

Discussant: ISCHEMIA-CKD



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Relationships with Industry (RWI) or Conflicts of Interest (COI): None
(Interventional Cardiologist by Training)



AHA Scientific Sessions 2019

2011 PCI, 2011 CABG, and 2012 SIHD ACC/AHA Guidelines

Revascularization to Improve Survival: MV CAD			
Anatomy	Method	COR	LOE
3 VD +/- Proximal LAD Disease	CABG	I	B
	PCI	IIb—Of uncertain benefit	B
2 VD With Proximal LAD Disease	CABG	I	B
	PCI	IIb—Of uncertain benefit	B
2 VD Without Proximal LAD Disease	CABG	IIa—With extensive ischemia	B
		IIb—Of uncertain benefit without extensive ischemia	C
	PCI	IIb—Of uncertain benefit	B

- “In the 1970s and 1980s, 3 RCTs established the survival benefit of CABG compared with contemporaneous (although minimal by current standards) medical therapy without revascularization in certain subjects with stable angina”
- Only “contemporary” randomized trial BARI 2D in diabetic patients treated with BMS or 1st generation DES
- “No study to date has demonstrated that PCI in patients with SIHD improves survival rates” (best data from COURAGE)

Levine GN et al. Circulation 2011 (PCI); Hills LD et al. Circulation 2011 (CABG); Fihn SD et al. Circulation 2012 (SIHD)



ACC/AHA Guideline Revascularization Recommendations for Patients with CKD

Indication	Method	COR	LOE
3 VD +/- Proximal LAD Disease	CABG		
	PCI		
2 VD With Proximal LAD Disease	CABG		
	PCI		
2 VD Without Proximal LAD Disease	CABG		
	PCI		
Moderate or Severe Ischemia	CABG		
	PCI		
Angina/QOL	CABG		
	PCI		





Help to fill these large knowledge gaps

- Study PIs and study leadership
- ISCHEMIA and ISCHEMIA-CKD investigators
- Patients who volunteered to participate
- NHLBI



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ISCHEMIA-CKD Study Caveats

- As acknowledged by the study investigators, we need to remind ourselves that these results do not apply to patients with:
 - ACS
 - Unacceptable angina despite maximal medical therapy
 - Significant heart failure
- It seems unlikely that all centers routinely do and will exactly follow the very careful measures to limit contrast and minimize contrast nephropathy used in this study
- Only:
 - ½ (51%) of patients had multivessel CAD (which was defined as $\geq 50\%$ stenosis)
 - 80% of the invasive arm underwent angiography
 - ½ of patients in the invasive arm underwent revascularization



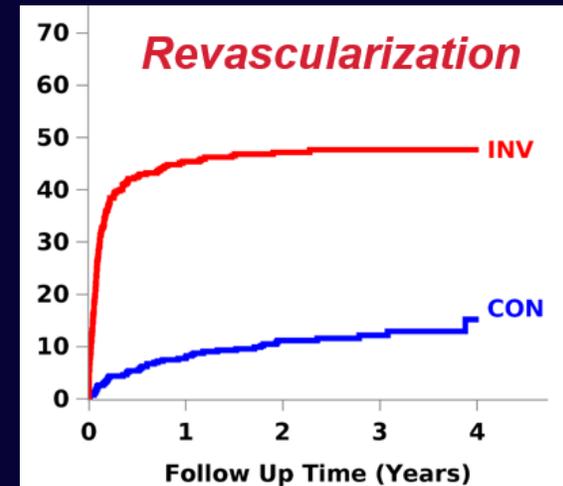
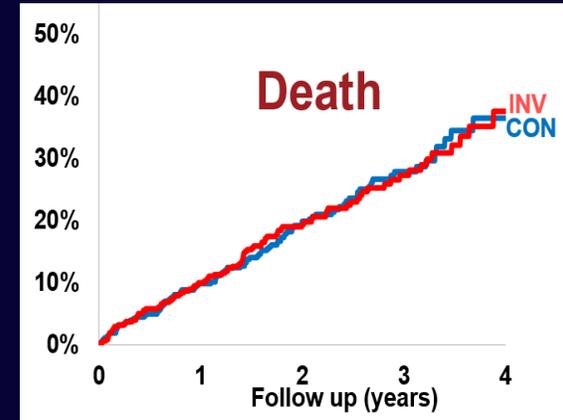
That Said....

- This was as well designed and executed a trial as one can practically do
- The study was able to enroll, consent, and randomize 777 patients with severe or end-stage CKD into a trial involving angiography, PCI and CABG, then follow them 2-4 years with essentially no loss of f/u data -- a monumental achievement
- Well-powered trial
 - >80% power to detect 22% to 24% relative reduction
 - based on estimated 4 year event rate 41-48% (actual \approx 47%)
- Cross-over rates for conservative to invasive therapy was modest (\approx 20% for angiography and \approx 12% for revascularization)
- The study results are generally internally consistent



My Take Home Thoughts

- Patients with severe CKD are a challenging group to treat and improve prognosis
 - It is difficult (even in a well-done study) to consistently achieve a “high level of medical therapy optimization”
 - There is a $\approx 37\%$ 4-year mortality irrespective of how we manage their CAD
- Even when we go searching for significant CAD in these patients, only $\approx 1/2$ will undergo revascularization
- Angiography and coronary revascularization as a general treatment strategy in patients with severe or end-stage CKD with moderate to severe ischemic on stress testing, who do not have ACS or an unacceptable level of angina:
 - does not seem to decrease death or ischemic events
 - does not seem to improve QOL parameters
 - seems numerically at least to increase the *early* need for dialysis
 - might (for some non procedure-related reason) increase stroke



My Take Home Thoughts

- I would think (without any inside knowledge) ISCHEMIA and ISCHEMIA-CKD will be key studies that are incorporated into AHA/ACC revascularization guidelines.
- Based on the results of ISCHEMIA-CKD, I will generally not go “searching” for ischemia and CAD in most severe and end-stage CKD patients, absent marked or unacceptable angina, and will treat them with medical therapy alone

