New Concepts in Primary PCI: What Should I Be Doing Differently

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Differences Between 2011 and 2021
Food

Differences between 2011 and 2021 Bikes

Differences Between 2011 and 2021 Thanksgiving

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Differences Between 2011 and 2021 Batman

Things I'll Do Less in STEMI

- Treat every STEMI patient like they are the sickest patient in the hospital
- Pretend that the 2 hours the patient spent before the PCI is less important than 5 minutes in the cath lab
  - Spend more time thinking about the appropriate strategy (e.g. alleviate spasm, size appropriately, use imaging and physiology, address multivessel disease)

Use SAPT for Patients at High Bleeding Risk

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

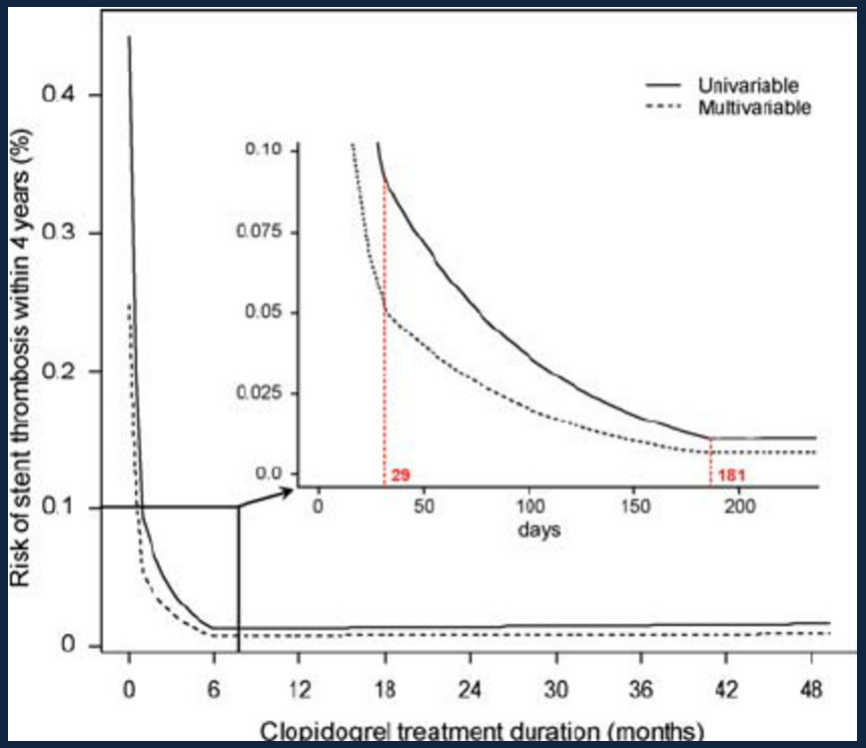
Ticagrelor with or without Aspirin in High-Risk Patients after PCI

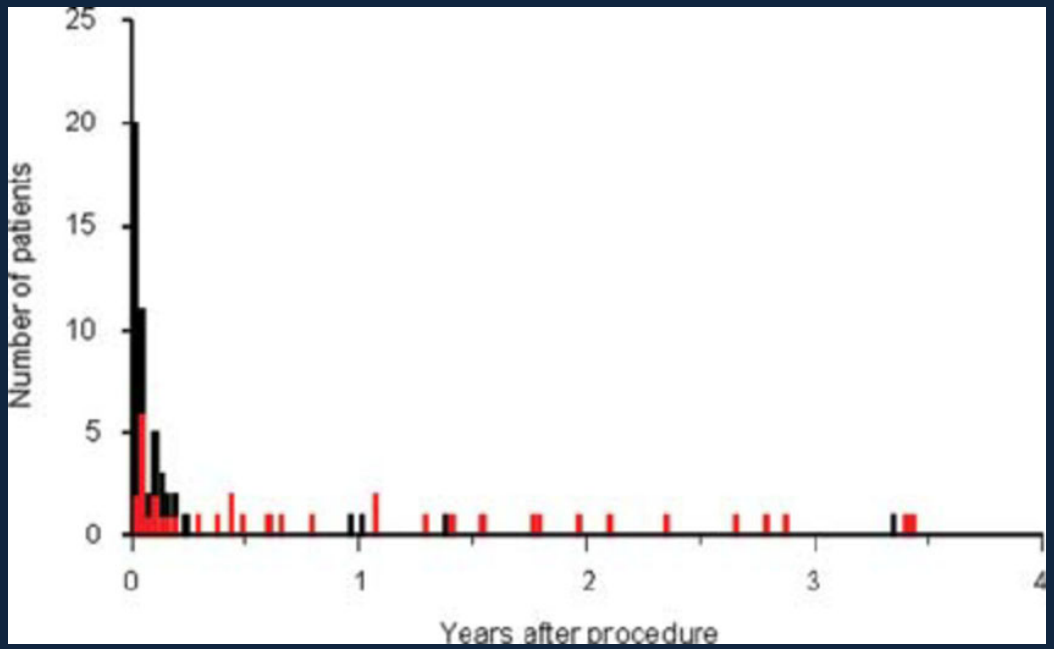
R. Mehran, U. Baber, S.K. Sharma, D.J. Cohen, D.J. Angiolillo, C. Briguori,

Event Rates Comparison of Major De-escalation Trials

	TALOS-AMI	TICO	Twilight-ACS	TROPICAL-ACS	POPular Genetics	HOST-REDUCE-POLYTECH-ACS
De-escalation method	A+clopidogrel from 1 month	Ticagrelor mono from 3 months	Ticagrelor mono from 3 months	PFT-guided from 2 weeks	Genotype-guided from 48 h	A+Prasugrel 5mg from 1 month
Primary Ischemic Outcome	1-12 mo incidence of CV death, MI or stroke	1-Yr incidence of CV death, MI,ST or TVR	1-Yr incidence of All-cause mortality, MI, stroke	1-Yr incidence of CV death, MI or stroke	I-Yr incidence of Vascular death, MI, ST or stroke	1-Yr incidence of CV death, MI, ST or stroke
de-escalation	**2.1%**	1.2%	4.3%	3.0%	2.7%	1.4%
standard	**3.1%**	2.0%	4.4%	3.0%	3.3%	1.8%
Primary Bleeding Outcome	BARC 2, 3, or 5	TIMI Major + Minor	BARC 2, 3 or 5	BARC 2, 3, or 5	PLATO major + minor	BARC 2, 3, or 5
de-escalation	**3.0%**	3.6%	4.0%	5.0%	10.1%	2.9%
standard	**5.6%**	5.5%	7.1%	6.0%	13.1%	5.9%

Tailor Therapy to the Biggest Threat to the Patient: Stent Thrombosis Over Time (Red Off Clopi)





European heart journal. 30. 2714-21. 10.1093/eurheartj/ehp275.

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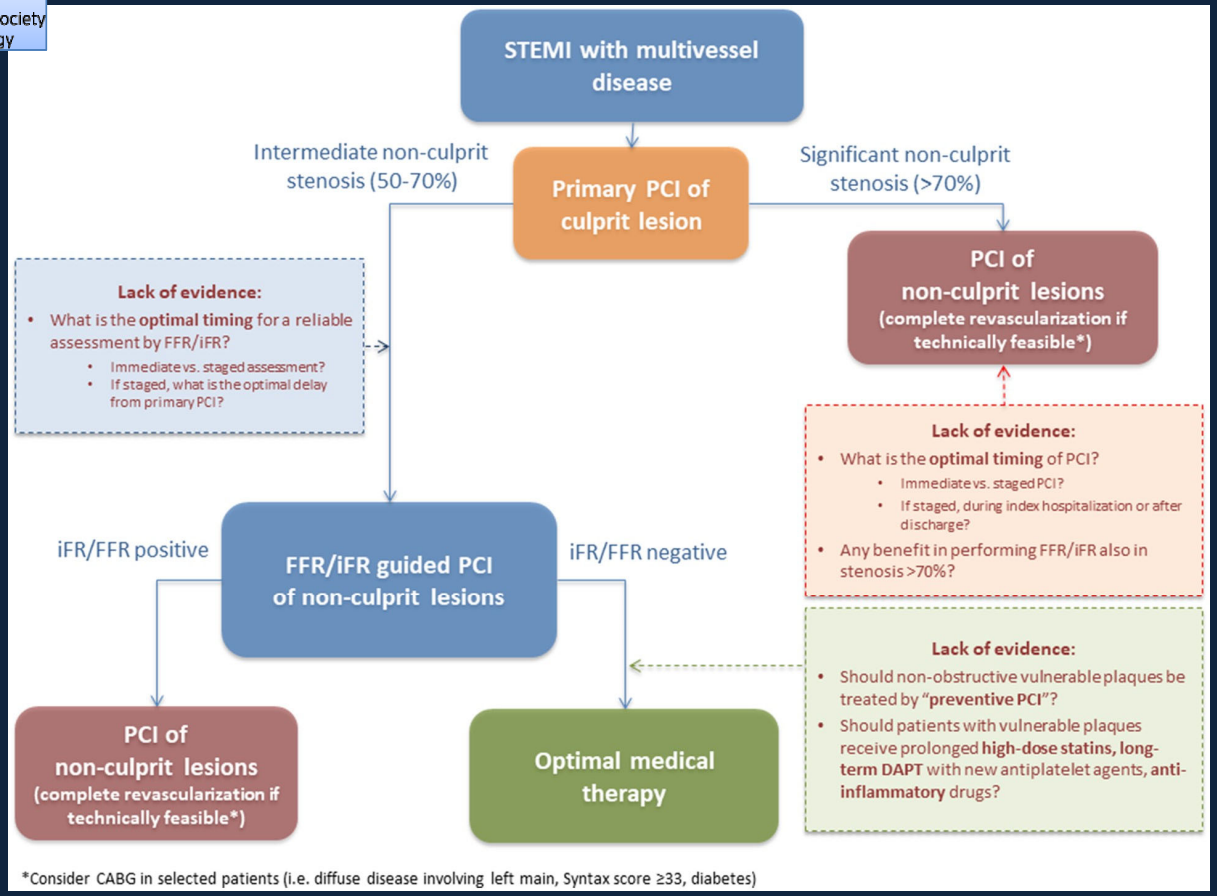
ESTABLISHED IN 1812 OCTOBER 10, 2019 VOL. 381 NO. 15

Complete Revascularization with Multivessel PCI for Myocardial Infarction



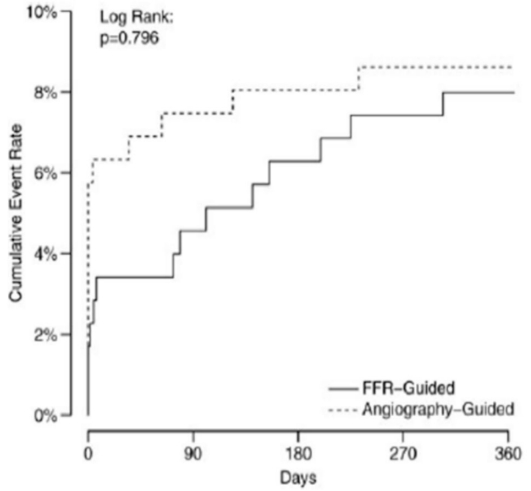


Figure 2 Kaplan-Meier plots of cumulative event rate in patients with acute coronary syndromes enrolled in the FAMOUS-NSTEMI study according to FFR or angio-guidance. FFR, fractional flow reserve. (Adapted from Tamita *et al*).[11]

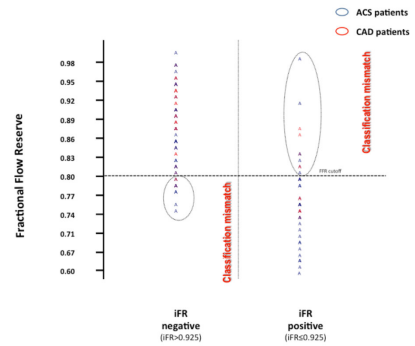


Figure 5 Assessment of classification mismatch between iFR and FFR. ACS, acute coronary syndrome; CAD, coronary artery disease; FFR, fractional flow reserve; iFR, instantaneous wave-free ratio. (Adapted from Echavarría-Pinto *et al*).[42]

Niccoli G, *et al. Open Heart* 2017;**4**:e000431. doi:10.1136/openhrt-2016-000431

Eur Heart J, Volume 41, Issue 37, 1 October 2020, Pages 3579–3586, https://doi.org/10.1093/eurheartj/ehaa481

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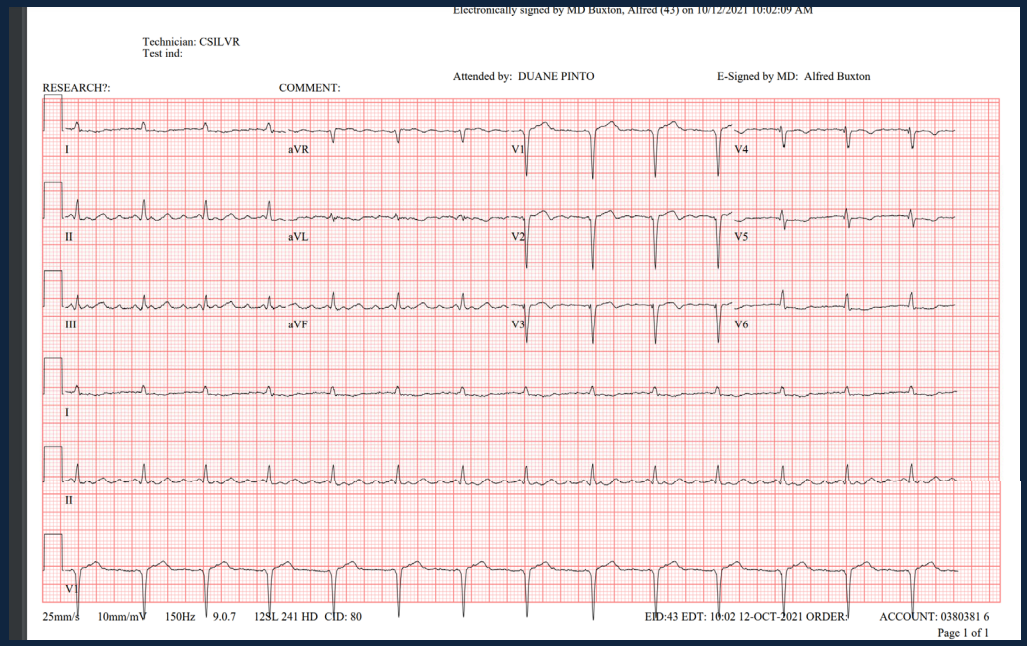
Evidence Gaps

- Timing of Revascularization
- Optimal Modality of Revascularization
- Complete revascularization/Use of intracoronary imaging and physiology to guide decisions

- 77 yo man w/ hx of COPD, T1DM, CKD, with Atrial fibrillation, acute systolic heart failure and NSTEMI 5 days ago followed by PEA in the setting of hypoxia after extubation referred for “STEMI” after reintubation. Acute kidney and liver injury.



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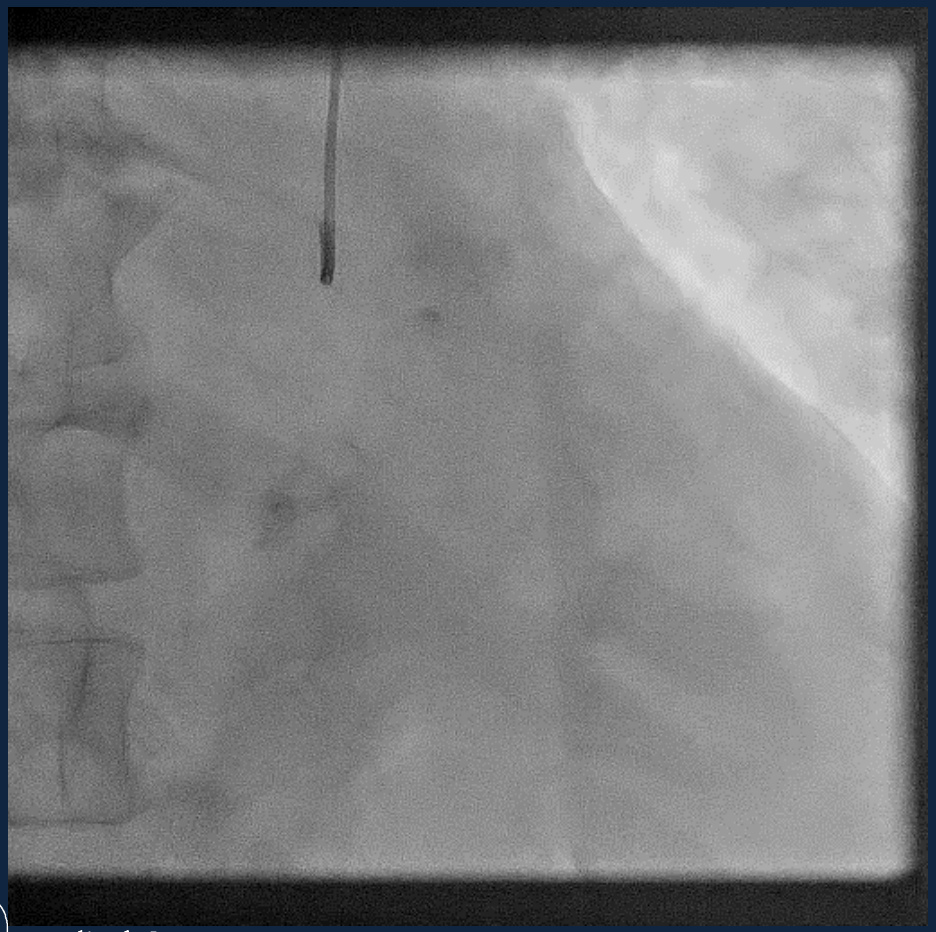
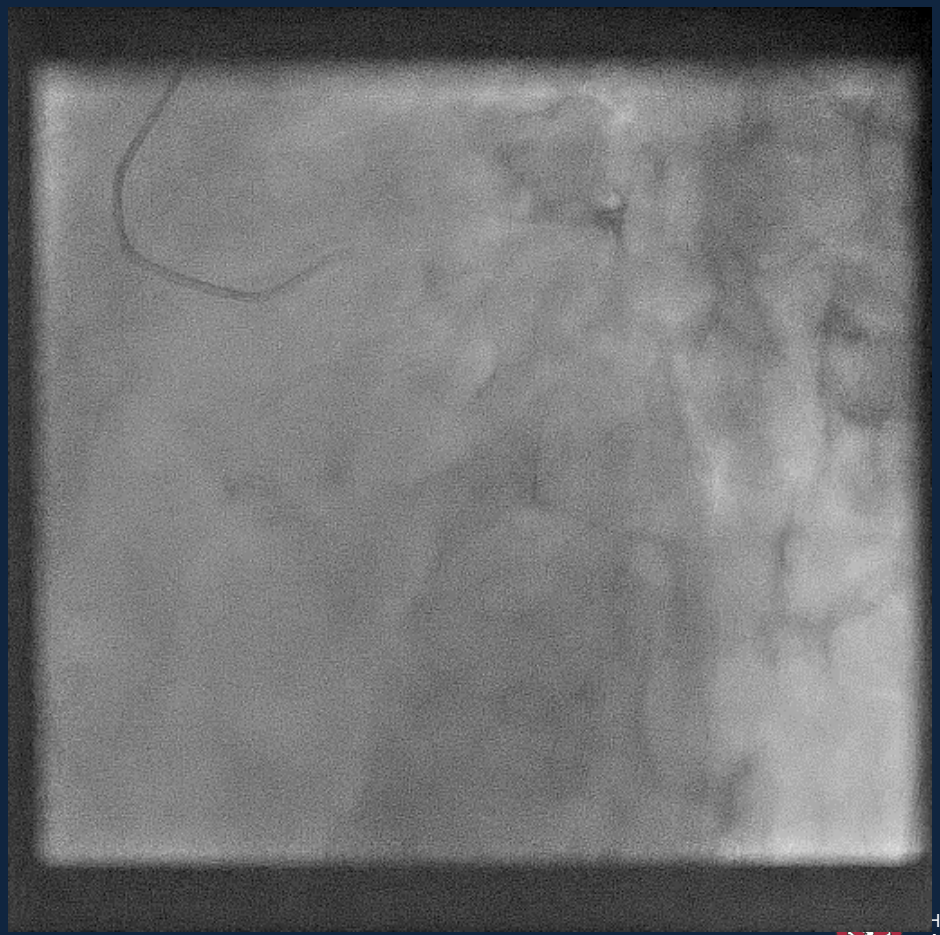
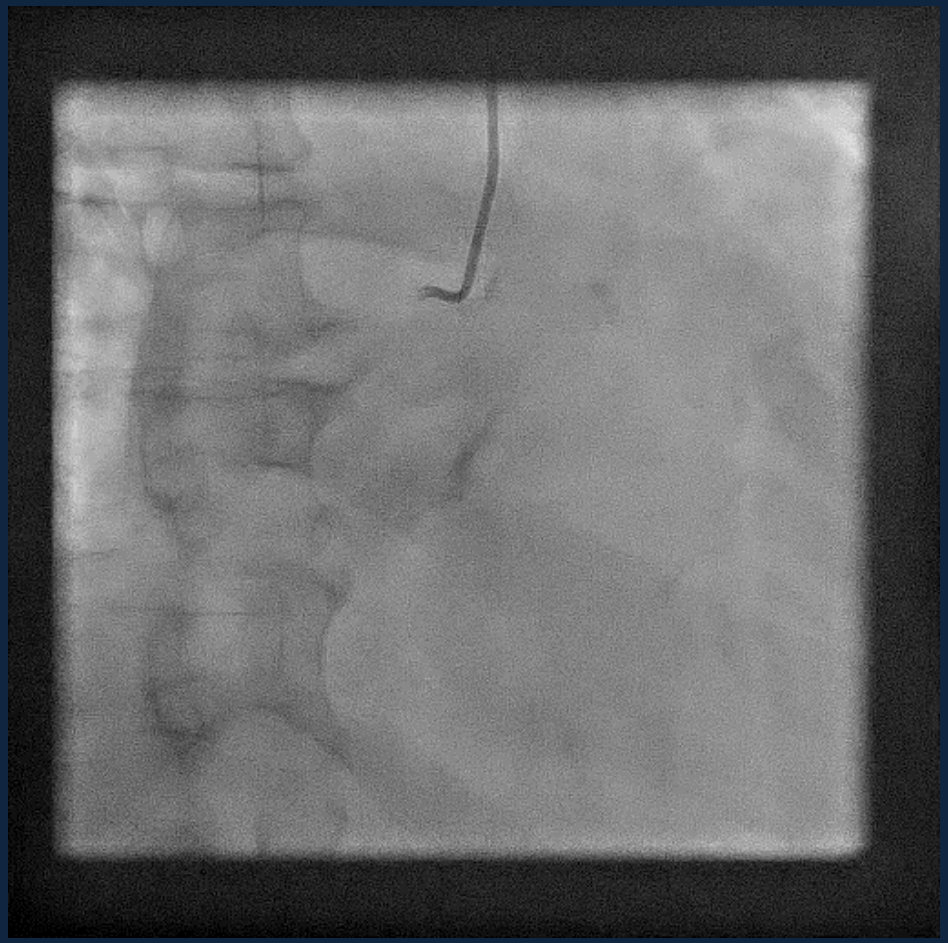
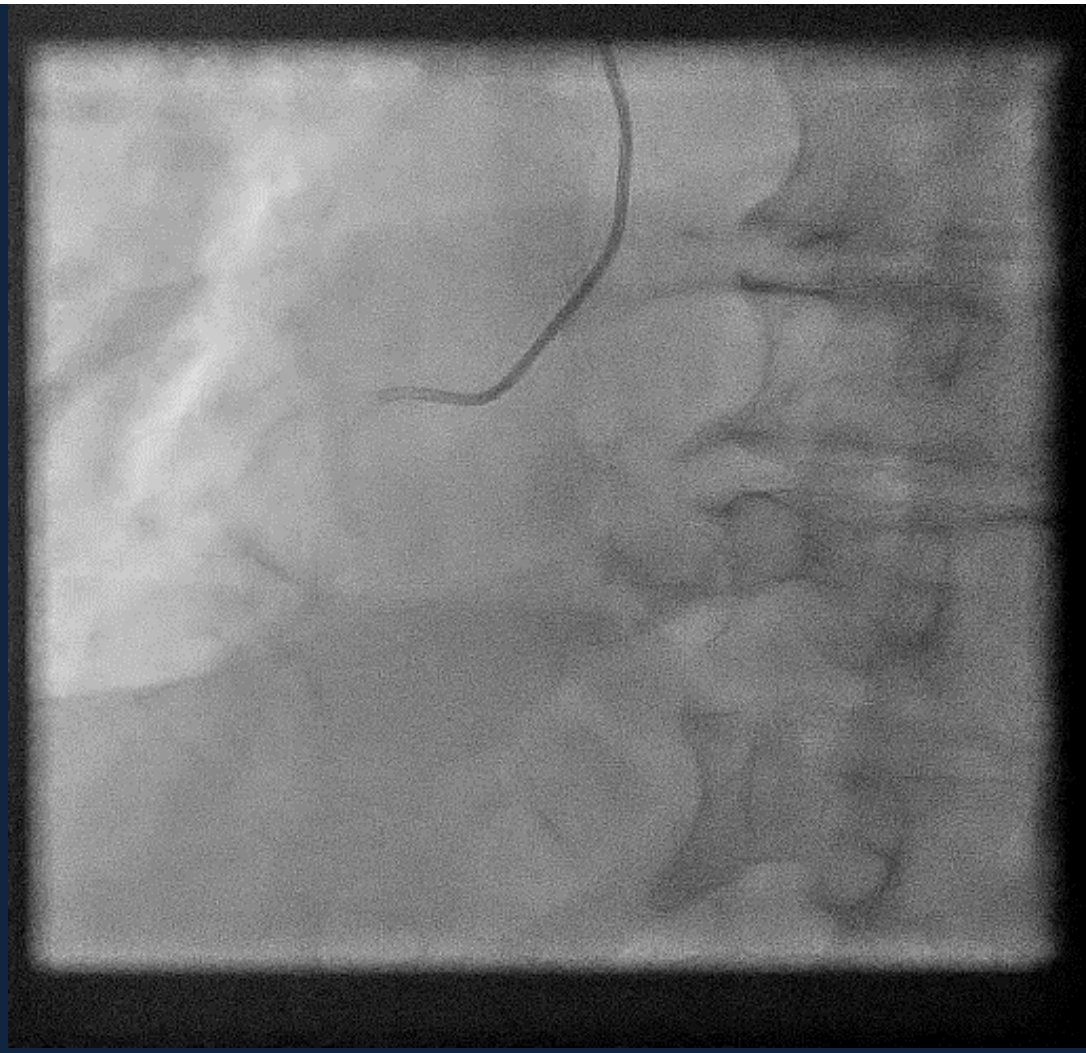
Patient Arrives 5 hours Later: Initially Our Hospital Refuses Because No ICU Beds



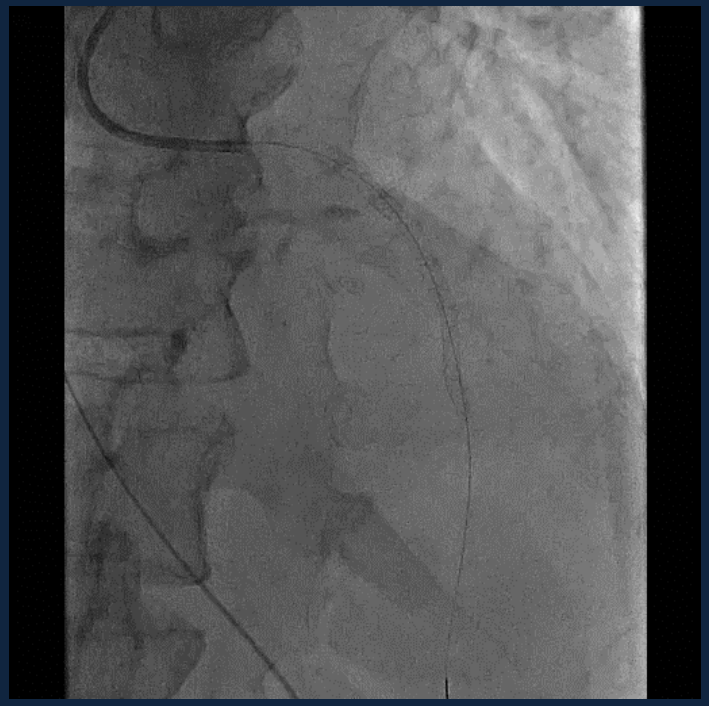


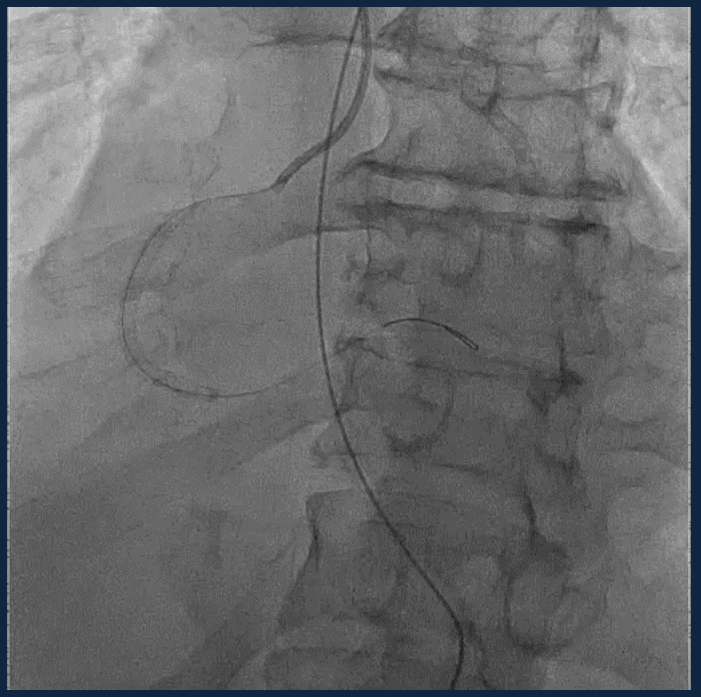




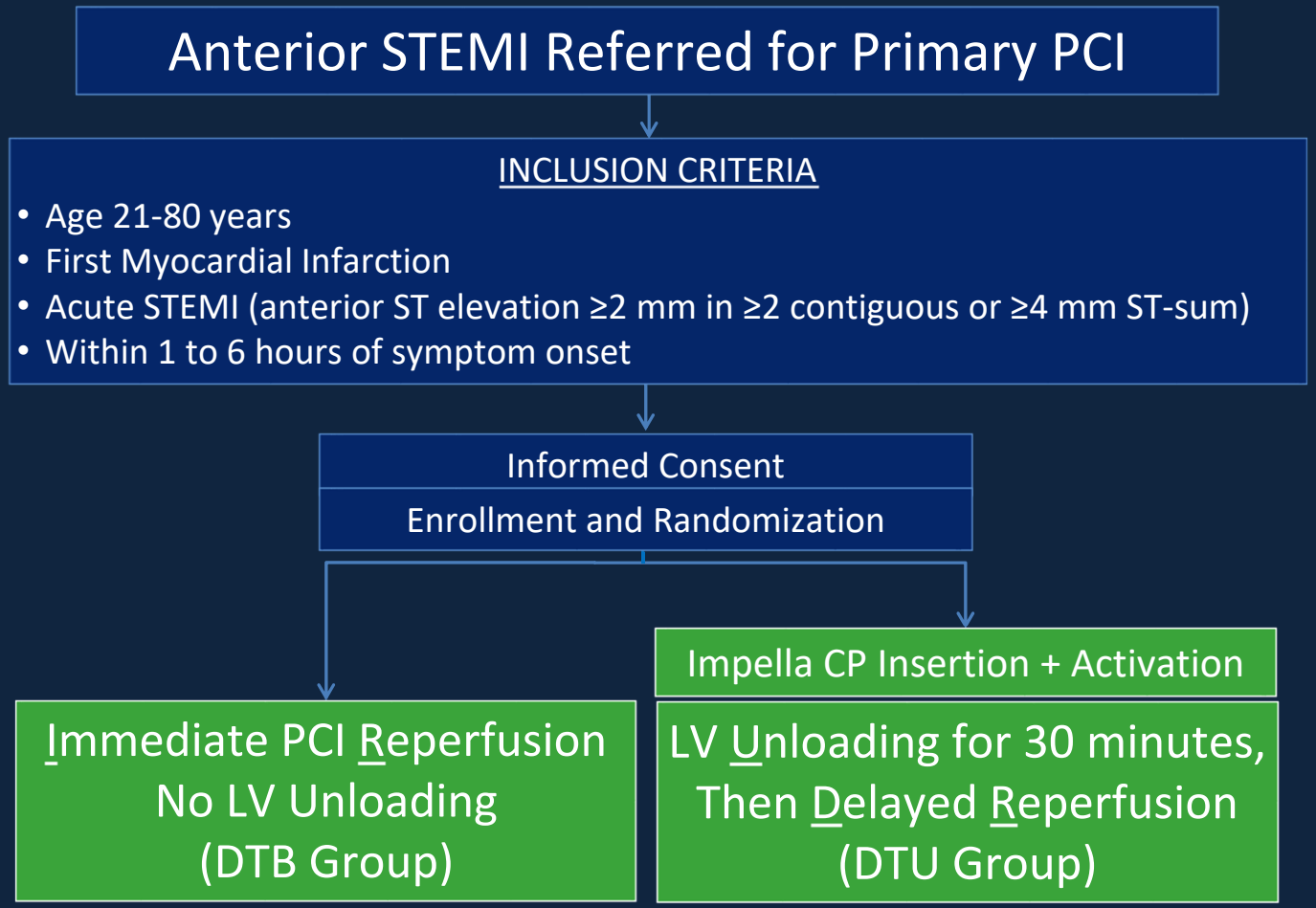
Arrest Night of Cath: Rapidly Resuscitated

- IVUS Guided PCI-12 cc contrast
- Renal failure, liver injury clear, prolonged hospitalization for delirium, swallowing difficulty, rehab placement





Improving the Paradigm

- Streamline Transfers from Neighboring Hospitals in Setting of New Normal
- Quicker decisions regarding modality of revascularization and implementation
- Level set expertise in techniques available to STEMI (and other PCI patients)
  - Lesion evaluation and prep
  - Contrast exposure
  - Mechanical assist utilization
  - Selection of cases to the lab (cardiac arrest, comorbidities, shock)

Door To Unload: STEMI PIVOTAL Trial