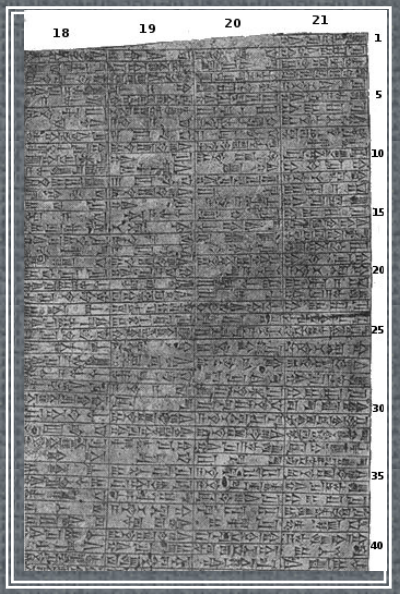


CODE CIVIL

DES FRANÇAIS.

TITRE PRÉLIMINAIRE.

Décrété le 14 Ventôse an XI. Promulgué le 24 du même mois.

DE LA PUBLICATION, DES EFFETS ET DE L'APPLICATION DES LOIS EN GÉNÉRAL.

ARTICLE 1.er

LES lois sont exécutoires dans tout le territoire français, en vertu de la promulgation qui en est faite par le PREMIER CONSUL.

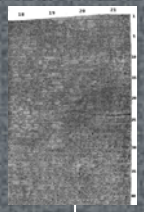
Elles seront exécutées dans chaque partie de la République, du moment où la promulgation en pourra être connue.

La promulgation faite par le PREMIER CONSUL sera réputée connue dans le département où siégera le Gouvernement, un jour après celui de la promulgation; et dans chacun des autres départemens, après l'expiration du même délai, augmenté d'autant de jours qu'il y aura de fois dix myriamètres [environ vingt lieues anciennes] entre la ville où la

A

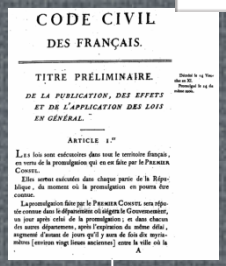
Guidelines chronological evolution

1760 BC



1250 BC

1804



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A

American Heart Association®

GUIDELINES

Time

Clinical Problem-Solving

Adherence to the Guidelines

Cesarea Meeting 2010

Alex Blatt

Clinical Case

- 44 y old male, M+3, bus driver
- Previously healthy, no chronic medical Tx
- s/p appendectomy (1995)
- Father had an AMI at 47 y old
- Heavy smoker
- Negative Hx for illegal drugs or alcohol

Clinical Event

- Chest pain started at 9:30 a.m.; 3 hours later, he calls for an ambulance. Paramedics arrive, provide standard care.

Clinical Event

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A

Clinical Event

- Chest pain started at 9:30 a.m.; 3 hours later, he calls for an ambulance. Paramedics arrive, provide standard care.

Class I, LOE: B

Pre-hospital "Standard Care" (susp. ACS) ***not*** include:

Q

1) Perform & evaluate 12-lead ECG

2) If the ECG shows STEMI: review a reperfusion "checklist"

3) IV Heparin bolus 60u/kg (no more 4000u)

4) Chewed aspirin (162 to 325 mg)

5) Consider fibrinolysis if pre-hosp transport >60'

Pre-hospital "Standard Care" (susp. ACS) ***not*** include:

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2) If the ECG shows STEMI: review a reperfusion "checklist"

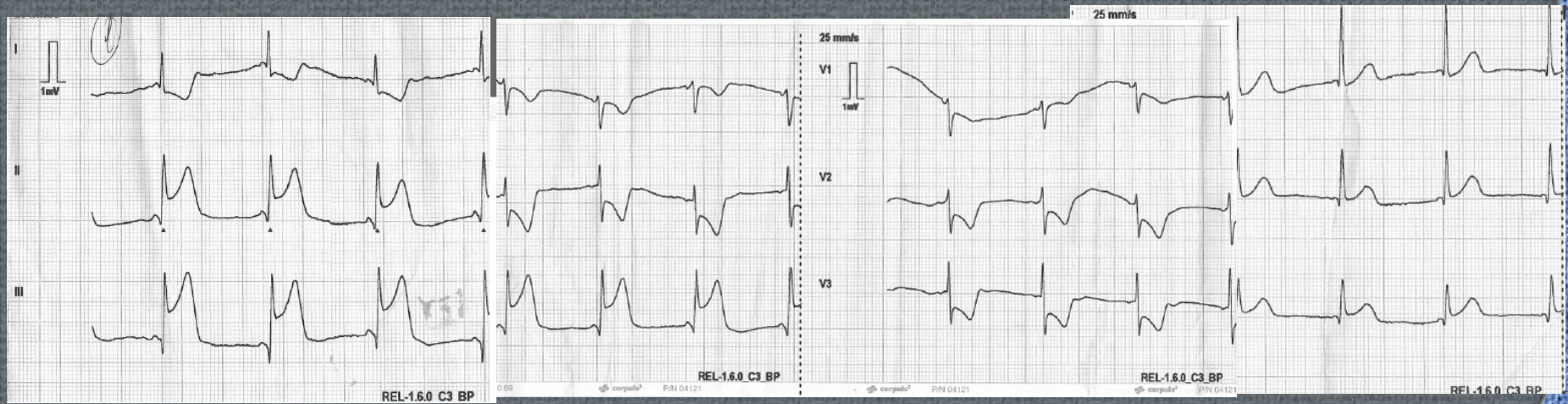
☒ *IV Heparin bolus 60u/kg (no more 4000u)*

4) Chewed aspirin (162 to 325 mg)

5) Consider fibrinolysis if pre-hosp transport >60'

Physical exam. & 12-leads ECG

- Alert, frightened and diaphoretic. BP 120/70, HR 68 regular, Sat 96%, JVP 10, Clear lungs.
- ECG:



Initial management will include all of follow, *except:*

Q

1) IV Morphine

2) Sublingual NG

3) IV NG

4) PO β-blockers

5) IV β-blockers

Initial management will include all of follow, *except:*

A

1) IV Morphine - *Class I*

2) Sublingual NG - *Class I (III)*

3) IV NG - *Class I (III)*

4) PO β-blockers- *Class I*

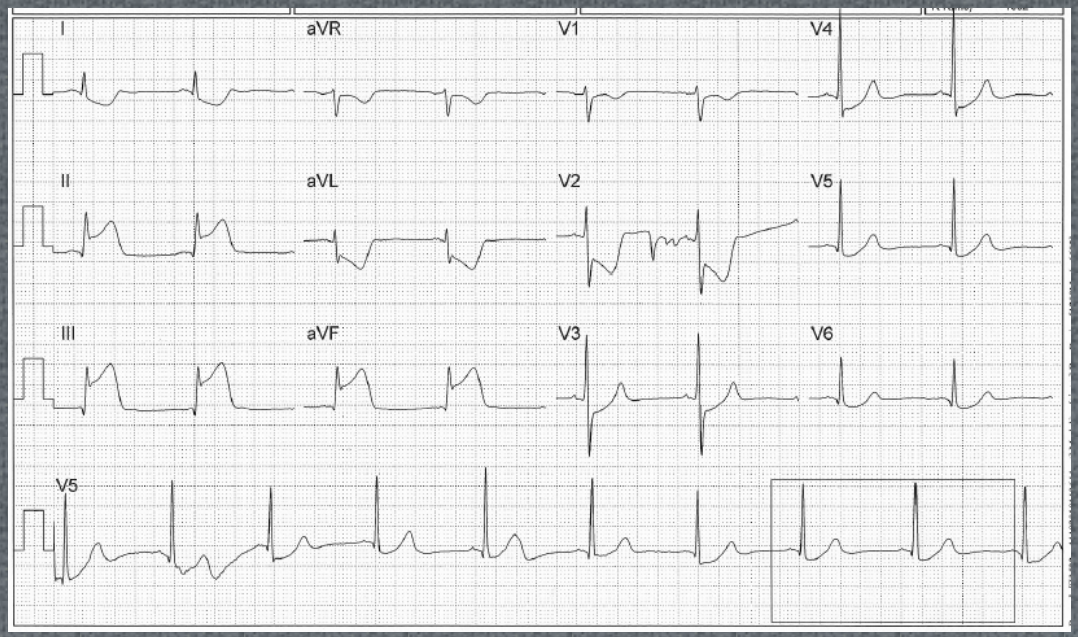
☒ *IV β-blockers* - *Class III*

“Patient in transit”

- During transfer, minutes after the aspirin administration, the patient had two VF episodes: followed by short CPR and successful DC x2
- The patient arrives directly to ICU.

ICU first assessment

- Crushing chest pain, RR 20, JVP 20, BP 110/60, rate 70, Sat 94%. Mild Systolic murmur 2/6, clear lungs.
- 12-leads ECG



Q

Indication for complete Rt-leads ECG

1) *Optional (at physician discretion)*

2) *Should be performed, Class I*

3) *It is reasonable, Class IIa*

4) *May be considered, Class IIb*

5) *My be harmful, Class III*

A

Indication for complete Rt-leads ECG

1) *Optional (at physician discretion)*

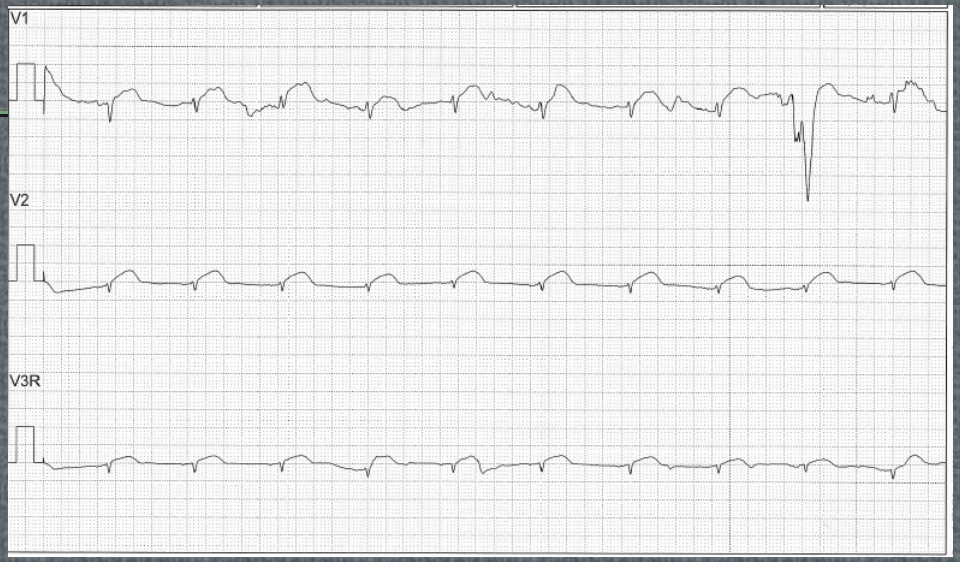
2) *Should be performed, Class I indication*

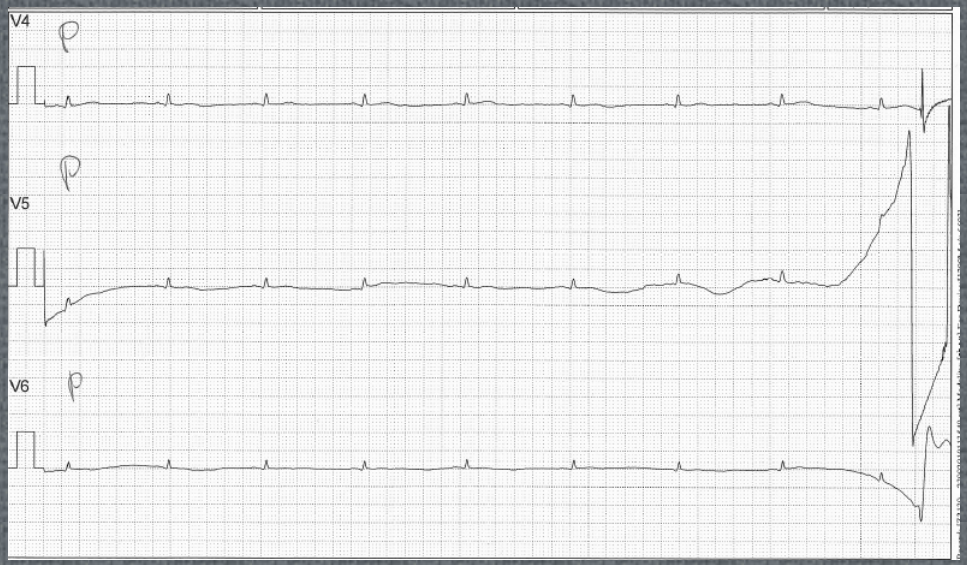
3) *It is reasonable, Class IIa*

4) *May be considered, Class IIb*

5) *My be harmful, Class III*

18-leads ECG





Reperfusion strategy selection

- *Time from onset of symptoms*
- *Risk of STEMI*
- *Risk of bleeding*
- *Time required for transport to skilled PCI lab*

D2B or medical contact-to-balloon (D2TIMI III)
D2N or medical contact-to-needle

Initial ICU treatment before PPCI

- ✓ Blood test
- ✓ Loading Clopidogrel 600 mg
- ✓ Lipitor 80mg

Open Questions

1) Vascular access? Femoral or Radial

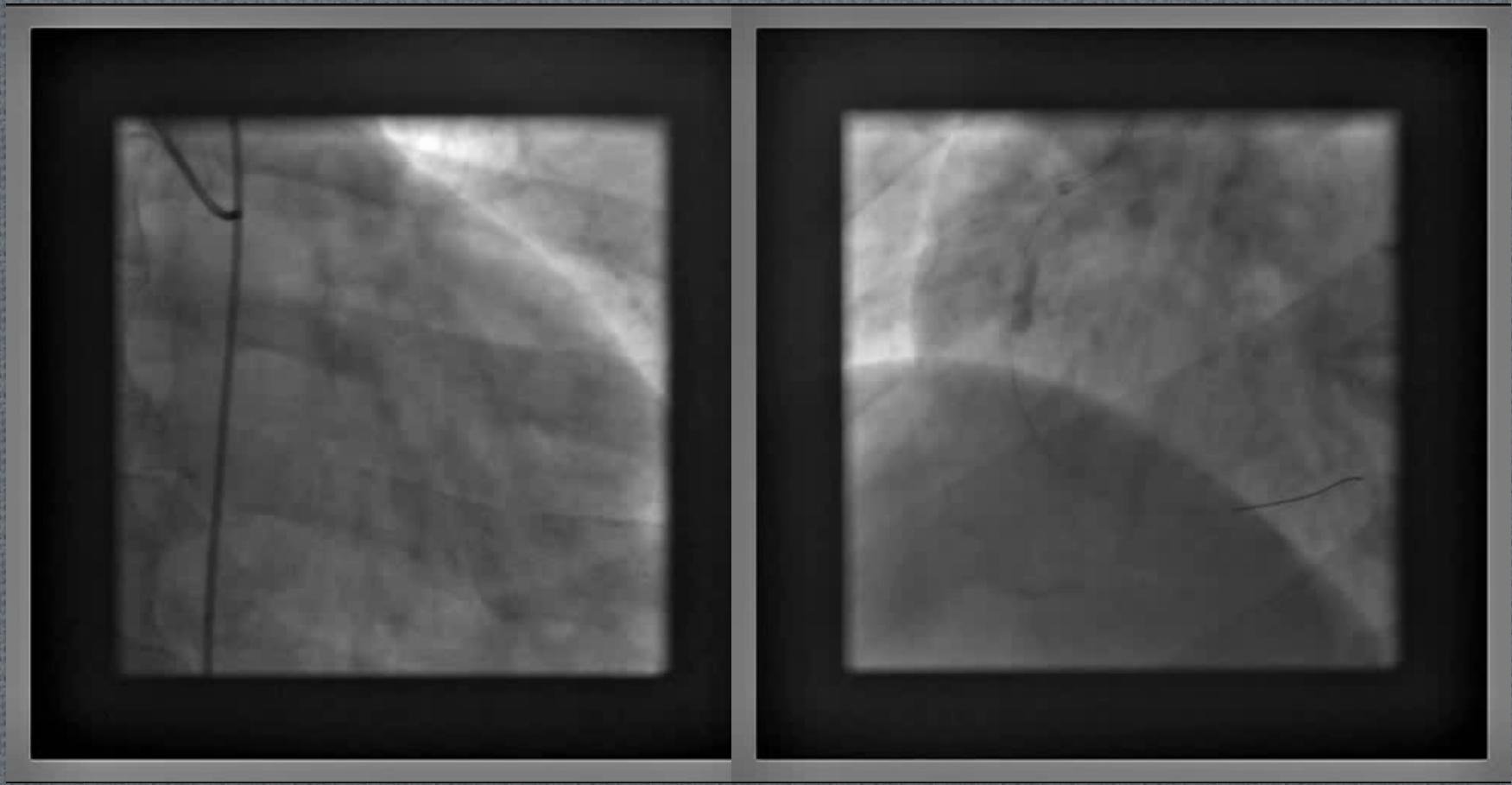
2) Aspiration thrombectomy, for all cases?

3) IIb/IIIa antagonist: before, during or selected cases

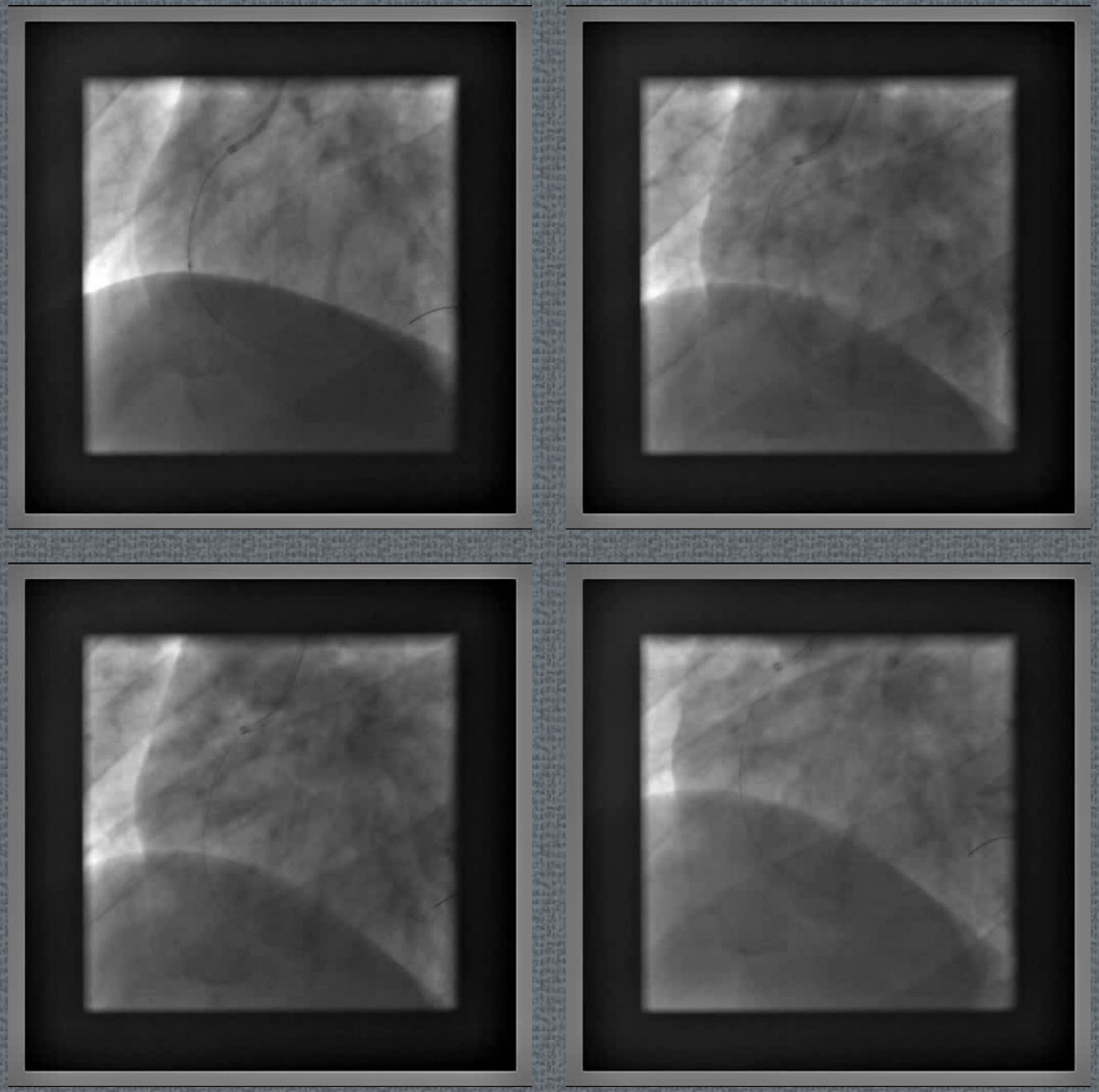
4) Pharmacologic Tx beyond TIMI III achieved: adenosine, nitropruside, CCB

Patient Angio

Opening BP 88/50, R 78, Sat 96%. Central line opened and IV fluids start



PCI Strategy



PPCI course:

- ✓ IV eptifibatide was initiated prior PCI
- ✓ Heparin bolus buster of 2500 u d/t ACT of 135
- ✓ IV Mg bolus 2 mg d/t two VT runs
- ✓ IV Lidocaine 100 mg (twice) d/t two VT runs
- ✓ Two runs of aspiration thrombectomy performed (Pronto® cath)

PPCI course:

Q

- ✓ IV eptifibatide was initiated prior PCI
- ✓ Heparin bolus buster of 2500 u d/t ACT of 135
- ✓ IV Mg bolus 2 mg d/t two TdP-VT runs
- ✓ IV Lidocaine 100 mg (twice) d/t two TdP-VT runs
- ✓ Two runs aspiration thrombectomy performed (Pronto® cath)

Which of the following is most the indicated therapy?

PPCI course:

A

- ✓ IV eptifibatide was initiated prior PCI
- ✓ Heparin bolus buster of 2500 u d/t ACT of 135
- ✓ IV Mg bolus 2 mg d/t two TdP-VT runs
- ✓ IV Lidocaine 100 mg (twice) d/t two TdP-VT runs
- ✓ Two runs aspiration thrombectomy performed (Pronto® cath)

PPCI course:

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- ✓ IV eptifibatide was initiated prior PCI
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- ✓ Two runs aspiration thrombectomy performed (Pronto® cath)

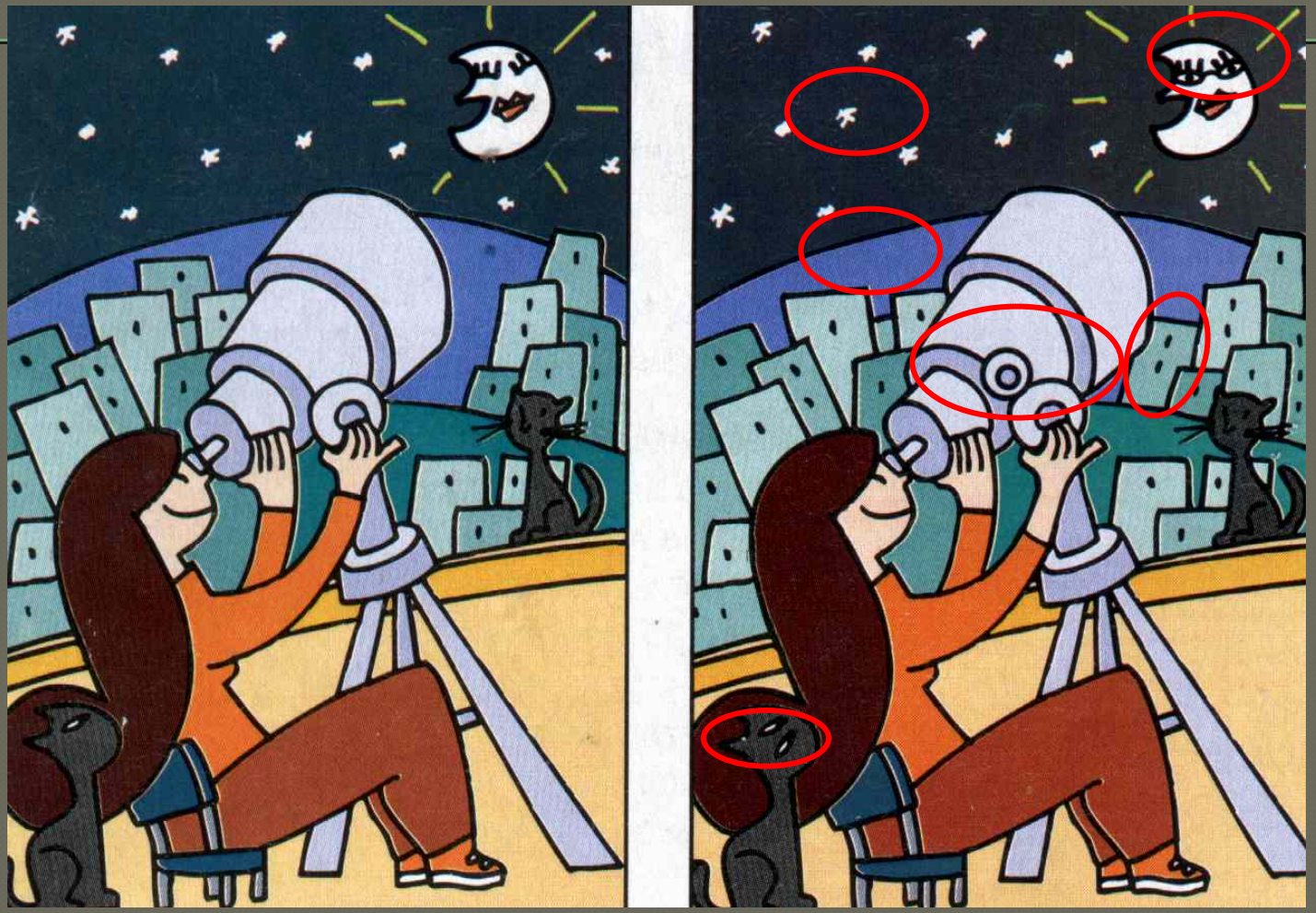
Something is *Class III indication*?

PPCI course:

A

- ✓ IV eptifibatide was initiated prior PCI
- ✓ Heparin bolus buster of 2500 u d/t ACT of 135
- ✓ IV Mg bolus 2 mg d/t two TdP-VT runs
- ✓ IV Lidocaine 100 mg (twice) d/t two TdP-VT runs
- ✓ Two runs aspiration thrombectomy performed (Pronto® cath)

AHA/ACC Vs ESC differencess



"the update versions are similar to one-another, but not identical"

Am Heart J 2009;158:695-705

Table V. Major new recommendations in the 2007 ACC/AHA and 2008 ESC guidelines for management of STEMI[1,3]

Prehospital care
- A network of PCI capable and non PCI hospitals connected by an efficient ambulance service should be set up (ESC*)

Analgesia
- Avoid NSAIDs (except aspirin) during hospitalization (ACC/AHA class III-C, ESC class III-B)
- Stepped approach for analgesia in patients with musculoskeletal pain starting with acetaminophen or aspirin (ACC/AHA class I-C), and progressing to low dose narcotics, non-acetylated salicylates (ACC/AHA class I-C), non-selective NSAIDs (ACC/AHA class IIa-C) and NSAIDs with increasing degrees of relative COX-2 selectivity in patients with continued discomfort (ACC/AHA class IIb-C)

β-Blocker *therapy*
- Avoid *intravenous* β-blockers to patients with signs of heart failure, a low output state, or an increased risk for cardiogenic shock, heart block, or respiratory contraindications (ACC/AHA class III-A)

Anti-coagulant therapy:
- Enoxaparin (ACC/AHA class I-A) or fondaparinux (ACC/AHA class I-B) patients treated with fibrinolytic therapy. Enoxaparin or UFH in patients receiving fibrin specific agents (ESC class I-A). Fondaparinux or enoxaparin (ESC class IIa-B) or UFH (ESC class IIa-C) in patients receiving streptokinase.
- Fondaparinux may not be used as the sole anticoagulant to during PCI (ACC/AHA class III-C and ESC class III-B)
- Fondaparinux, enoxaparin or UFH may be used in patients who do not undergo reperfusion therapy (ACC/AHA class IIa-B, ESC class I-B)
- Bivalirudin may be used in patients undergoing PCI who were treated previously with UFH (ACC/AHA class I-C, ESC class IIa-B)

Reperfusion therapy
- Facilitated reperfusion strategy is not recommended (ACC/AHA class III-B and ESC*).
- Routine angiography (with PCI if indicated) 3-24 hours after successful fibrinolysis (ESC class IIa-A).
- A strategy of coronary angiography with intent to perform rescue PCI is reasonable for patients in whom fibrinolytic therapy has failed (ACC/AHA class IIa-B).
- PCI of a totally occluded infarct artery >24 hours after STEMI is not recommended in asymptomatic patients (ACC/AHA and ESC Class III-B).
- Microvascular obstruction and reperfusion injury associated with PCI may be prevented with: co-administration of intravenous abciximab and thrombus aspiration (ESC class IIa-B); intracoronary administration of adenosine or verapamil (ESC class IIb-C); intravenous adenosine infusion over 3 hours during and after PCI (ESC class IIb-B)

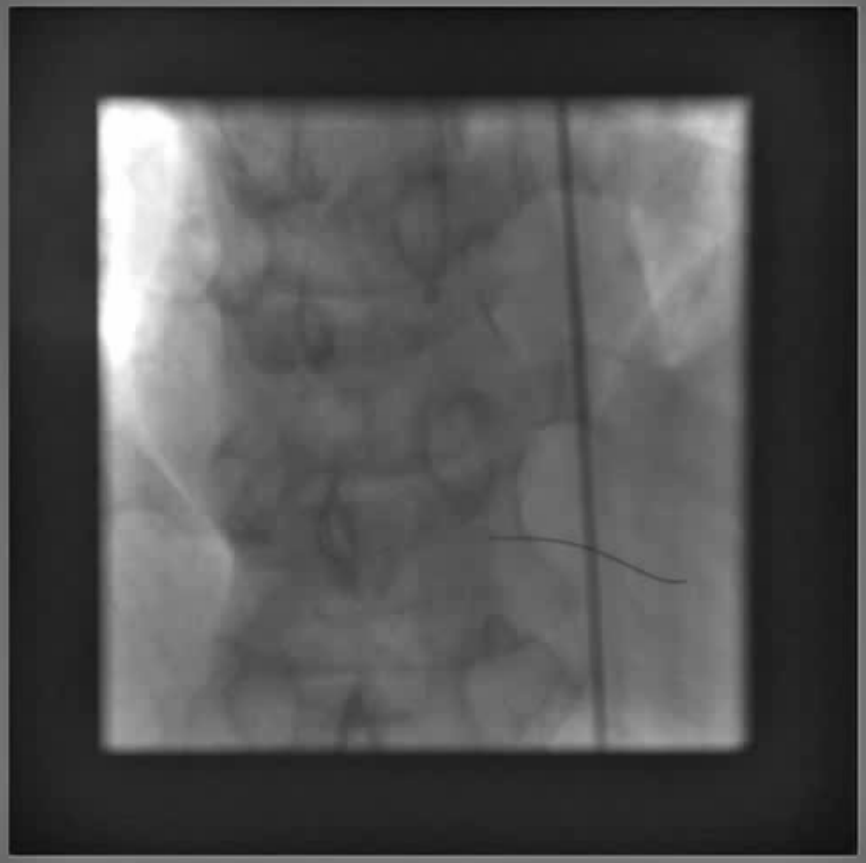
Antiplatelet therapy
- Long-term maintenance therapy (eg, 1 year) with clopidogrel in all patients irrespective of the acute treatment (ACC/AHA and ESC class IIa-C). Clopidogrel for a minimum of 1 month and ideally up to 12 months in patients receiving BMS and for 12 months in patients receiving drug eluting stent (ACC/AHA class I-B)
- In patients requiring warfarin, clopidogrel, and aspirin therapy, an INR of 2.0 to 2.5 is recommended (ACC/AHA class I-C)

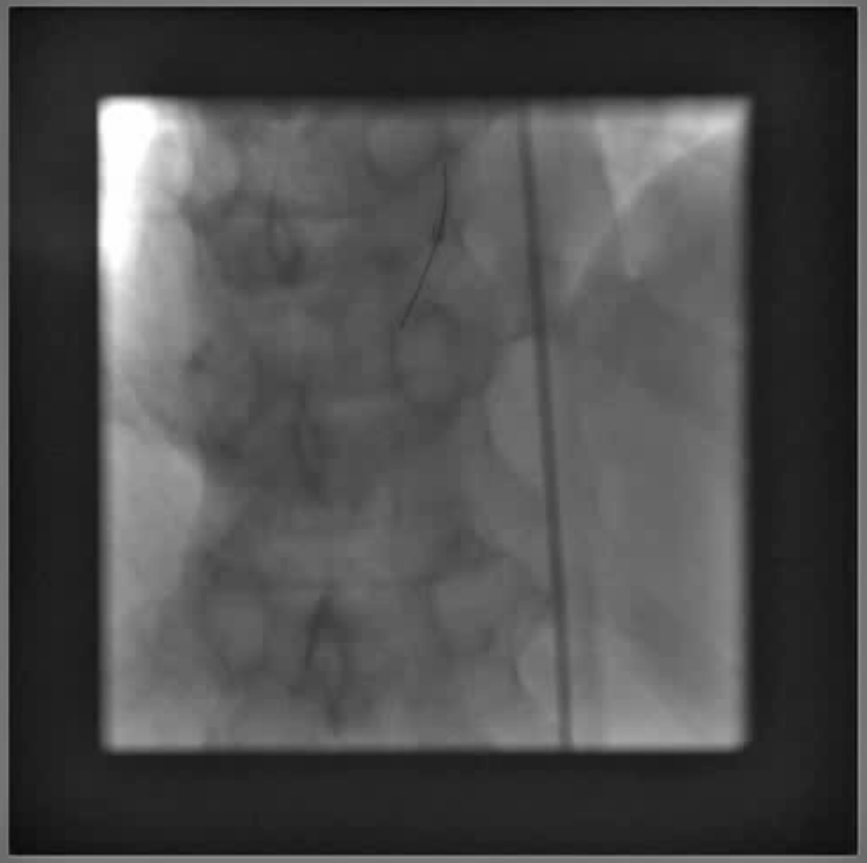
Secondary prevention
- Assess smoking status, advise to quit and to avoid passive smoking at each visit (ACC/AHA and ESC class I-B)
- Intensive low-density lipoprotein cholesterol reduction to <70 mg/dL (ACC/AHA class IIa-A) and <77 mg/dL (2 mmol/L; ESC class IIa-A). Statins in all patients to decrease low-density lipoprotein cholesterol <100 mg/dL (ESC class I-A)
- If triglycerides are 200 to 499 mg/dL, it is reasonable to target a non–high-density lipoprotein cholesterol <100 mg/dL (ACC/AHA class IIa-B).
- 30-60 min of moderate-intensity aerobic activity 7 days of the week (ACC/AHA class I-B) and resistance training 2 days per week (ACC/AHA class IIb-C)
- Annual influenza vaccination in all patients (ACC/AHA and ESC class I-B)

General
- Maintain blood glucose 90-140 mg/dL (ESC*)

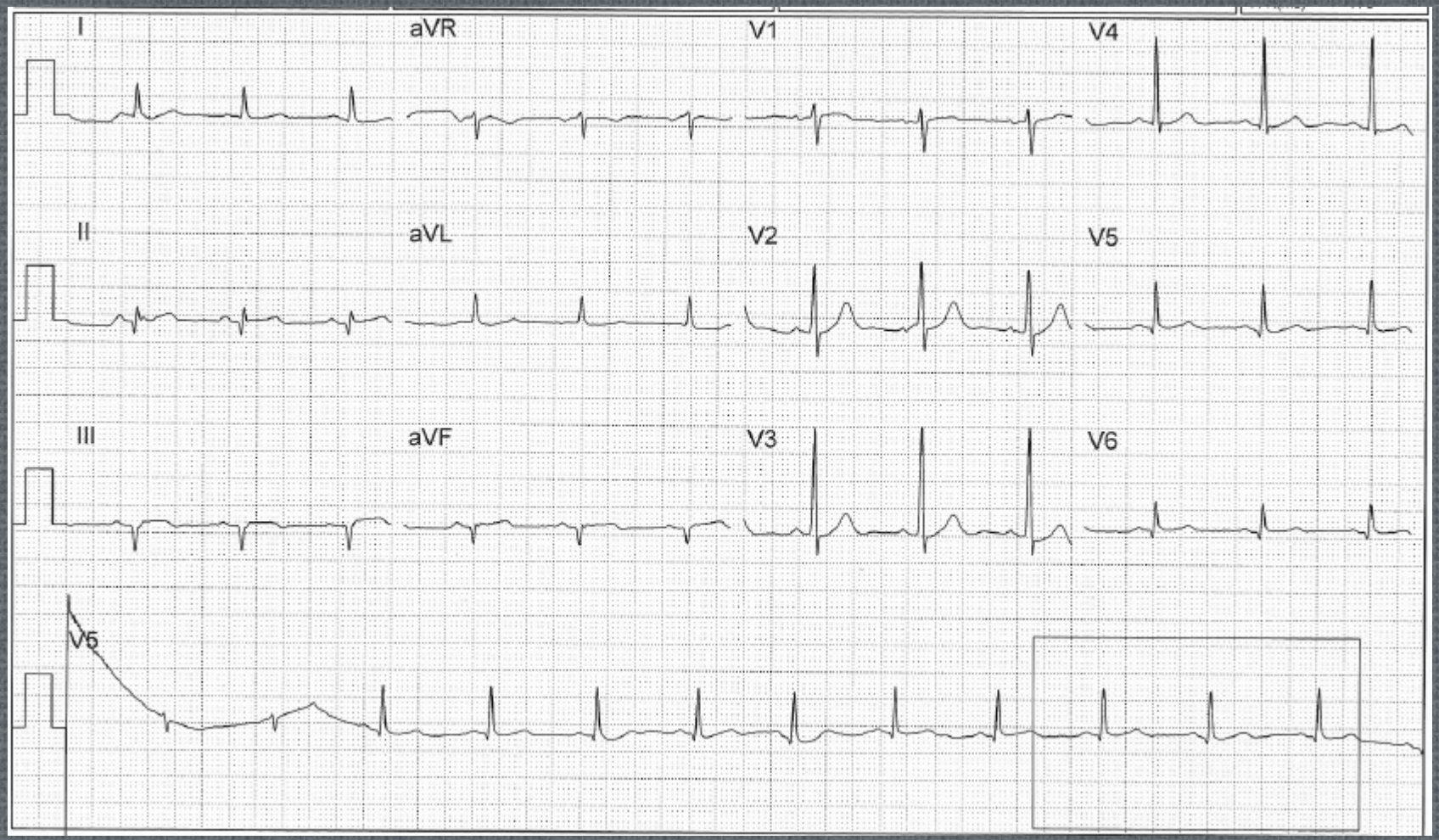
Am Heart J 2009;158:695-705

Final result





ECG post PCI



PPCI course

- ✓ Final TIMI flow III, with blush grade 2
- ✓ ST resolution more than 70%
- ✓ IV NS > 2 liter

Happy end?

No, the story START !

The blood pressure still persistently low (<80 mmHg)

All of this steps are *Class I*, ***except:***

1) IABP support insertion

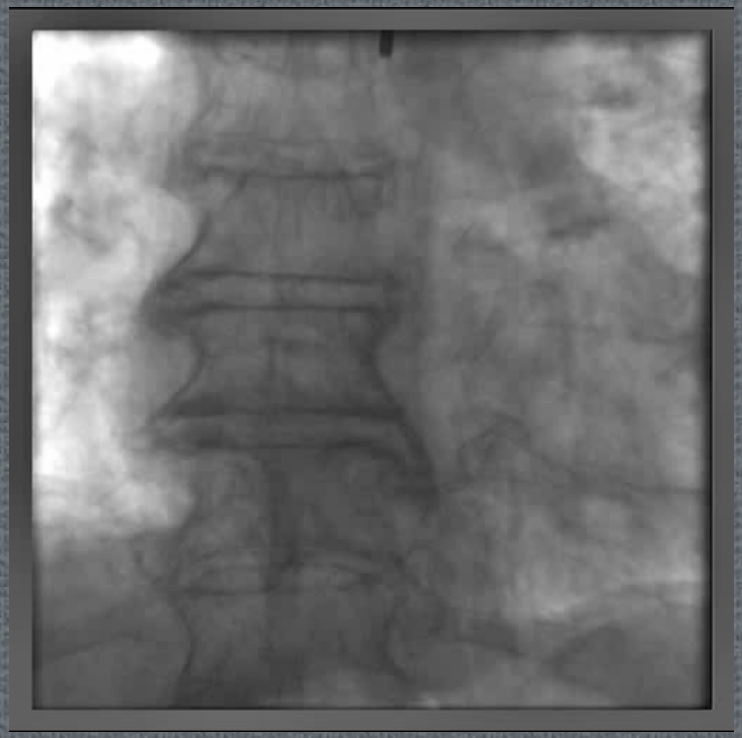
2) Continue huge amounts of IV fluids

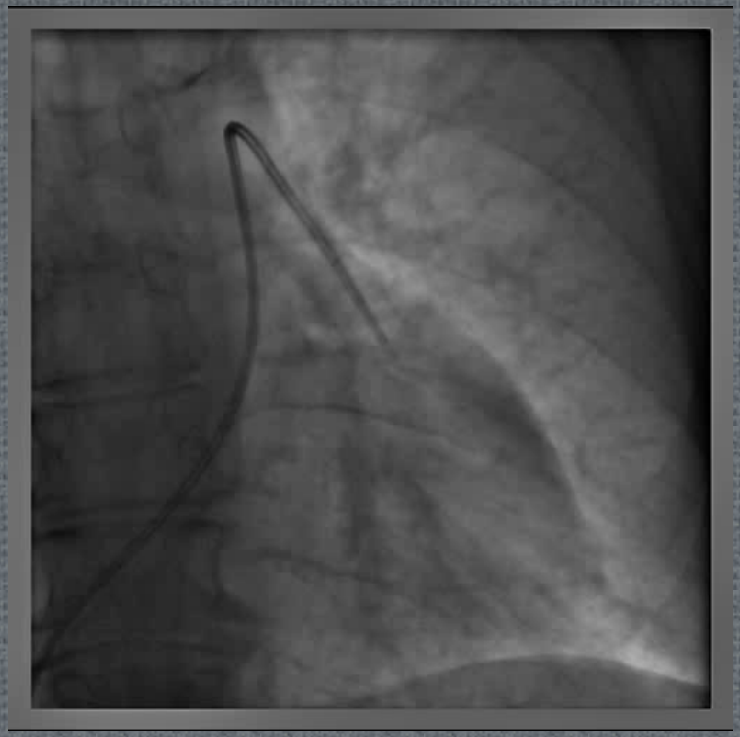
3) Perform echocardiography

4) Insert S-G catheter

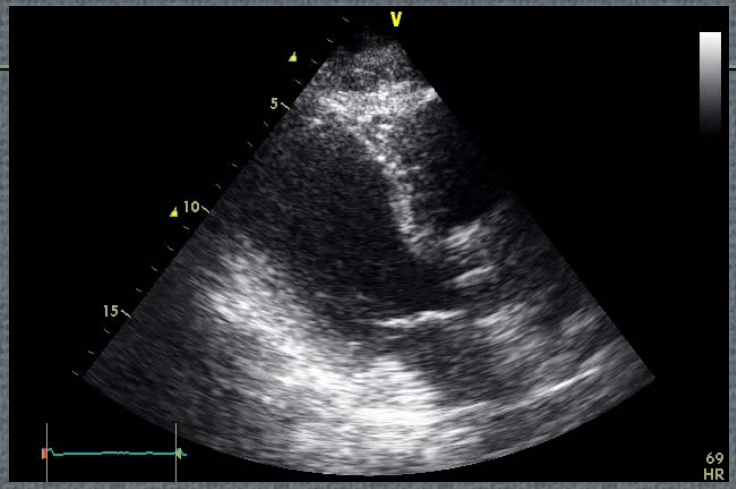
5) Mechanical Ventilation assistance

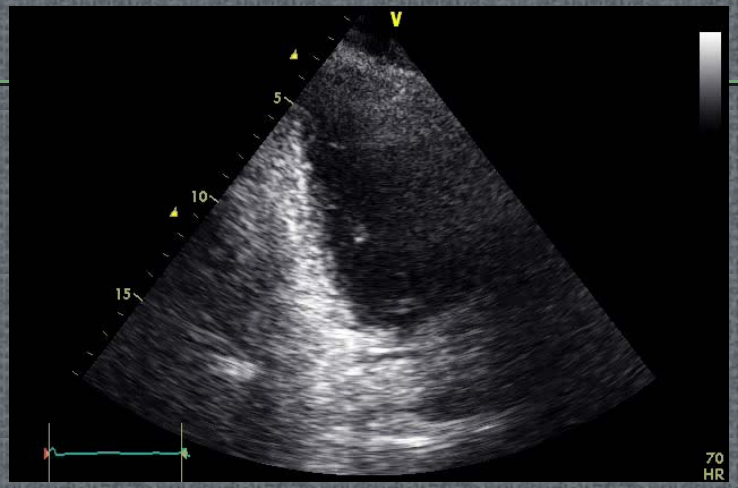
Patient reassessment

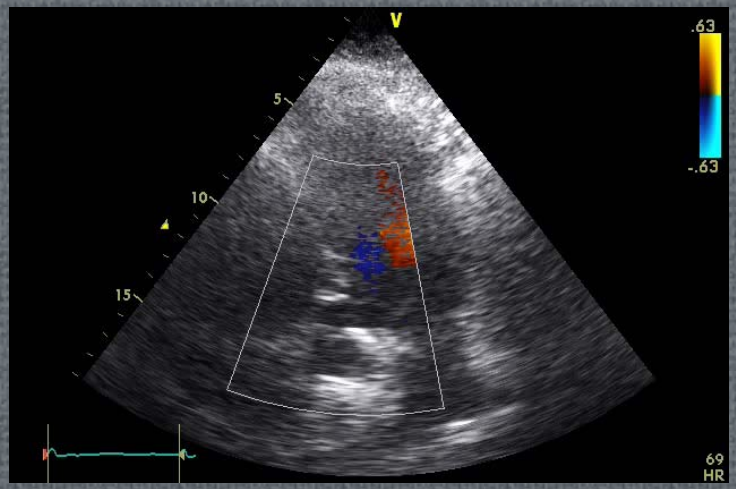


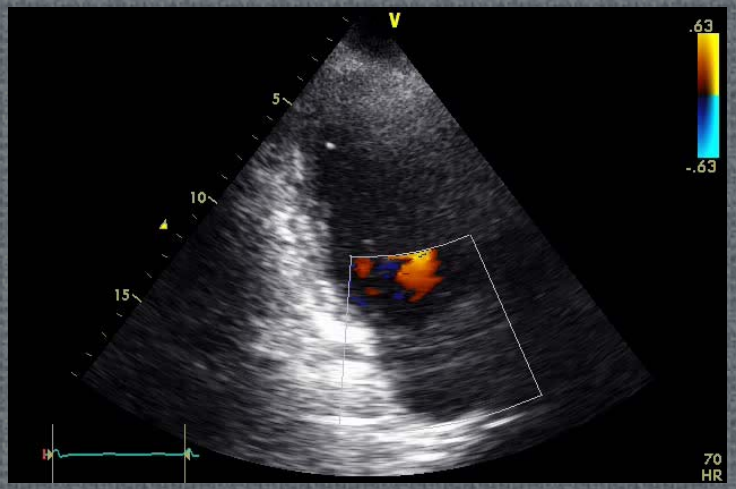


Patient reassessment



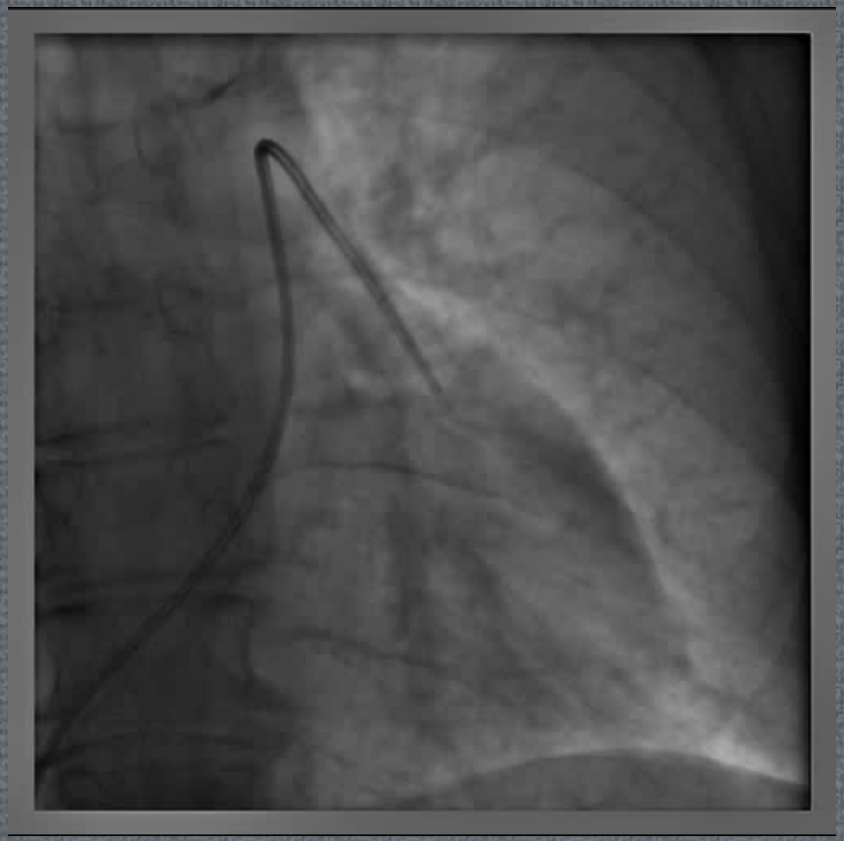






Despite >8 liter fluids and NA the BP still <70 mmHg

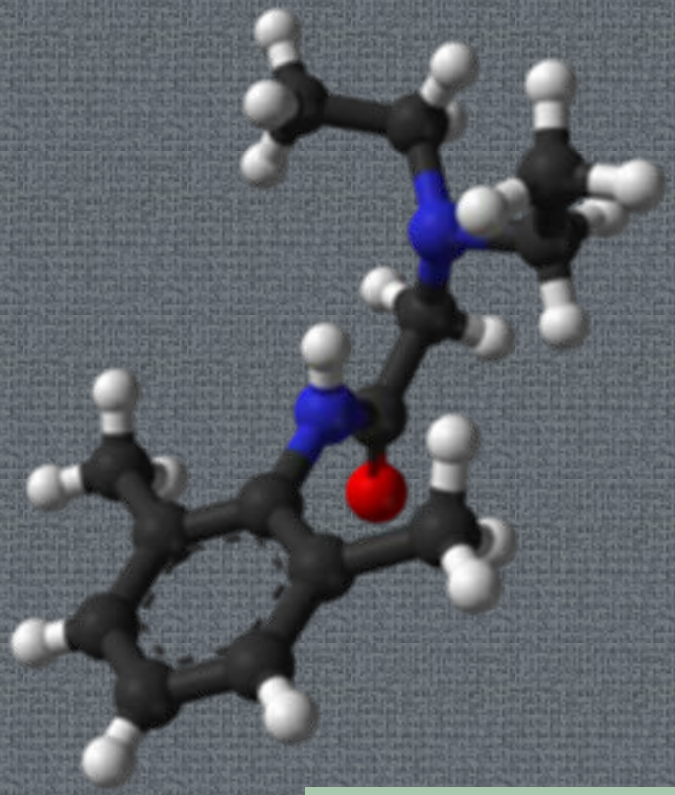
A diagnostic procedure was performed:

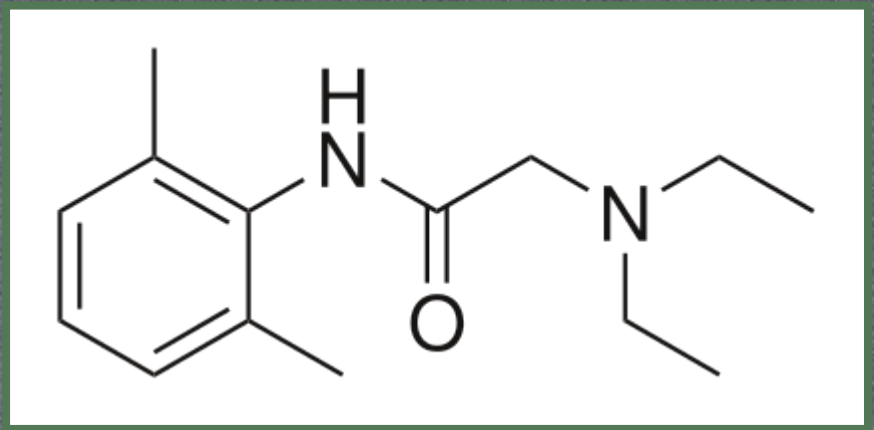


CO Study (thermodilution)

CI	3.3	l/min/m^2
SVR	432	dyne-sec/cm^{-5}
PCWP	17	mmHg

What's happened?





Refractory Hypotension lidocaine induced, superimposed on RV MI

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