiarrhythmic Drugs

- ❖ **Catheter ablation was more effective** than escalated AAD therapy in reducing the rate of the combined outcome of death at any time or VT storm or ICD shocks after 30 days
- ❖ **Most of the deaths were attributed to CHF or noncardiac causes**, with few deaths from arrhythmia
- ❖ **The benefit** with respect to the primary outcome for ablation was driven by a **reduction in the rates of VT storm & ICD shocks**

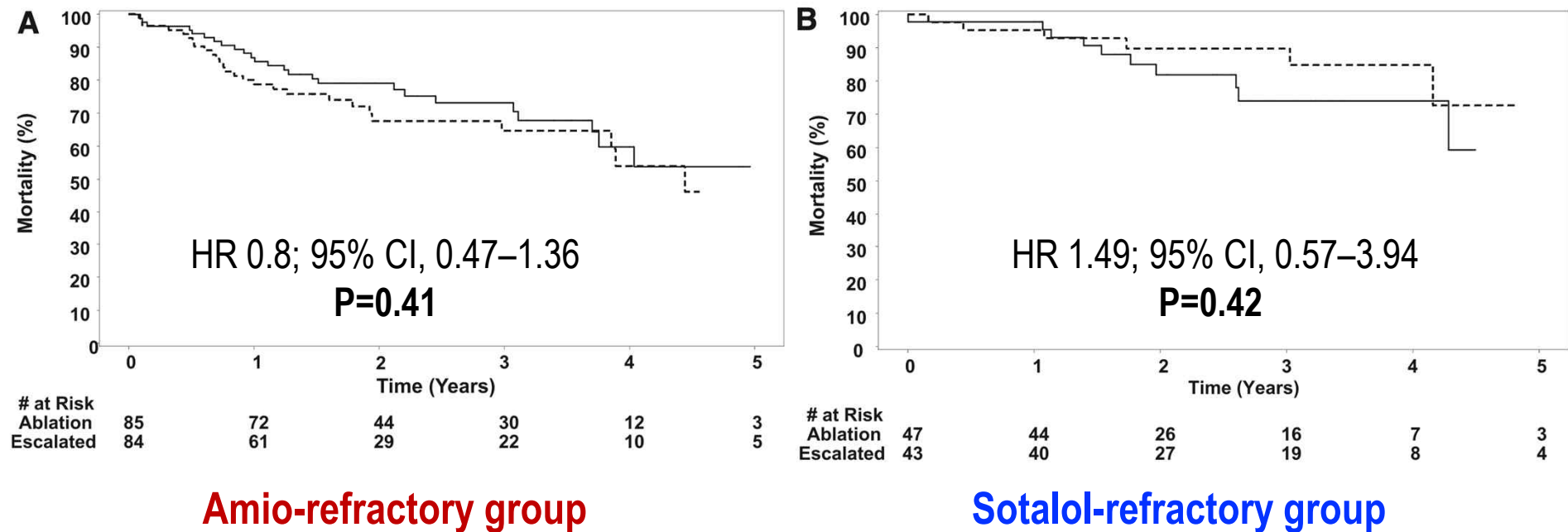
Effect of Baseline Antiarrhythmic Drug on Outcomes With Ablation in Ischemic Ventricular Tachycardia

- ❖ 169 (65.2%) were amio-refractory, & 90 (34.7%) were sotalol-refractory
- ❖ Compare the effectiveness of these interventions

Characteristics*	Amiodarone (N=169)	Sotalol (N=90)	P Value
Renal insufficiency, n (%)	40 (23.7%)	9 (10%)	0.008
Atrial fibrillation or atrial flutter, n (%)	72 (42.6%)	27 (30%)	0.06
NYHA FC, n (%)			
I	30 (17.8%)	31 (34.4%)	0.0003
II	88 (52.1%)	49 (54.4%)	
III	51 (30.2%)	10 (11.1%)	
Ejection fraction, %	29±9.7	35.2±11	<0.0001

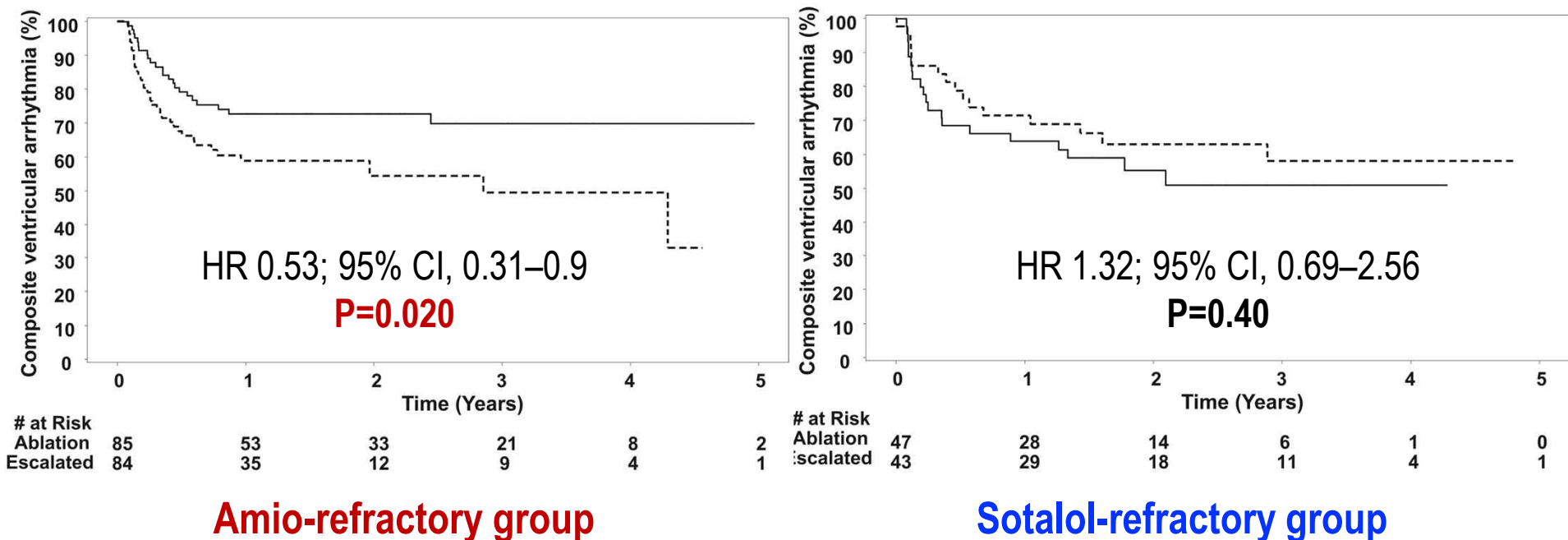
Effect of Baseline Antiarrhythmic Drug on Outcomes With Ablation in Ischemic Ventricular Tachycardia

Mortality rate in the ablation (solid line) vs the escalated antiarrhythmic drug (dot-ted line) group



Effect of Baseline Antiarrhythmic Drug on Outcomes With Ablation in Ischemic Ventricular Tachycardia

Composite ventricular arrhythmia rate in the ablation (solid line) vs the escalated antiarrhythmic drug (dot- ted line) group



Effect of Baseline Antiarrhythmic Drug on Outcomes With Ablation in Ischemic Ventricular Tachycardia

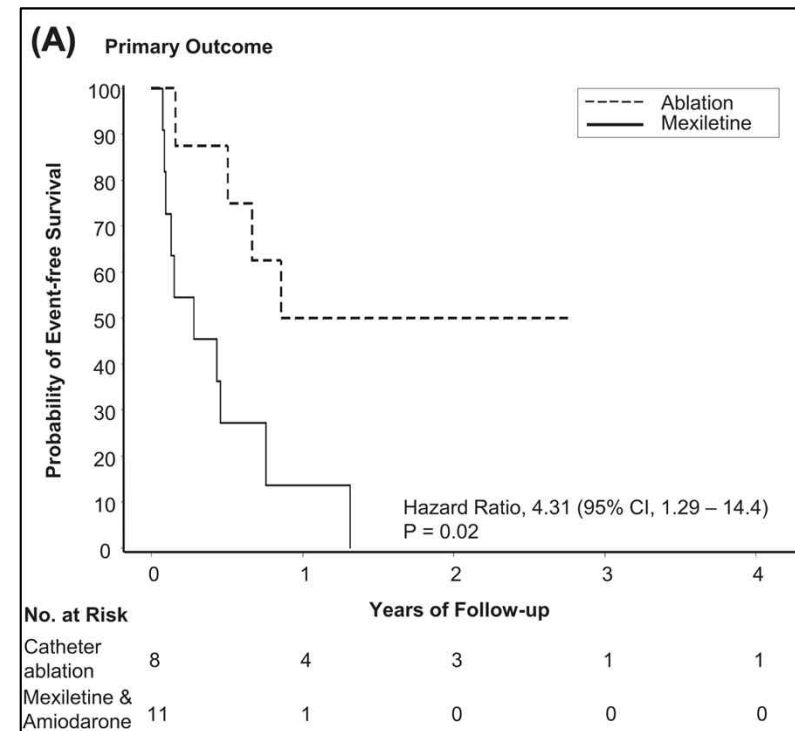
- ❖ **Sotalol-refractory patients**, *amiodarone* as the next step in therapy *resulted in the same outcomes as ablation*
- ❖ **Amio-refractory patients**, *catheter ablation led to improved outcomes*
- ❖ **Patients who have failed amiodarone therapy** likely have an arrhythmic substrate that will be less responsive to additional medical therapy, & **catheter ablation provides the greatest benefit**

Mexiletine or catheter ablation after amiodarone failure in the VANISH trial

- ❖ To evaluate the efficacy of adjunctive mexiletine & catheter ablation among patients enrolled in the VANISH trial
- ❖ **Nineteen** of the 259 patients were receiving high-dose amiodarone: **8 (ablation)** vs. **11 (escalated therapy with mexiletine)**
- ❖ The adjunctive mexiletine group had a **higher rate of the primary composite outcome** (death, VT storm, or appropriate shock) in comparison to catheter ablation (**HR 6.87 [2.08–22.8]**)

Mexiletine or catheter ablation after amiodarone failure in the VANISH trial

- ❖ **Mexiletine has limited efficacy** in the treatment of recurrent VT despite high-dose amiodarone therapy, in patients with ischemic heart disease
- ❖ **Catheter ablation is a superior strategy** in this population

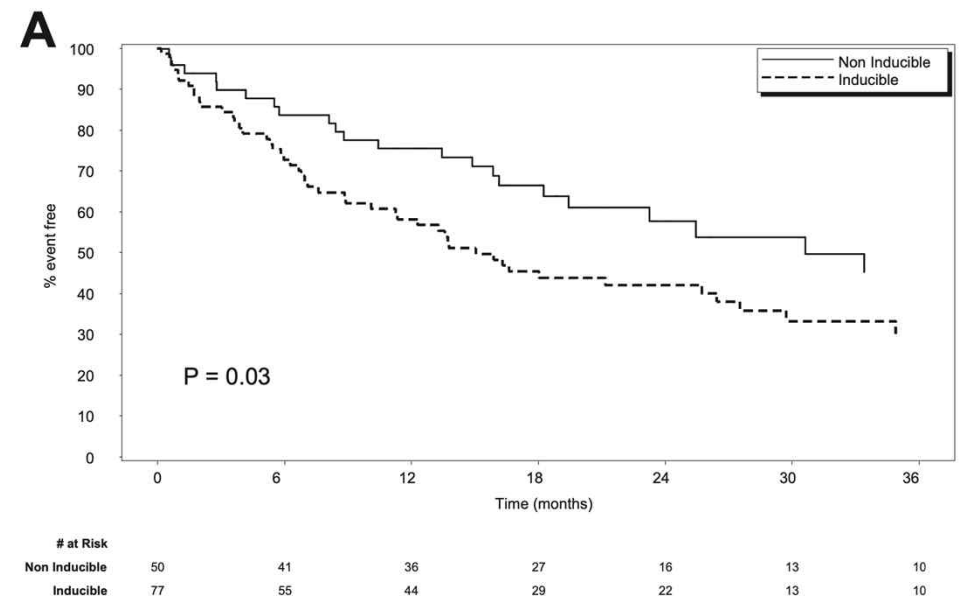


Prognostic Value of Noninducibility on Outcomes of Ventricular Tachycardia Ablation

- ❖ Evaluate the predictive value of non-inducibility on long-term outcomes
- ❖ Endpoint of ablation in VANISH trial: non-inducibility of VT ≥ 300 ms after ablation by programmed stimulation
- ❖ 129 patients in ablation group
 - ✓ non-inducible: 51
 - ✓ Inducible or not tested: 72

Prognostic Value of Noninducibility on Outcomes of Ventricular Tachycardia Ablation

- ❖ Inducibility of any VT post-ablation was associated with an **increased risk of the composite outcome** in the VANISH trial
- ❖ Inducibility of nonclinical fast VTs (CL <300 ms) may predict worse outcomes
- ❖ Achievement of non-inducibility of any VT as an acute procedural endpoint should be considered



Summary

- ❖ In patients ischemic CM with ICD, ***catheter ablation was more effective*** than escalated AAD therapy in reducing the rate of the combined outcome of death at any time or VT storm or ICD shocks after 30 days
- ❖ The benefit was driven by a ***reduction in the rates of VT storm & ICD shocks***
- ❖ **Sotalol-refractory patients**, *amiodarone* as the next step in therapy ***resulted in the same outcomes as ablation***
- ❖ **Achievement of non-inducibility of any VT** as an acute procedural endpoint **should be considered**

