PCI or not to PCI?
The debate for revascularization in Ischemic Cardiomyopathy

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Disclosures

- No relevant disclosures

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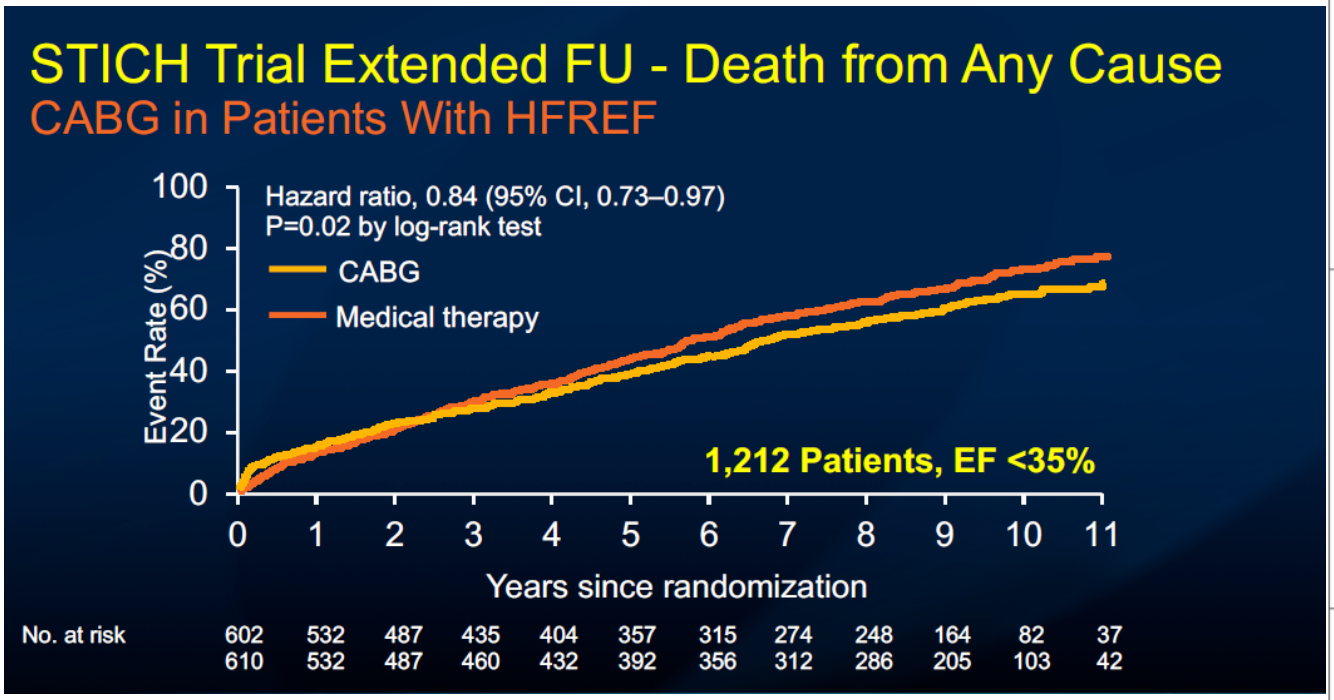
What Data do we have?



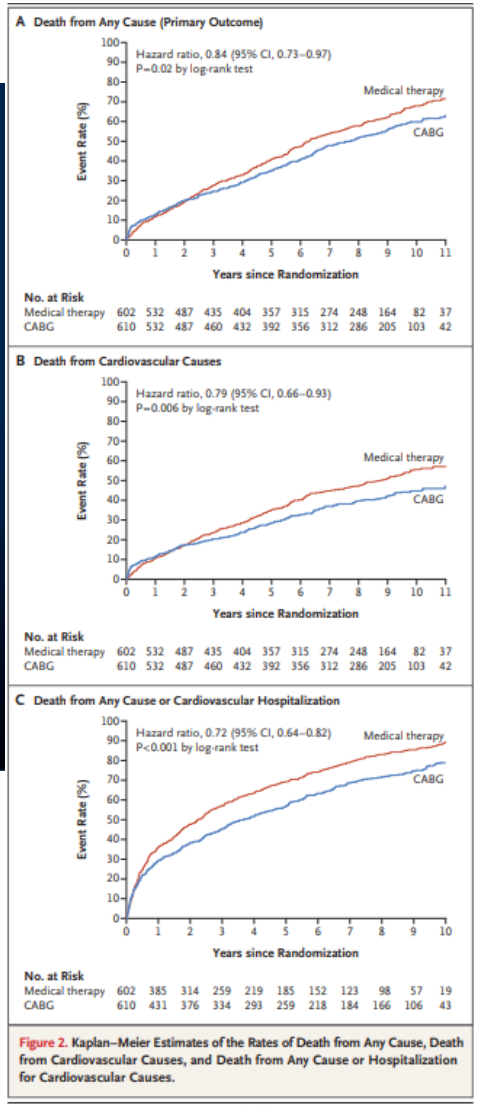


Figure 2. Kaplan–Meier Estimates of the Rates of Death from Any Cause, Death from Cardiovascular Causes, and Death from Any Cause or Hospitalization for Cardiovascular Causes.

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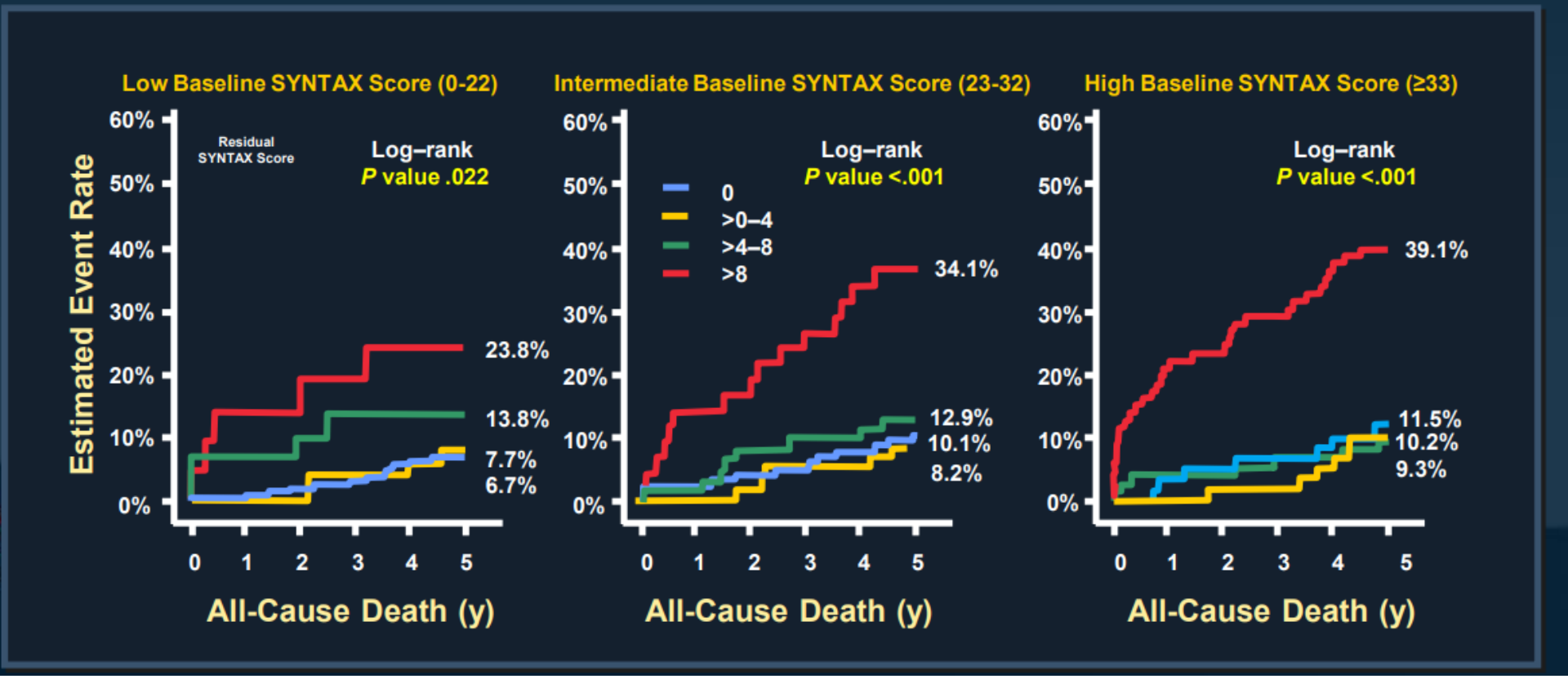
Residual SYNTAX Score in SYNTAX Trial and Mortality



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Observational Data Sets….

Evidence for Revascularization: PCI

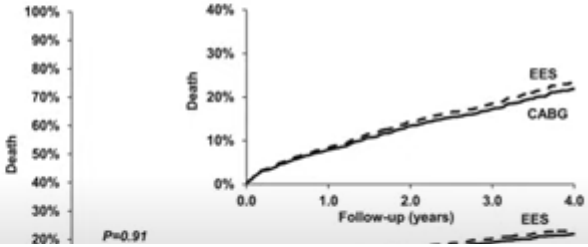
NY State PCI and Cardiac Surgery Reporting Registries

HR, 1.01; 95% CI, 0.81-1.28; P=0.91

Revascularization for MVD and LVEF <35%

- Excluded: ACS/Shock/LM/Prior CABG/Revasc w/in 1 year

4616 patients (29%PCI, 71% CABG)



Propensity matched analysis

Ontario CorHealth Registry

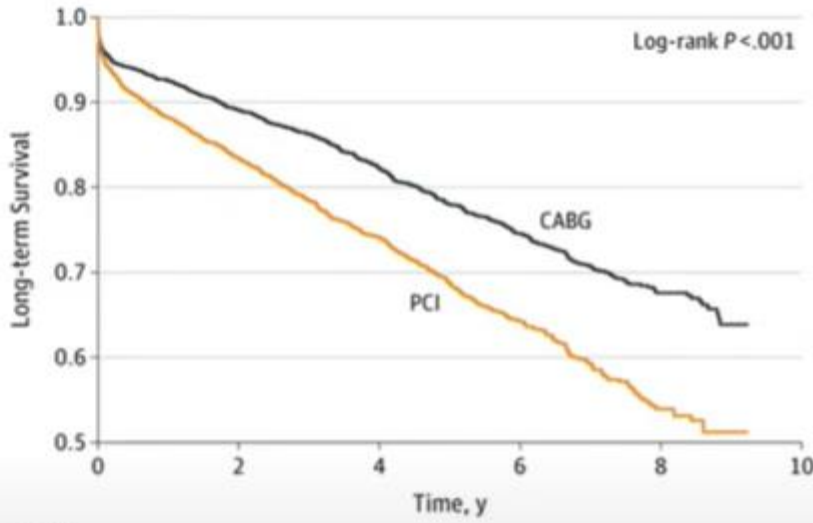
- Prospective registry of all patients in undergoing invasive procedures in Ontario

Revascularization for MVD and LVEF<35%(40-84 age)

- Excluded: ACS, prior CABG, shock

Propensity matched analysis

12,113 patients (57.9%PCI, 42.1% CABG)



Sun, JAMA Cardio, 2020

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Journal of the Society for Cardiovascular Angiography & Interventions

Contents lists available at ScienceDirect

Journal of the Society for Cardiovascular Angiography & Interventions

journal homepage: www.jscai.org

Original Research

Ejection Fraction Improvement Following Contemporary High-Risk Percutaneous Coronary Intervention: RESTORE EF Study Results

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ABSTRACT

Background: Despite many reports of clinical outcomes in patients undergoing high-risk percutaneous coronary intervention (HRPCI) with hemodynamic support, little is known about whether this approach improves left ventricular ejection fraction (LVEF). The purpose of the present observational study was to examine, in an ideal patient population with Impella-supported HRPCI, whether there is an impact on left ventricular function at midterm follow-up.

Methods: RESTORE EF is a multicenter, retrospective analysis of a prospectively collected observational data set that aimed to assess 90-day LVEF in patients undergoing Impella-supported nonemergent HRPCI (NCT04648306), who survived with no intervening cardiac procedures prior to the primary endpoint follow-up window (90-day LVEF assessment). Secondary endpoints included change in New York Heart Association Functional Classification and Canadian Cardiovascular Society Angina Grade at the last follow-up.

Results: From August 2019 to May 2021, 406 patients were enrolled at 22 US sites. Age was 70.2 ± 11.4 years; 26% were female. At paired assessment at 90-day follow-up, baseline LVEF improved from 35 ± 11% to 46 ± 14% (Δ = 10.6, $P < .0001$), with significantly greater improvement in patients with residual SYNTAX score I of 0. Percentage classified as New York Heart Association class III/IV decreased from 63% at baseline to 15% at last follow-up ($P < .001$), and percentage with Canadian Cardiovascular Society grade III/IV symptoms decreased from 72% to 2% ($P < .0001$).

Conclusions: In an ideal cohort of HRPCI patients, there is a signal that hemodynamically supported HRPCI affords significant improvement in 90-day LVEF, with complete revascularization associated with greater LVEF improvement. These hypothesis-generating findings merit further assessment in large, all-comer studies and randomized trials.

Restore EF STUDY

Ejection Fraction Improvement Following Contemporary High-Risk PCI

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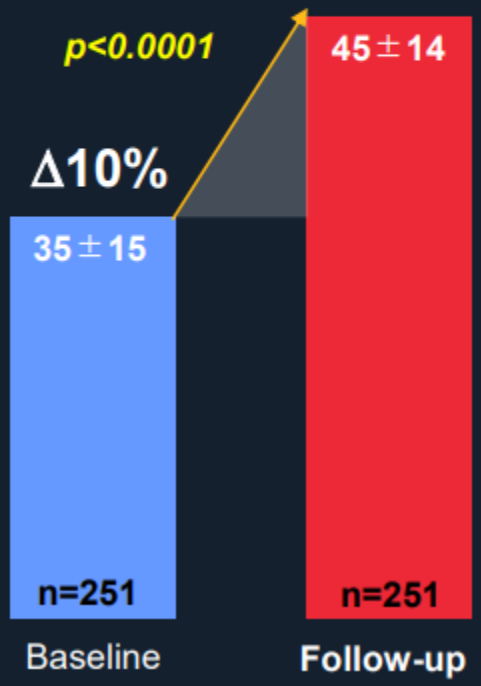
90-Day LVEF Improvement Following Impella-supported HRPCI

Restore EF STUDY

Baseline vs. Follow Up LVEF



vs. 5% in REVIVED

Follow-up period:
Mean± SD = 120± 40 days
Median (q1 q3) = 108 [89 149] days

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Let's Look at the Populations

REVIVED	
Age	70
Angina Class	
None	66%
CCS III	2%
EF	27%
NYHA >3	23%
CAD	
Left Main	14%
3VD	38%

STICH/ES	
Age	60
Angina Class	
None	37%
CCS III	4%
EF	28%
NYHA >3	34%
CAD	
Left Main	3%
3VD	62%

RESTORE	
Age	70
Angina Class	
None	10%
CCS III	69%
EF	37%
NYHA >3	60%
CAD	
Left Main	45%
3VD	38%

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STICH/ES (NEJM 2011/16):

- 1212 pts **~ 60 M**>>F, CCS II and LVEF 28%.
- Medial F/U 9.8 yrs.
- ACEi/ARB, and 50% MRA.
- Death rates at 4 yrs:
  - •CABG ~28%
  - •**Rx 32%**
- Higher rate of mortality in the medical therapy arm.

REVIVED BCIS 2 (NEJM 22):

- 700 pts **~70 M**>>F, CCS 0 and LVEF of 27%.
- Median F/U 3.5 yrs.
- + ARNI (37%)
- Death rates at 4 yrs:
  - •MV PCI ~28 %
  - •**Rx 26%**
- Lower rate of mortality in the Medical therapy arm.

Anatomical complexity matters…

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2/3 of patients were not hospitalized in past 2 years

No ACS patients enrolled

REVIVED mainly consisted of a quiescent, stable population recruited from outpatient settings. Not consistent with the acute heart failure or unstable patients we see

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