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Perspectives on COACT

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Disclosures

- None to Report with regards to this presentation

Impact of Coronary Angiography and Revascularization

- In STEMI, emergent coronary angiography (CAG) and PCI is indicated to restore coronary reperfusion to reduce mortality by salvaging myocardium, improving LV function and reducing recurrent ischemia and infarction.
- In NSTEMI, CAG and revascularization decreases the combined endpoint of death, MI, or stroke. Early CAG (<24 hrs) compared with delayed (CAG) has not improved outcomes except for patients with a high GRACE Score (GRACE score >140). Immediate CAG within two hours has not improved outcomes in one randomized clinical trial.
- In SIHD, CAG has not reduced death, MI, or stroke.
- In OHCA secondary to VT/VF with ROSC, early CAG has not improved survival at 90 days in the previously published COACT trial.

COACT

- Study aim is to compare the strategy of immediate CAG vs delayed CAG in patients with OHCA secondary to VT/VF of primary cardiac etiology, without ST segment elevation. Although revascularization was performed if indicated (lesions greater than 70%), this was not a trial comparing revascularization to no revascularization.
- The potential benefit of early coronary angiography is to identify and treat coronary stenoses to prevent further myocardial ischemia and potentially improve outcomes.
- Primary endpoint is 90 day survival. Secondary endpoints included myocardial injury, neurological status at ICU discharge, recurrent arrhythmias, markers of shock and duration of inotropic support. One year outcome data is now available.

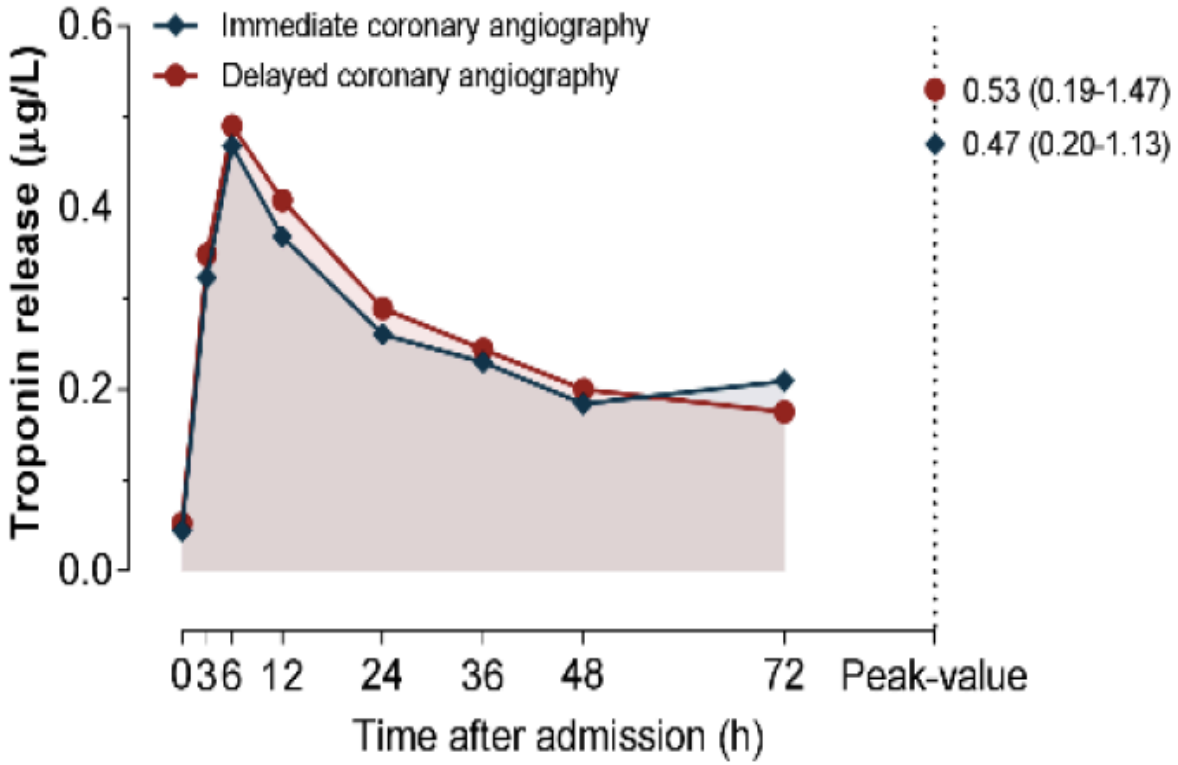
Statistical Assumption

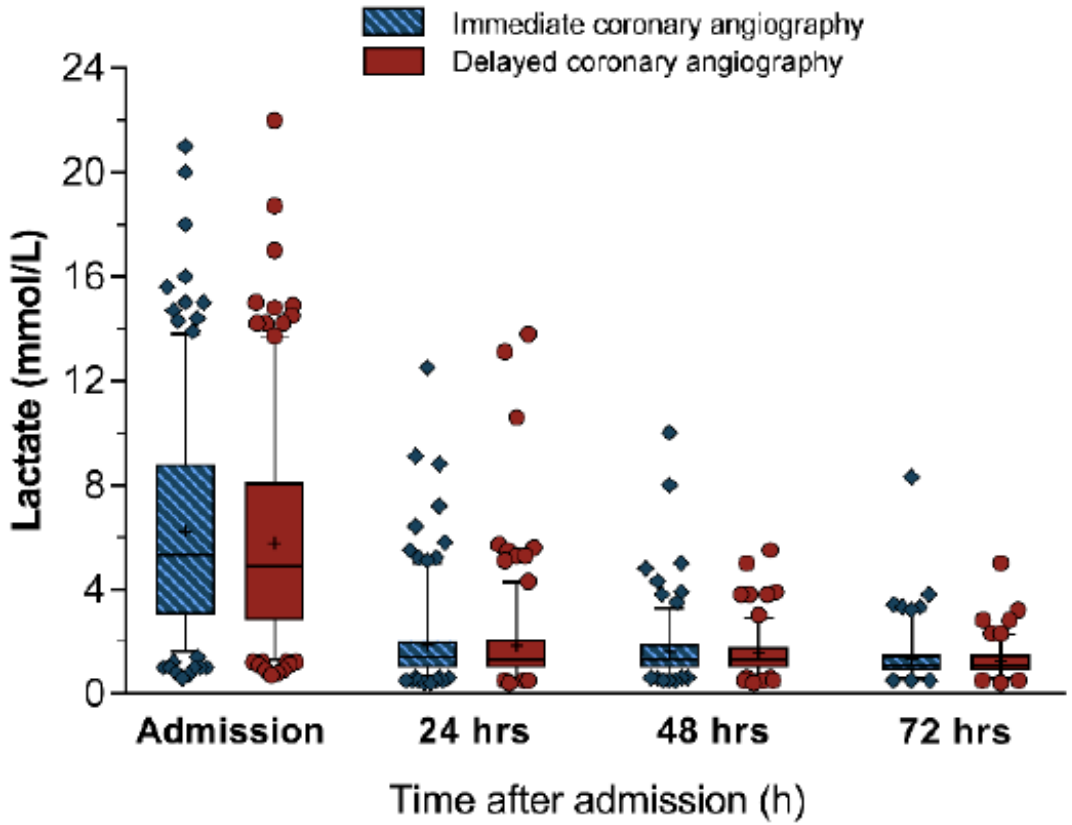
- Review of 10 non-randomized studies demonstrated a 24% improvement (56% vs 32%) in survival for immediate CAG vs delayed CAG or medical therapy alone.
- COACT was designed to detect a 40% proportional increase in survival from 32% to 45%. The sample size of 552 patients had an 85% power and accounted for an assumed loss to follow up of 10% and included an adaptive design.

Important Characteristics and Treatments

	Immediate Coronary Angiography	Delayed Angiography
Witnessed Arrest	79.9%	76.6%
Median Time to BLS (min)	2	2
Median Time to ROSC (min)	15	15
Coronary Angiography	97.0%	64.9%
CAD	64.5%	65.7%
Coronary Revascularization	39.2%	32.9%
Temperature Targeted Management	94.1%	93.2%
Beta Blocker	68.8%	70.5%
ICD	39.6%	40.0%
One Year Survival	61.4%	64.0%

Myocardial Injury and Lactate Levels





One Year Outcomes

- No difference in the primary endpoint of survival nor the secondary endpoints between the two groups with low recurrent MI rates of less than 1%, low recurrent revascularization rates of less than 4% and low rates of recurrent HF hospitalization of less than 1%.
- Although there are no differences between the two groups in recurrent arrhythmias, both groups had a high rates of ICD shocks with 23/113 in the early CAG and 17/105 in the delayed CAG groups.

Potential Reasons for Negative Study

- The survival in both early and delayed CAG groups (61.4% vs 64%) was higher than the statistical design which assumed a rate of 45% in the early CAG vs 32% in the delayed CAG which decreased the power to detect a potential difference if one truly exists.
- The absence of a difference actually reflects no difference with regards to the strategy of early vs delayed CAG as patients were otherwise treated in a similar fashion with only a small difference in revascularization rates and knowledge that timing of revascularization does not impact outcomes as is already known in all scenarios except STEMI.
- Neurological injury and multi-organ failure are the primary etiologies for death during index hospitalization accounting for 70-80% of deaths whereas cardiogenic shock and arrhythmias account for less than 20%.

Conclusions

- In patients with OHCA with ROSC within 20 minutes who had prompt institution of BLS and who do not have refractory CS nor STEMI, early CAG does not improve survival at one year nor impact rates of MI, revascularization nor recurrent arrhythmias. These findings should not be surprising given the lack of difference in myocardial injury, nor evidence of reduction in ischemia, duration of inotropic support, TTM during the index hospitalization and concordant primary and secondary outcomes at 90 days.
- Secondary prevention therapies known to reduce recurrent VT/VF or treat lethal arrhythmias including beta blockers and ICD implantation should be administered, when appropriate.
- At present, the results of COACT with regards to primary and secondary outcomes should guide practitoners that angiography remains essential but that early CAG does not improve outcomes compared to delayed CAG.
- Future trials including ACCESS and DISCO will provide further insight into the potential role of early CAG.

Thank you!

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