PCI After Successful Fibrinolysis: Routine Early

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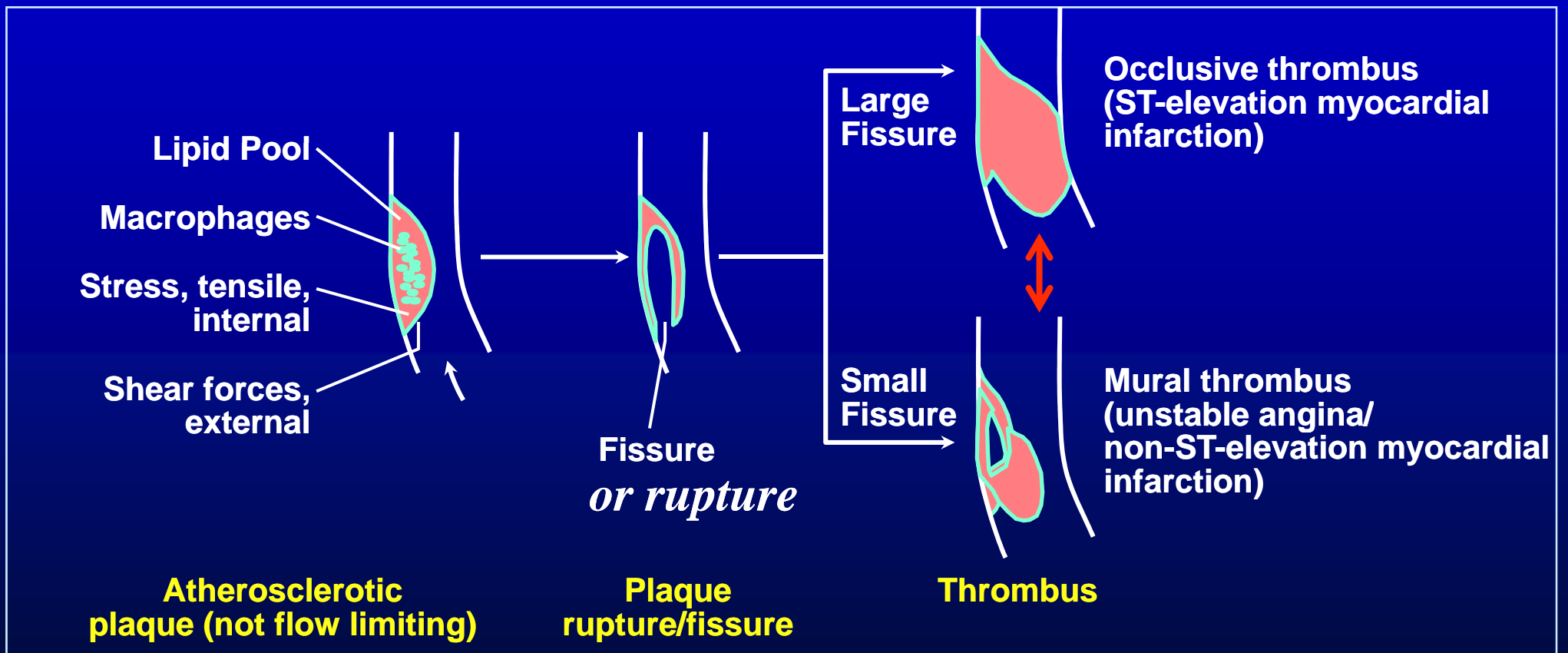**& Interventional Cardiology**

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New York, New York

*By seeking and blundering we learn.*

Johann Wolfgang von Goethe

ACS: Pathophysiology

Lipid Pool

Macrophages

Stress, tensile, internal

Shear forces, external

Large Fissure

Occlusive thrombus (ST-elevation myocardial infarction)

Small Fissure

Mural thrombus (unstable angina/ non-ST-elevation myocardial infarction)

Fissure *or rupture*

Atherosclerotic plaque (not flow limiting)
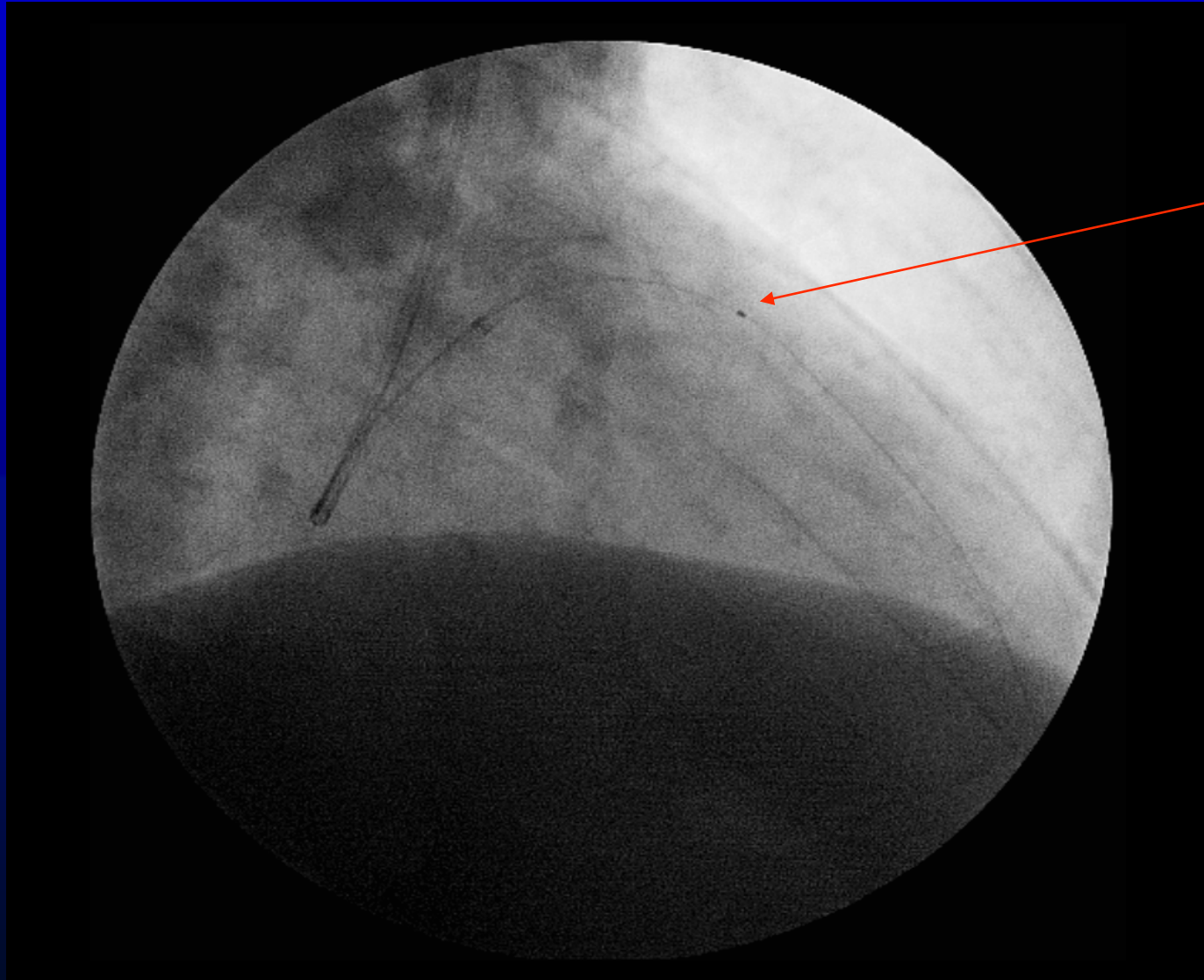
Plaque rupture/fissure

Thrombus

Fuster V et al. NEJM. 1992; 326: 310-318.
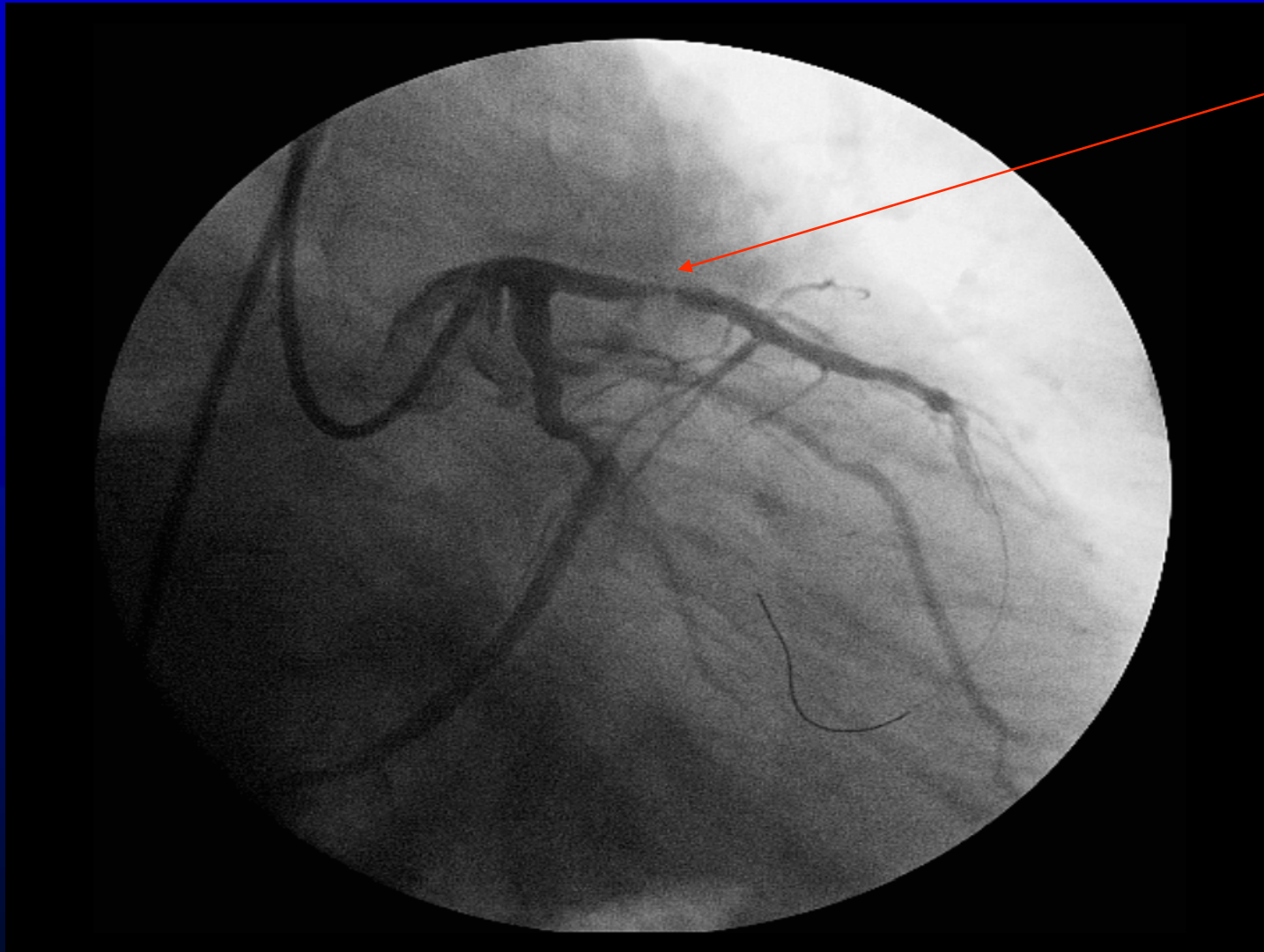*Davies MJ et al. Circulation. 1990; 82 (Suppl II): II-38, II-46.*

Unremitting CP and anterior STEMI
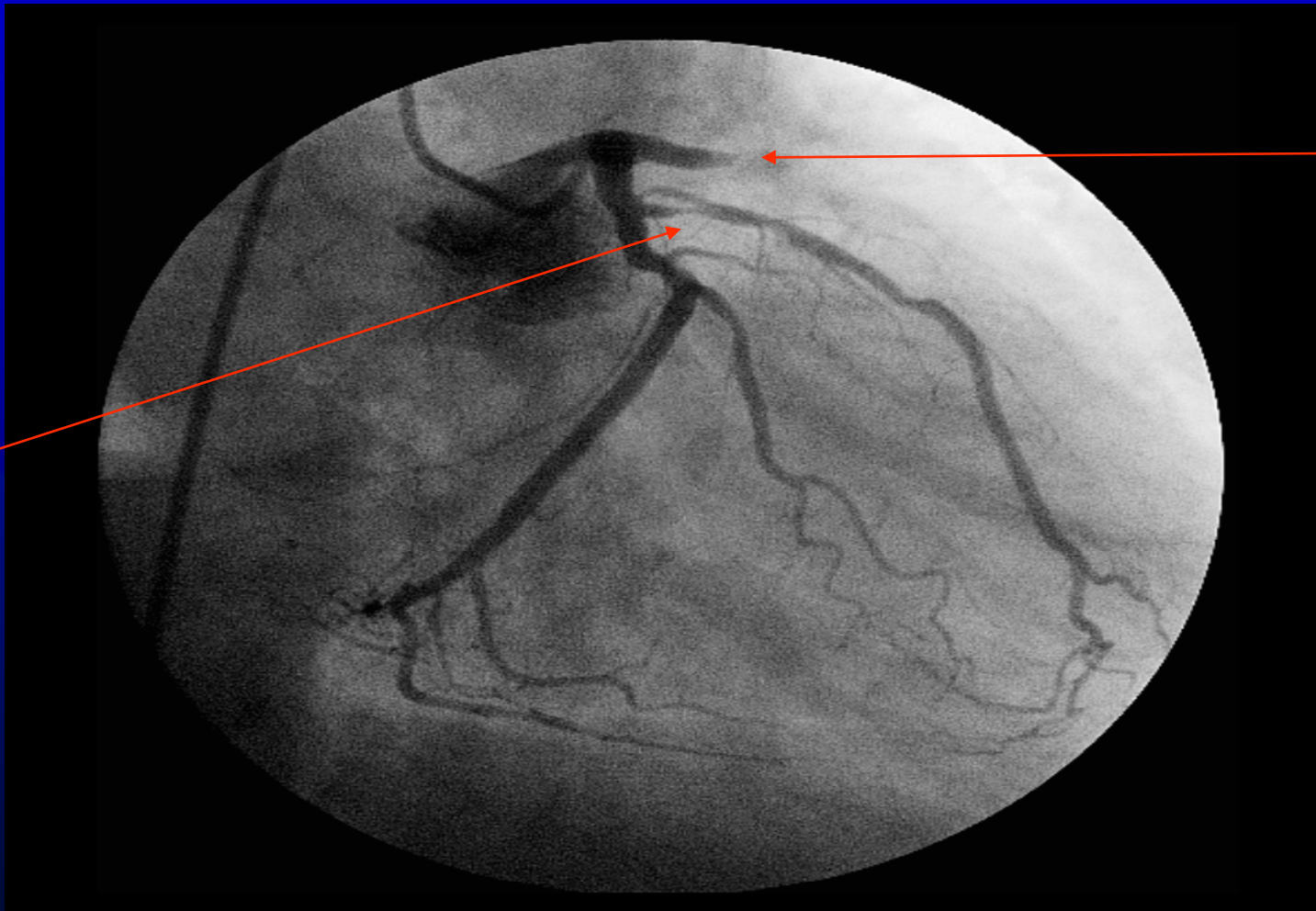
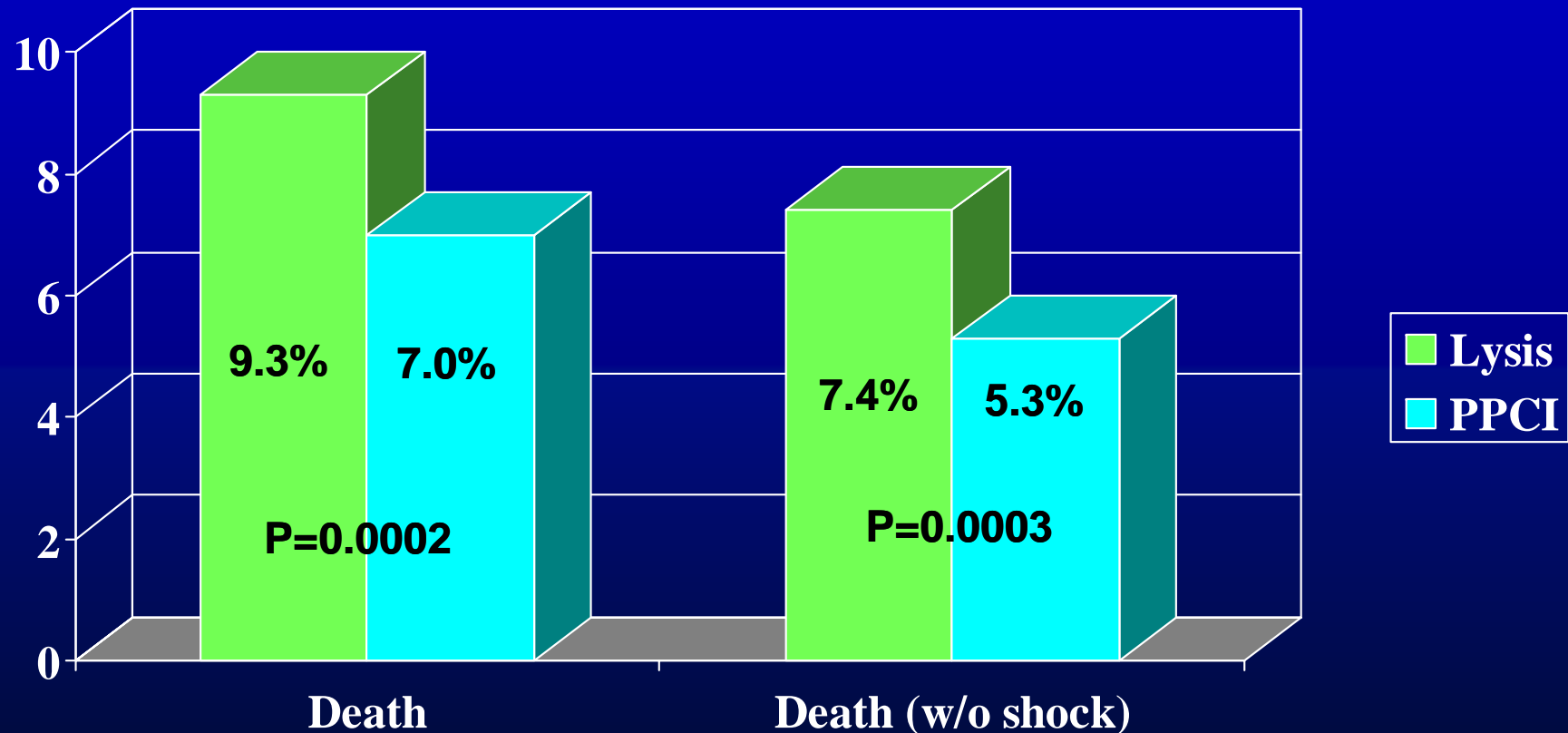# Aspiration Catheter for Thrombus Removal

Following Thrombus Aspiration

TRANSFER-AMI

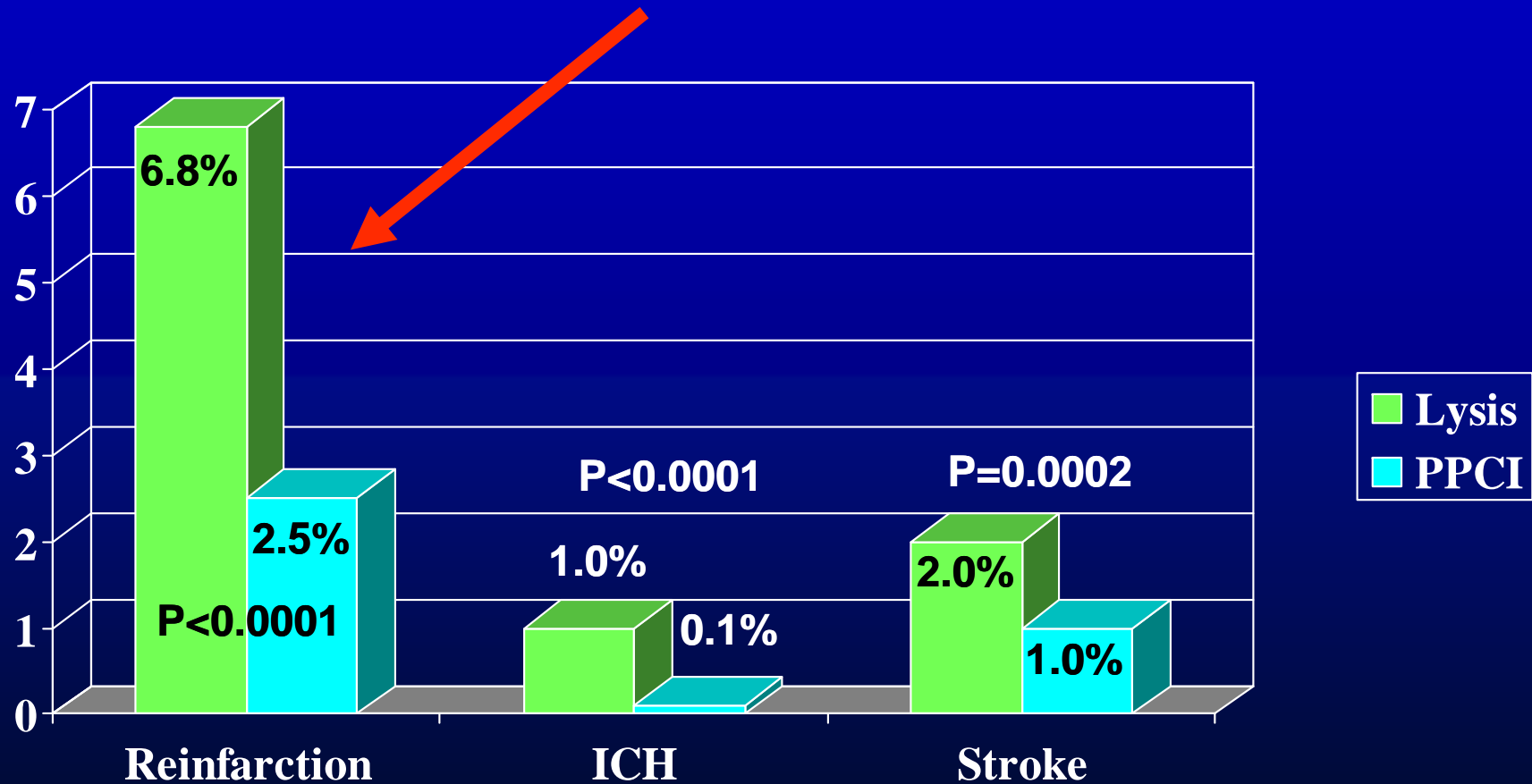| Baseline TIMI flow — no./total no. (%)		
0	83/405 (20.5)	88/511 (17.2)
1	37/405 (9.1)	68/511 (13.3)
2	56/405 (13.8)	89/511 (17.4)
3	229/405 (56.5)	266/511 (52.1)

Meta-analysis of 23 Randomized Trials of Primary PCI vs. Thrombolysis (N=7,739)

Lancet 2003;361:13-20

Meta-analysis of 23 Randomized Trials of Primary PCI vs. Thrombolysis (N=7,739)

Lancet 2003;361:13-20

Can we reduce the ischemic complications associated with fibrinolysis for STEMI patients by offering early invasive approach?
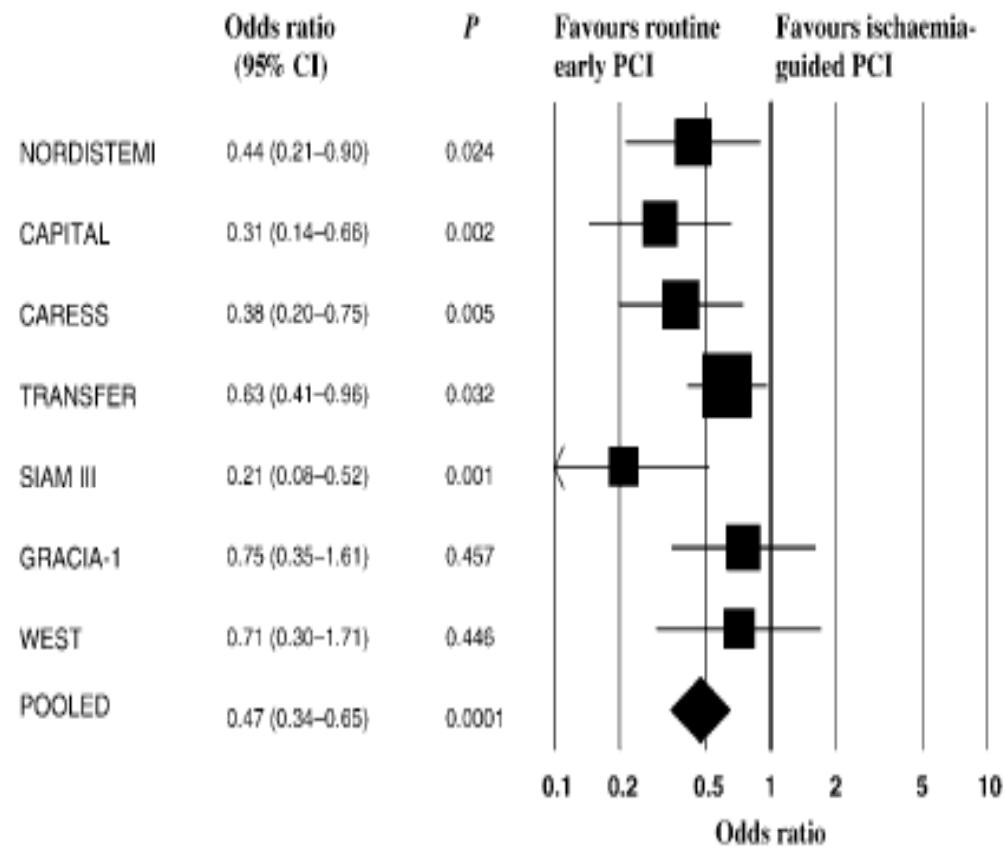
Figure 2 Thirty-day combined endpoint of mortality, re-infarction, and ischaemia with odds ratio favouring routine early percutaneous coronary intervention following lysis ($P < 0.0001$, significant).

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Total number of patients <3,200

Figure 7 Thirty-day mortality rates with odds ratio showing no benefit for early percutaneous coronary intervention following lysis (P = 0.431, not significant).
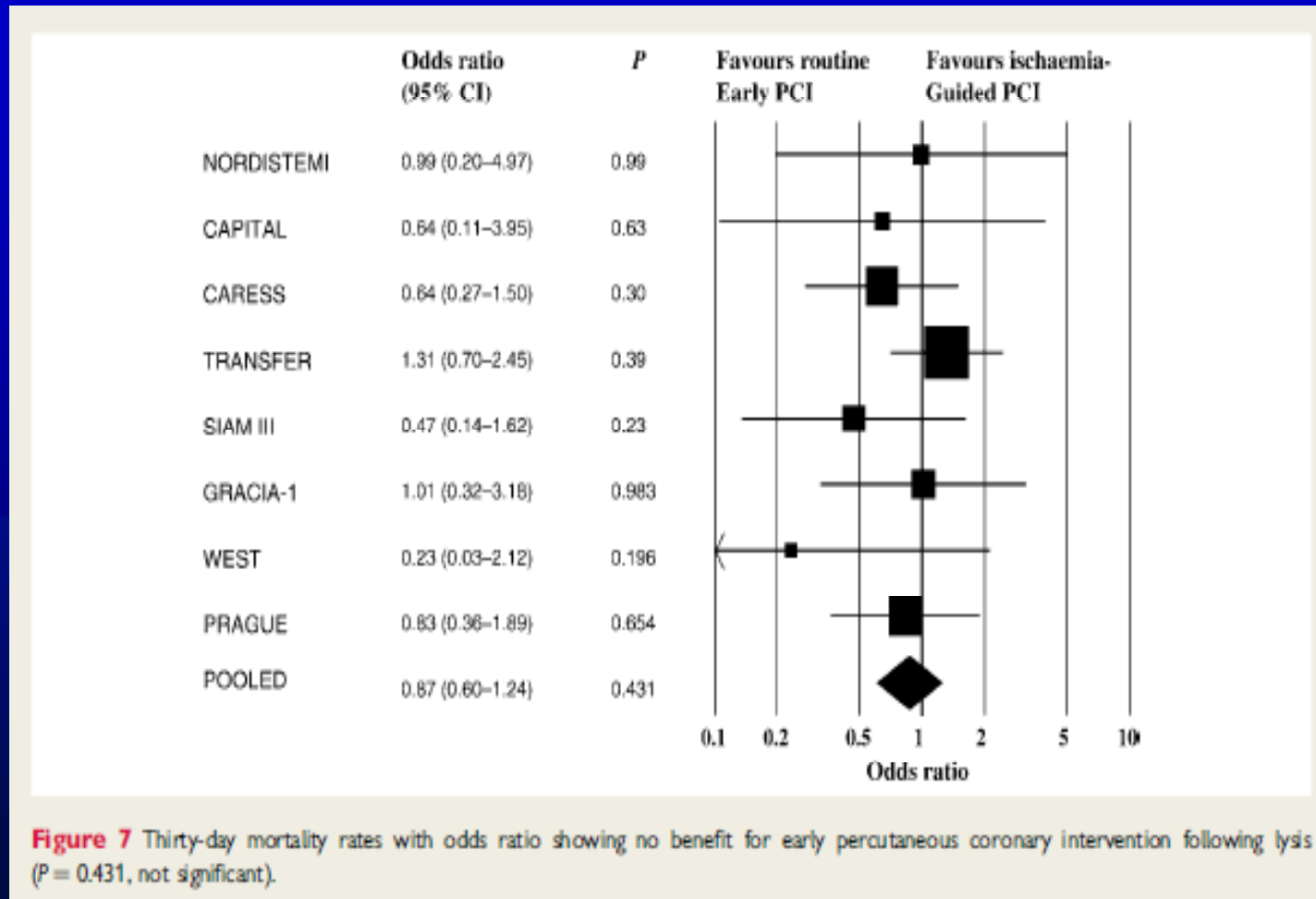
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Major Difference = Reinfarction Rate

Figure 4 Thirty-day re-infarction rates with odds ratio favouring the routine early percutaneous coronary intervention following lysis (P < 0.011, significant).
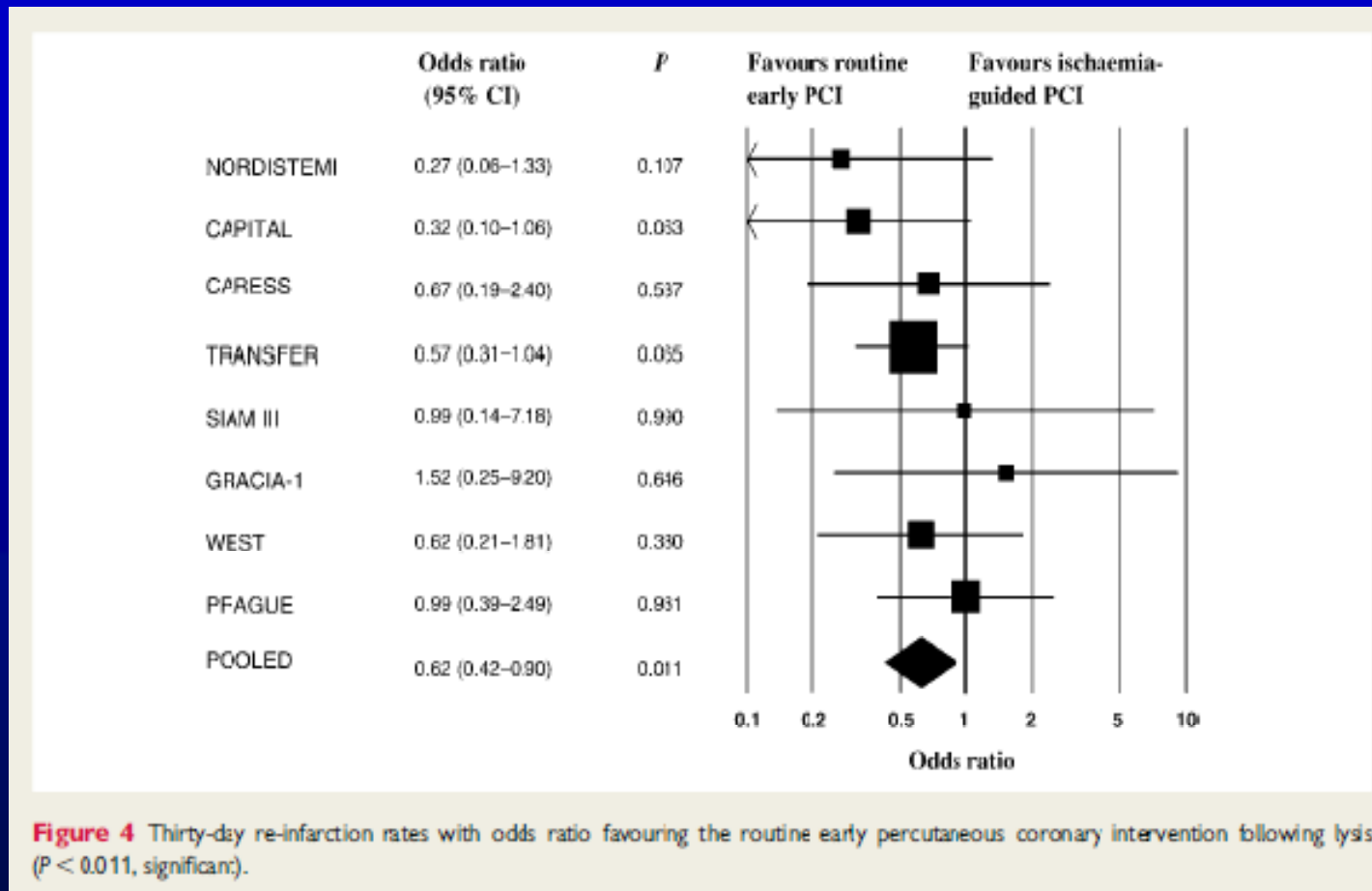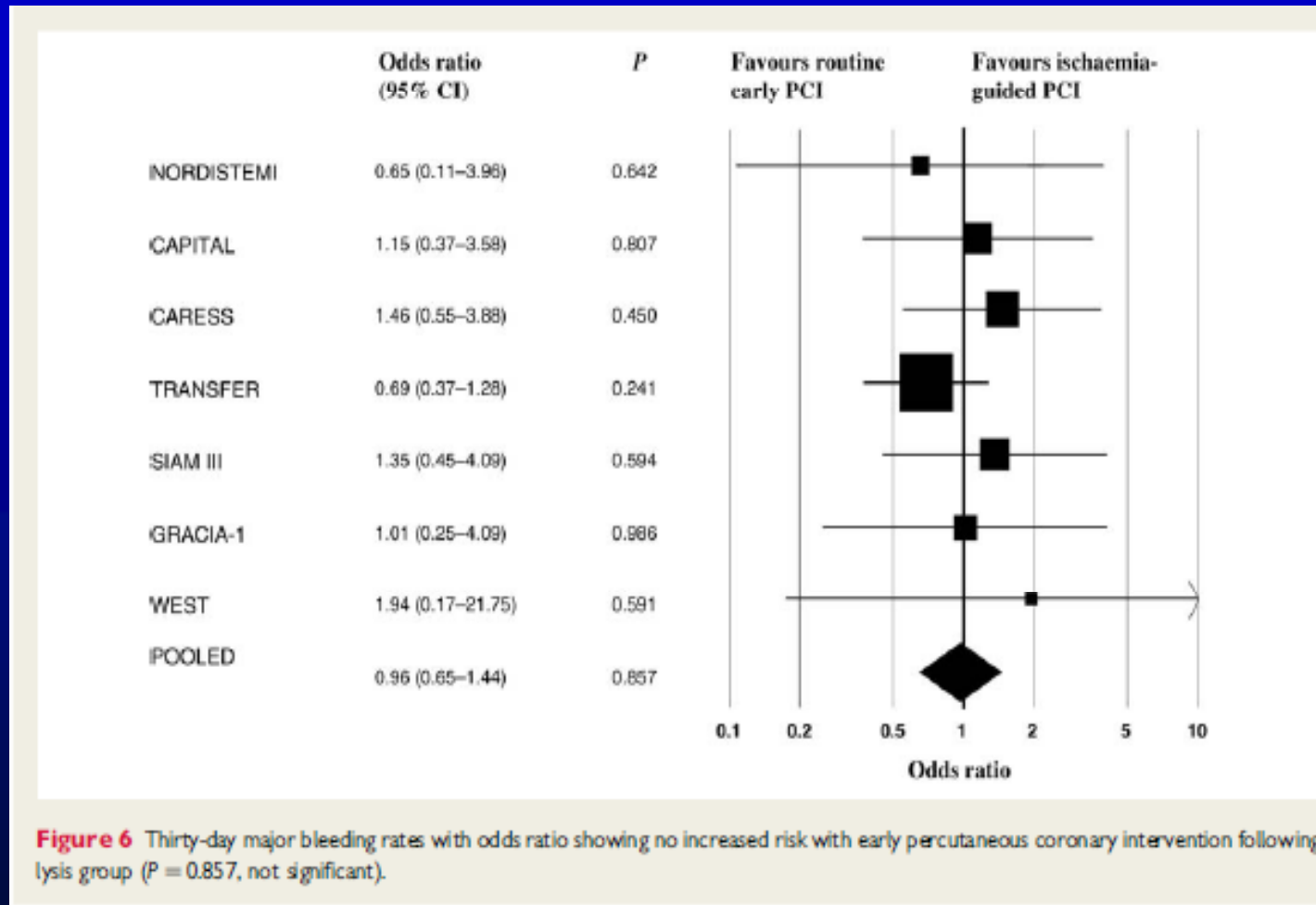
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No Difference in Bleeding Complication

	Odds ratio (95% CI)	P
NORDISTEMI	0.65 (0.11–3.96)	0.642
CAPITAL	1.15 (0.37–3.58)	0.807
CARESS	1.46 (0.55–3.88)	0.450
TRANSFER	0.69 (0.37–1.28)	0.241
SIAM III	1.35 (0.45–4.09)	0.594
GRACIA-1	1.01 (0.25–4.09)	0.986
WEST	1.94 (0.17–21.75)	0.591
POOLED	0.96 (0.65–1.44)	0.857

Favours routine early PCI — Favours ischaemia-guided PCI

Odds ratio: 0.1 0.2 0.5 1 2 5 10

Figure 6 Thirty-day major bleeding rates with odds ratio showing no increased risk with early percutaneous coronary intervention following lysis group (P = 0.857, not significant).

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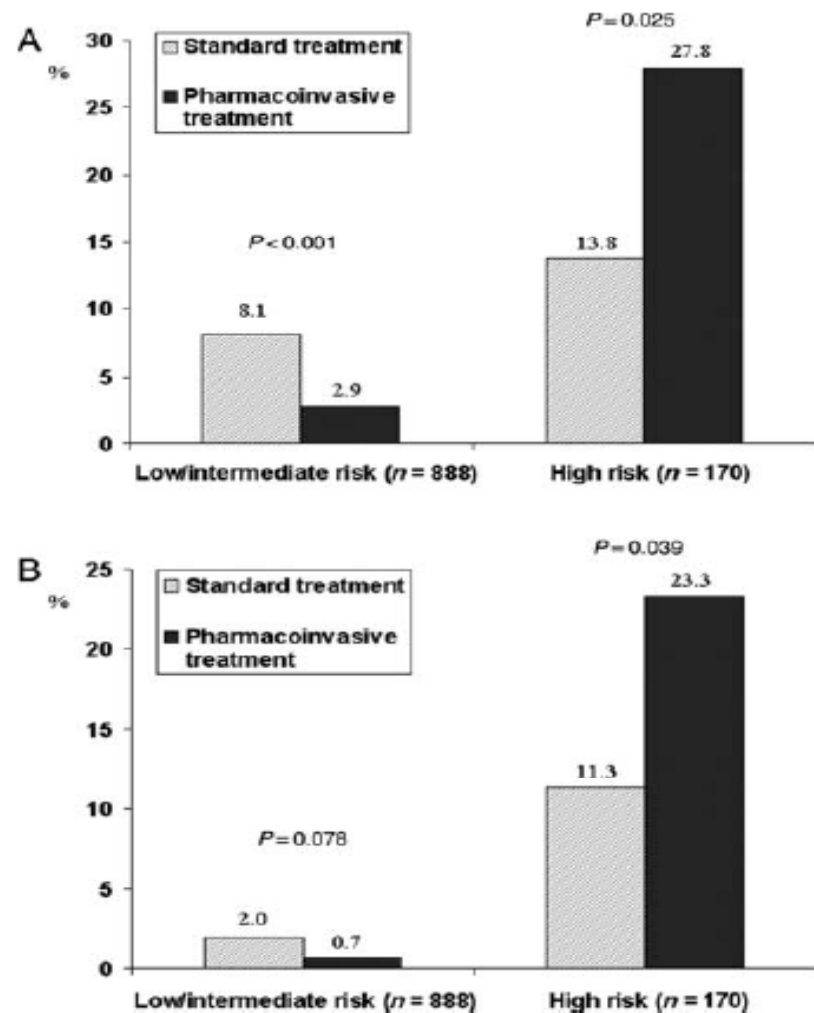
Risk/Benefit of Early vs. Conservative PCI

Figure 1 (A) Death/myocardial re-infarction at 30 days in the standard treatment and pharmacoinvasive treatment groups, stratified by the GRACE risk score. (B) All-cause mortality at 30 days in the standard treatment and pharmacoinvasive treatment groups, stratified by the GRACE risk score.

The precise pathogenetic mechanisms underlying the discrepant treatment effects across the risk groups are not evident in this study and remain to be elucidated. Post-randomization use of

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TRANSFER-AMI

- **Early PCI following thrombolysis improved outcomes only among patients with a low-intermediate GRACE risk score.**

- **Conversely, the early invasive strategy was associated with worse otucomes in high-risk patients.**

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Conclusions

- **Routine early PCI following fibrinolysis in STEMI patients prevents recurrent infarction and ischemia.**

- **This aggressive approach has not been shown to improve survival.**

- **Patient selection is still the most important criterion regarding the early versus conservative therapy following thrombolysis.**

Thank you for your attention.
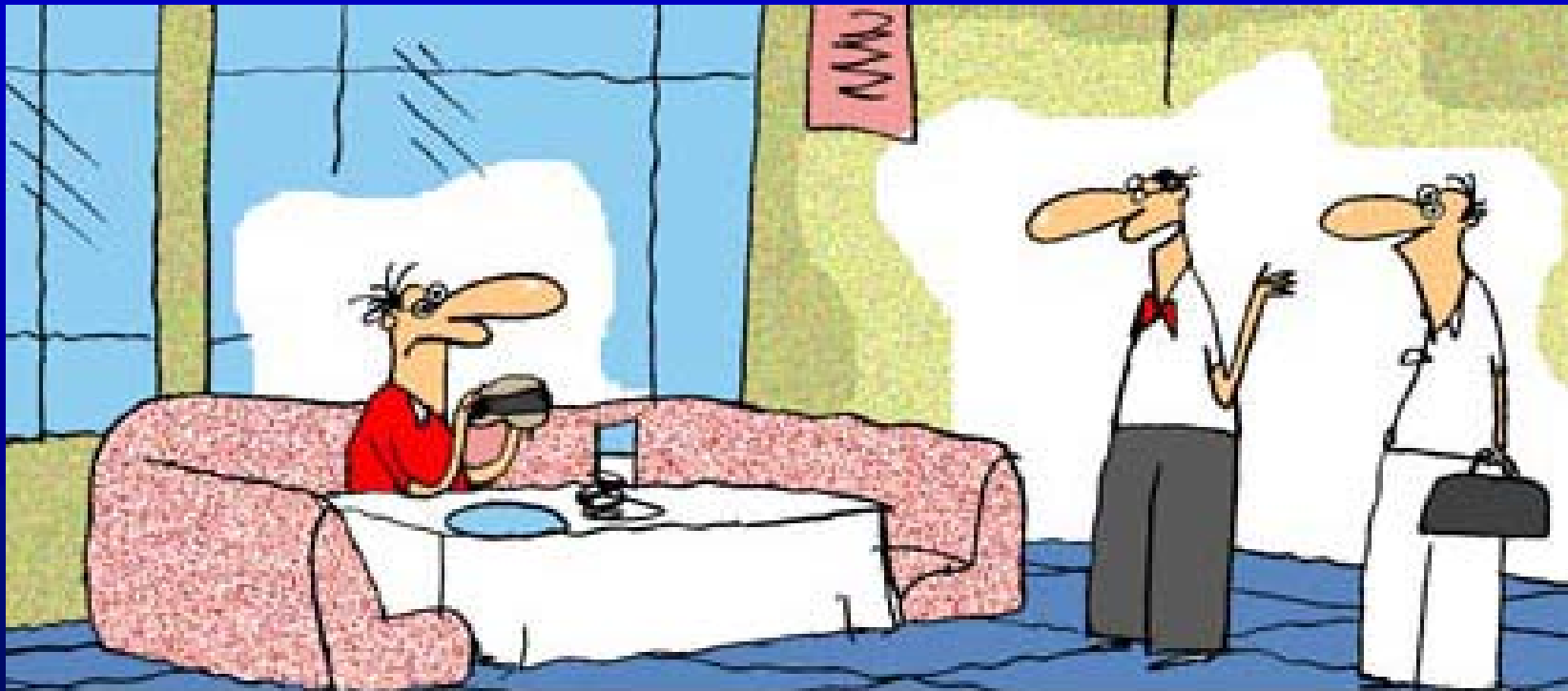
"To show our appreciation for eating our grease burger, our paramedic will follow you around incase you have a heart attack."