



# Allegheny Health Network

## HF Perspective: REVIVED Trial Panel

Christopher Link, MD  
May 19, 2023

To the



Everything Looks Like A



• CT Surgeons:

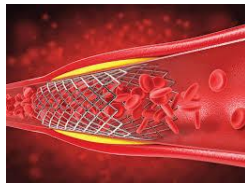
• STICH Trial



- ↓ All cause mortality at 10 years with CABG (HR 0.84, 0.73-0.97,  $p=.02$ )
- ↓ All cause mortality OR CV hospitalization with CABG (HR 0.72, 0.64-0.82,  $p<.001$ )

• Interventional Cardiologist:

• REVIVED Trial



- No reduction in all cause mortality OR HF hospitalization
- CAD defined by British CV Intervention Society Jeopardy Score  $\geq 6$

• HF Cardiologist

• ???????



# Optimal Medical Therapy $\neq$ Guideline Directed Medical Therapy

- STICH Trial
  - Ace-I : 84% in CABG vs. 80% in OMT
  - Beta Blocker: 83% vs. 88%
  - Digitalis: 20% vs. 21%
  - NO MRA and NO SGLT2i
  
- REVIVED Trial
  - ACE-I / ARB / Entresto
    - ACE-I: 61% in PCI vs. 57% in OMT
    - ARB: 17% vs. 19%
    - Entresto: 26% vs. 33%
  - Beta Blocker: 93% vs. 94%
  - Mineralocorticoid Antagonism: 49% vs. 56%
  - No SGLT2i

# GDMT in the Contemporary Era

Evidence-Based Therapy	Relative Risk Reduction in All-Cause Mortality in Pivotal RCTs, %	NNT to Prevent All-Cause Mortality Over Time*	NNT for All-Cause Mortality (Standardized to 12 mo)	NNT for All-Cause Mortality (Standardized to 36 mo)
ACEi or ARB	17	22 over 42 mo	77	26
ARNi†	16	36 over 27 mo	80	27
Beta blocker	34	28 over 12 mo	28	9
Mineralocorticoid receptor antagonist	30	9 over 24 mo	18	6
SGLT2i	17	43 over 18 mo	63	22
Hydralazine or nitrate‡	43	25 over 10 mo	21	7
CRT	36	12 over 24 mo	24	8
ICD	23	14 over 60 mo	70	23

NNT in CABG arm of STICH trial was 14

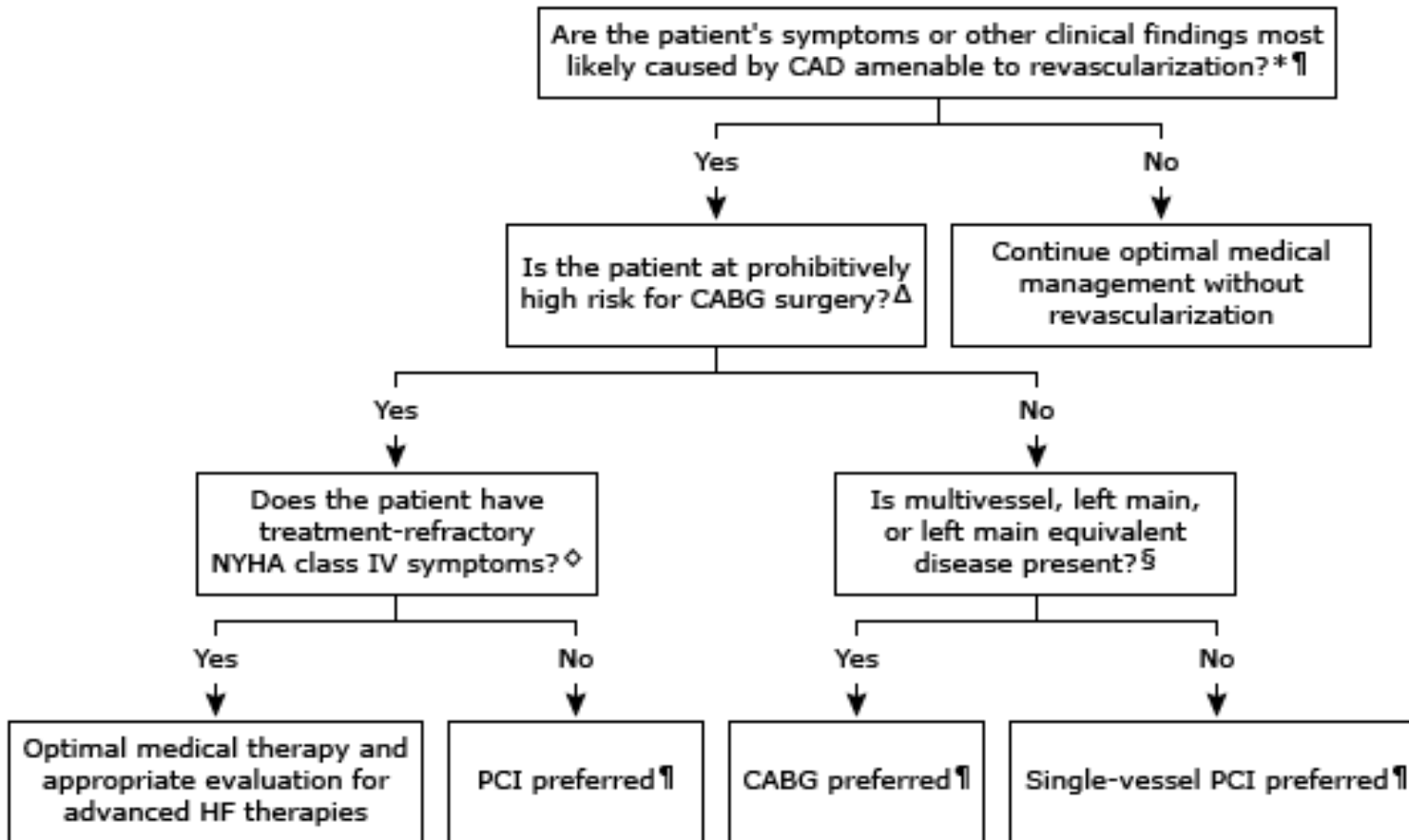
# REVIVED – Why No Benefit to PCI?

- CAD + ↓ EF ≠ Ischemic cardiomyopathy
  - REVIVED Methodology lacks
    - Clear definition stenosis severity
    - Correlation of coronary anatomy with previous ischemic or viability tests
  - Study population contains subjects with NICM rather than ICM
- Study population with less severe symptoms
  - 66% in PCI arm and 67% in OMT arm with NO ANGINA (STICH: 36% CABG and 37% OMT with no angina)
  - 77% in PCI arm and 71% in OMT arm with NYHA I or II symptoms (STICH: 63% CABG and 63% in OMT class I and II )
- Medical therapy included MRA and Entresto

# Heart Team Multidisciplinary Discussion

- Discuss suitability of coronary anatomy for revascularization
- Adjudicate the etiology of cardiomyopathy
- Estimate operative risk
- Assess likelihood CAD is cause of symptoms or LV dysfunction
- Medical optimization (in parallel)
  - GDMT for CHF (Increase beta blocker 1<sup>st</sup>)
  - Optimization of volume status
  - Anti anginal therapies following max GDMT (NO DILTIAZEM!)

# Treatment Strategy



# When to Consider Advanced HF Options

- Persistent NYHA IIIB or IV symptoms
- Low likelihood for myocardial recovery
  - Anatomy not suitable for PCI or CABG
  - Inability to tolerate GDMT due to hypotension
- Absence of viability
- Longstanding cardiomyopathy (preceding the diagnosis of CAD)
- Unfavorable hemodynamics
  - Low or borderline cardiac index



# Conclusion

- GDMT, independent of etiology of LV systolic dysfunction, is the backbone of treatment for cardiomyopathy.
- In patients with newly diagnosed LV systolic dysfunction and multi-vessel CAD or left main CAD, CABG is the preferred revascularization strategy assuming anatomy is suitable and surgical risk is not prohibitive
- The benefit of multi-vessel PCI in LV systolic dysfunction is less clear, but remains an option when:
  - Persistent symptoms of heart failure or angina on max tolerated medical therapy
  - There is correlation of coronary anatomy to stress/viability imaging or corresponding wall motion abnormality
- Heart team discussion should be utilized whenever there are questions about the appropriate revascularization strategy
- In NYHA IV patients without meaningful revascularization strategy and unable to tolerate initiation of medical therapy, advanced HF options such as LVAD or transplant can be considered.

# Viability Testing

- Role for Viability Testing
  - Moderate to large area of infarctions in territory that is amenable to revascularization
  - High risk for CABG / PCI AND benefit is unclear
- Viability Testing should NOT be considered:
  - Predominant symptom is angina
  - Small area of infarct in territory amenable to revascularization