

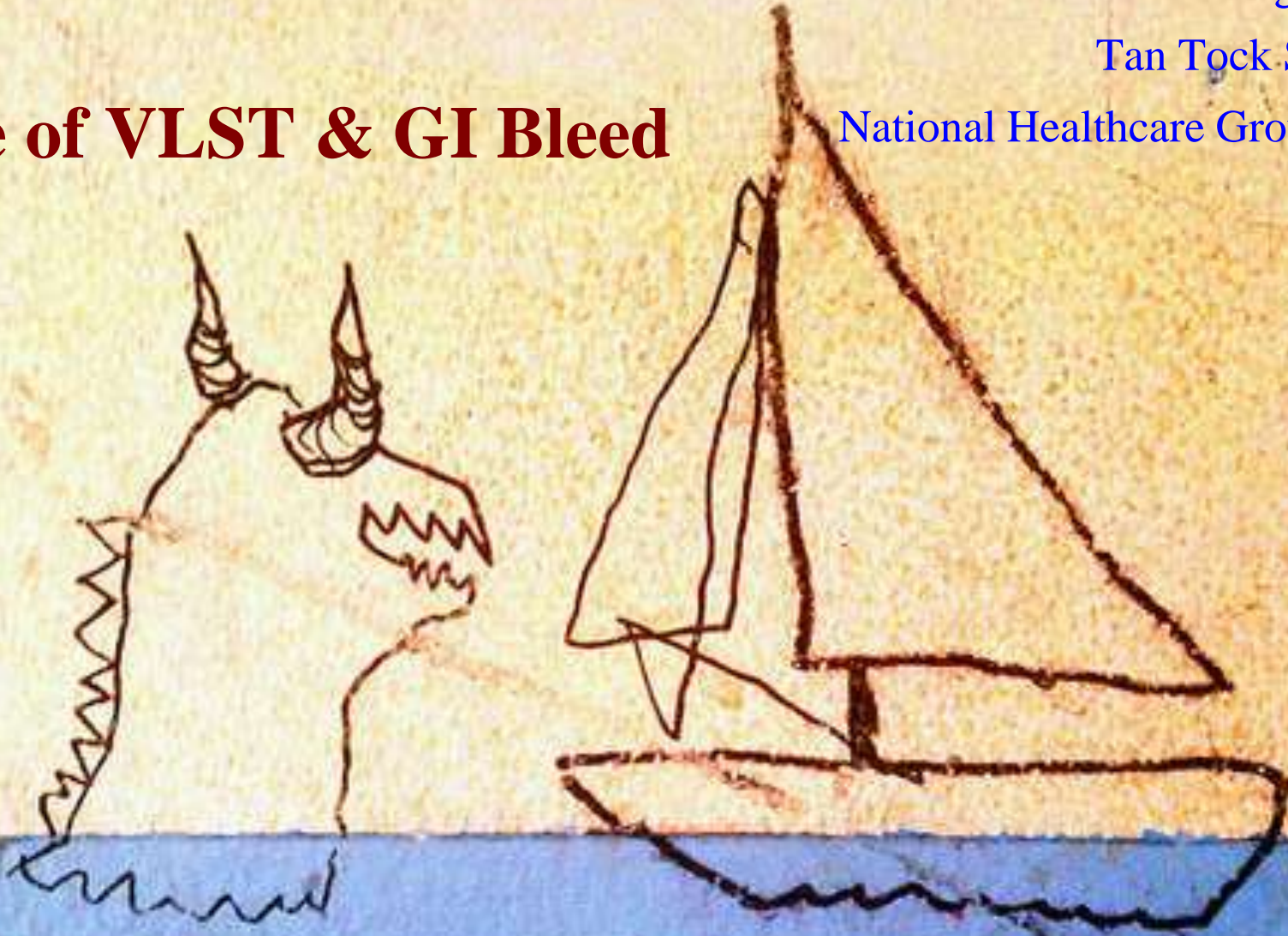
**How would I treat?**

Paul Ong FRCP FESC

Tan Tock Seng Hospital

**A case of VLST & GI Bleed**

National Healthcare Group, Singapore





# ASIA PRIMARY ANGIOPLASTY CONGRESS 2014

*Doing our best to treat AMI*

2nd & 3rd August 2014

Marina Mandarin, Singapore

Organized by:



Endorsed by:



World Congress of Cardiology 2006  
2-6 September, Barcelona - Spain



Joint meeting of  
European Society of Cardiology  
& World Heart Federation

Joint meeting of  
European Society of Cardiology  
& World Heart Federation

**VLST**

**Edoardo Camenzind**

- Safety of Drug Eluting Stents:  
Insights from meta analysis



Total mortality and Q-wave MI combined were 38% (SES) and 16% (PES) higher in 1st g-DES as compared to control BMS (p-value: SES vs BMS: 0.03 ; PES vs BMS. 0.68).

# BASKET LATE Trial

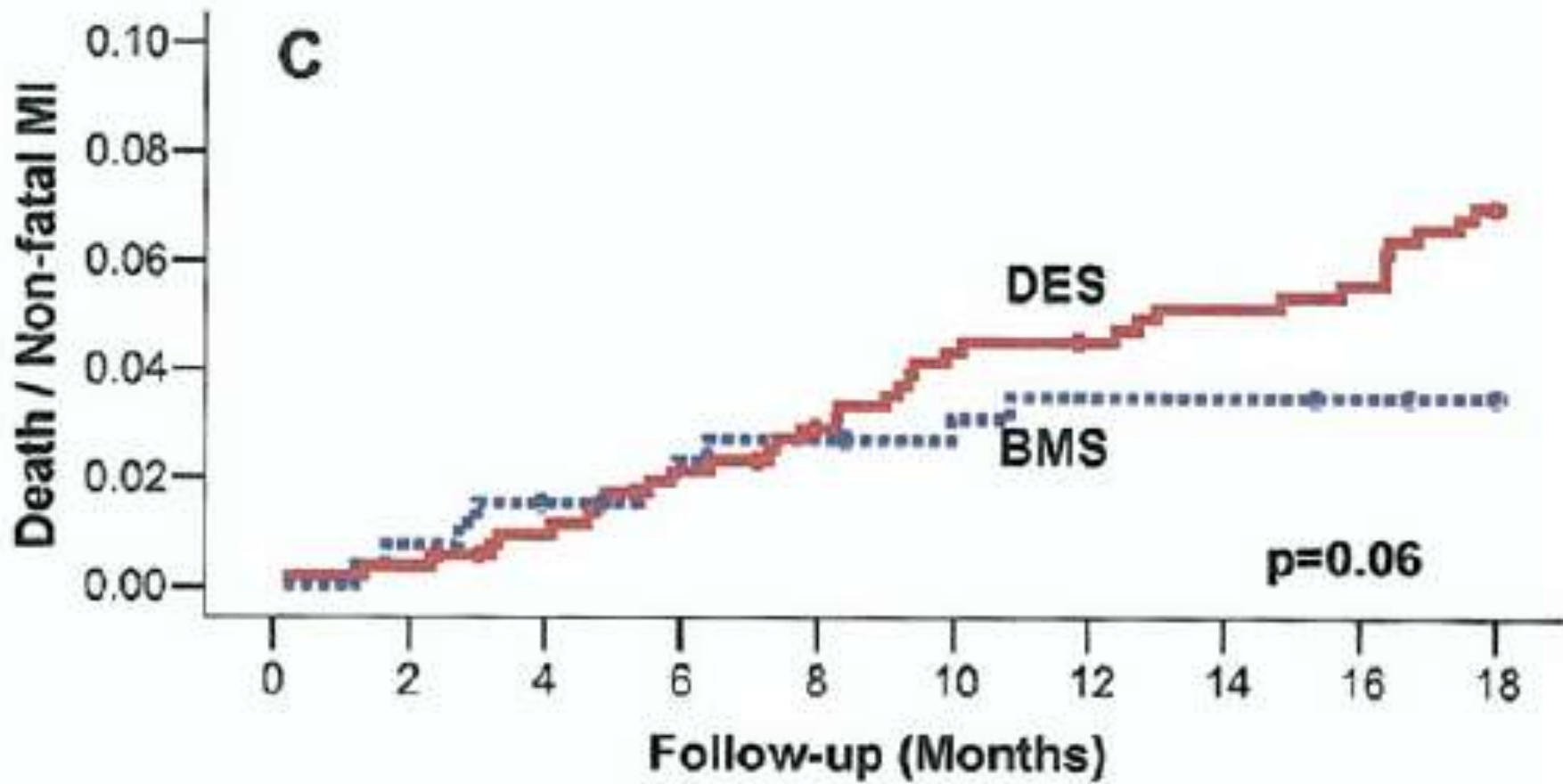
**Basel Stent Cost-effectiveness Trial-Late  
Thrombotic Events (BASKET LATE) Trial**

# BASKET LATE Trial

Presented at  
The American College of Cardiology  
Scientific Session 2006

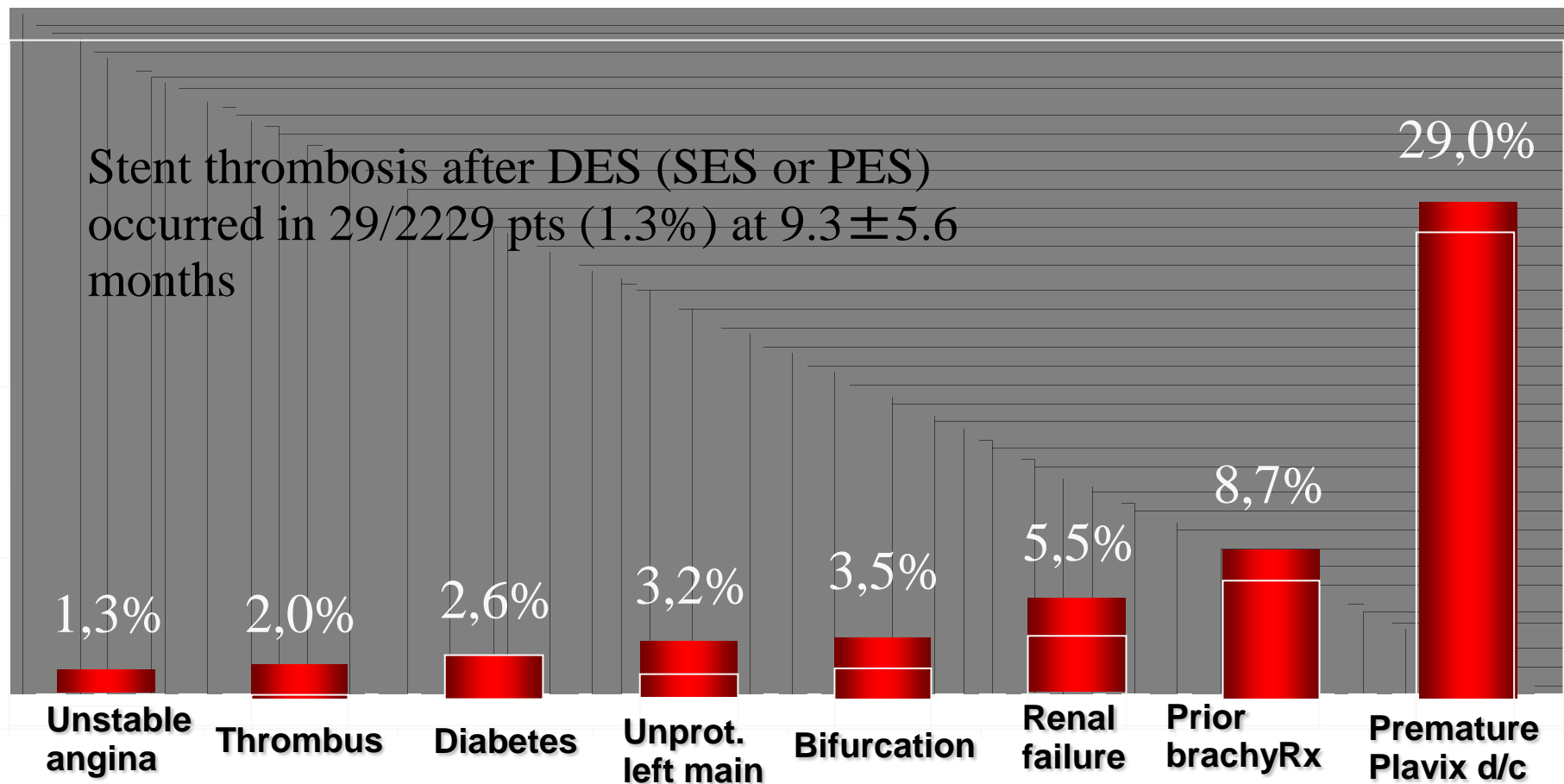
by Dr. Matthias E. Pfisterer

## Basket Late



# Late Stent Thrombosis

## Clopidogrel therapy: Compliance and stent thrombosis



# Very Late Stent Thrombosis

- > 12 months after DES implantation
- 70 to 80% present with STEMI

# **Clinical Presentation, Management, and Outcomes of Angiographically Documented Early, Late, and Very Late Stent Thrombosis**

Ehrin J. Armstrong, MD,\* Dmitriy N. Feldman, MD,† Tracy Y. Wang, MD, MHS, MS,‡  
Lisa A. Kaltenbach, MS,‡ Khung-Keong Yeo, MBBS,\* S. Chiu Wong, MD,†  
John Spertus, MD,§ Richard E. Shaw, PhD,|| Robert M. Minutello, MD,†  
Issam Moussa, MD,¶ Kalon K. L. Ho, MD,# Jason H. Rogers, MD,\*  
Kendrick A. Shunk, MD, PhD\*\*††

*7315 patients with ST analysed*

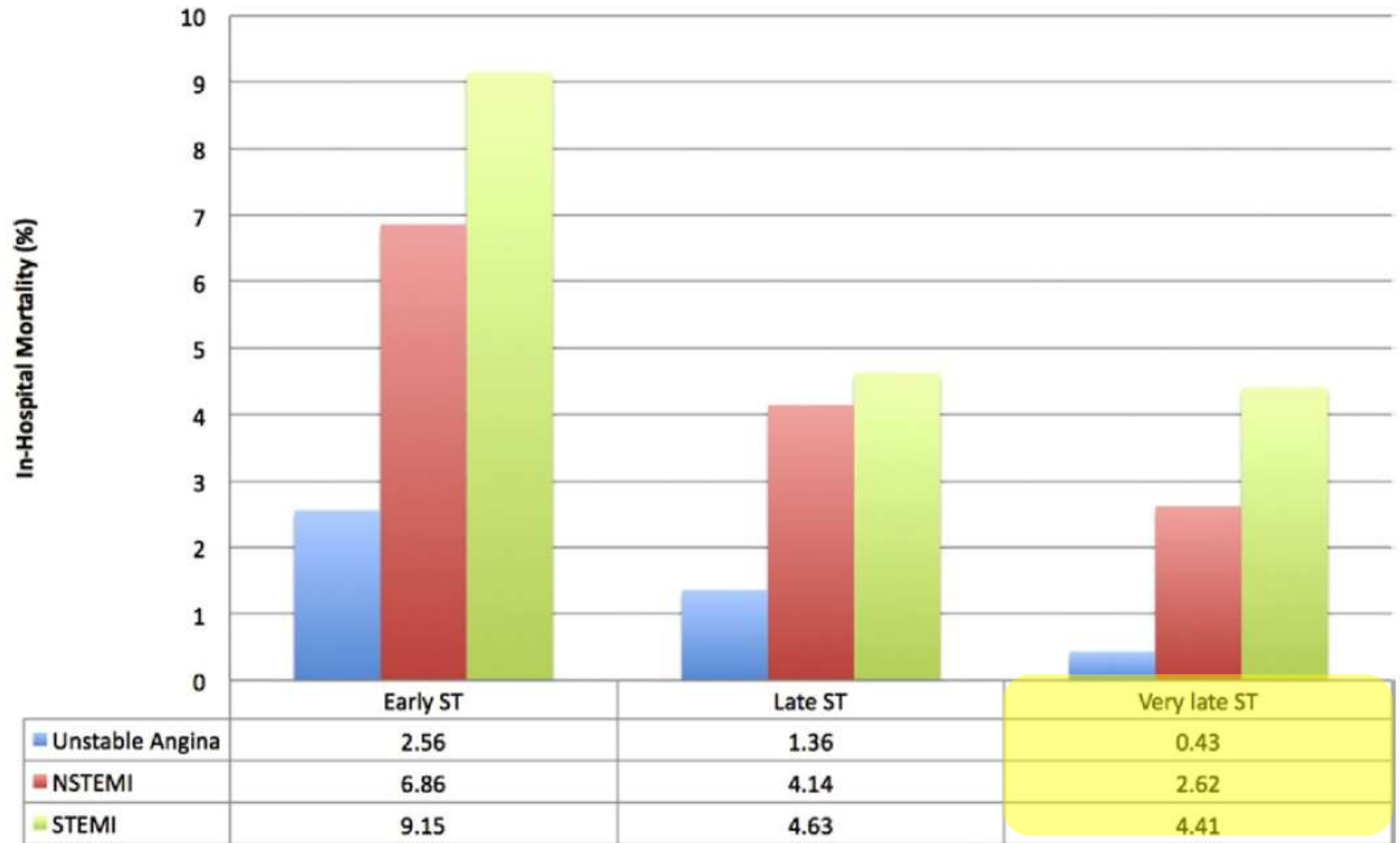


# Treatment of Stent Thrombosis

## B Stent Thrombosis of a DES



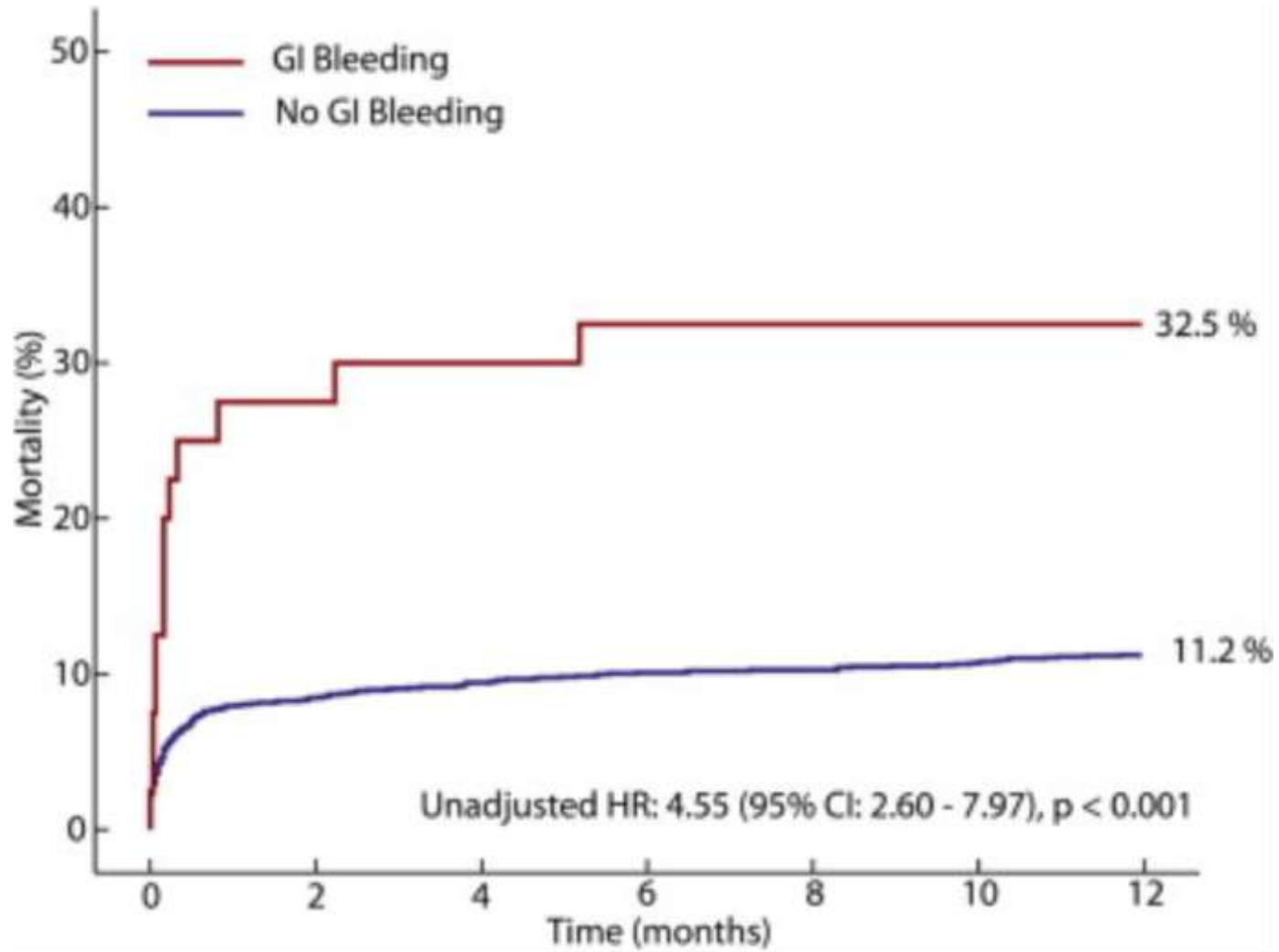
# In Hospital Mortality based on presentation with Unstable Angina, NSTEMI or STEMI



# **Bleeding in acute coronary syndromes and percutaneous coronary interventions: position paper by the Working Group on Thrombosis of the European Society of Cardiology**

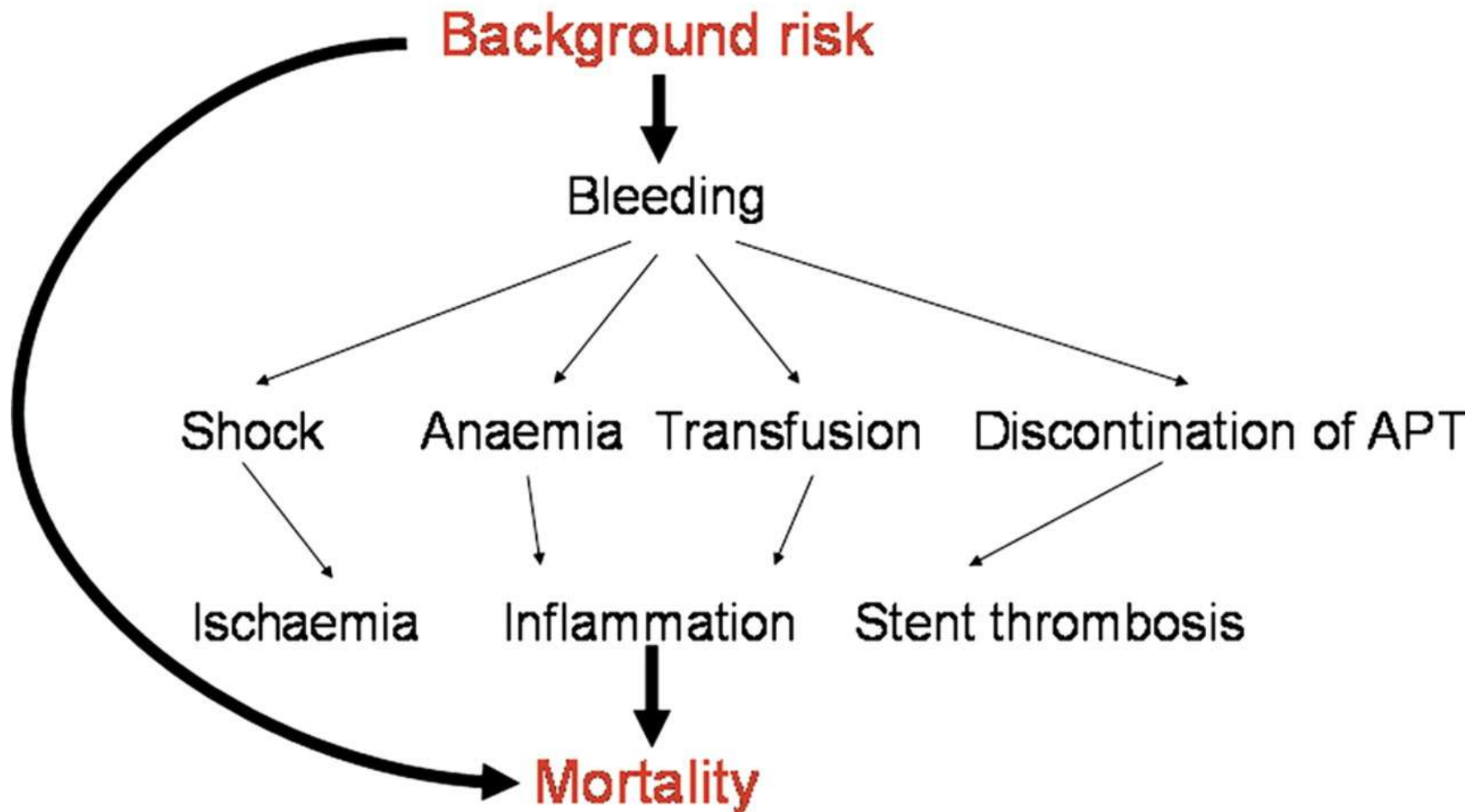
**Philippe Gabriel Steg (France)\*, Kurt Huber (Austria), Felicita Andreotti (Italy), Harald Arnesen (Norway), Dan Atar (Norway), Lina Badimon (Spain), Jean-Pierre Bassand (France), Raffaele De Caterina (Italy), John A. Eikelboom (Canada), Dietrich Gulba (Germany), Martial Hamon (France), Gérard Helft (France), Keith A.A. Fox (UK), Steen D. Kristensen (Denmark), Sunil V. Rao (USA), Freek W. A. Verheugt (Netherlands), Petr Widimský (Czech Republic), Uwe Zeymer (Germany), and Jean-Philippe Collet (France)**

# GASTROINTESTINAL BLEEDING IN PATIENTS WITH ST-ELEVATION MYOCARDIAL INFARCTION



Schematic representations of the hypothetical mechanisms linking bleeding and mortality.

## Why increased mortality?



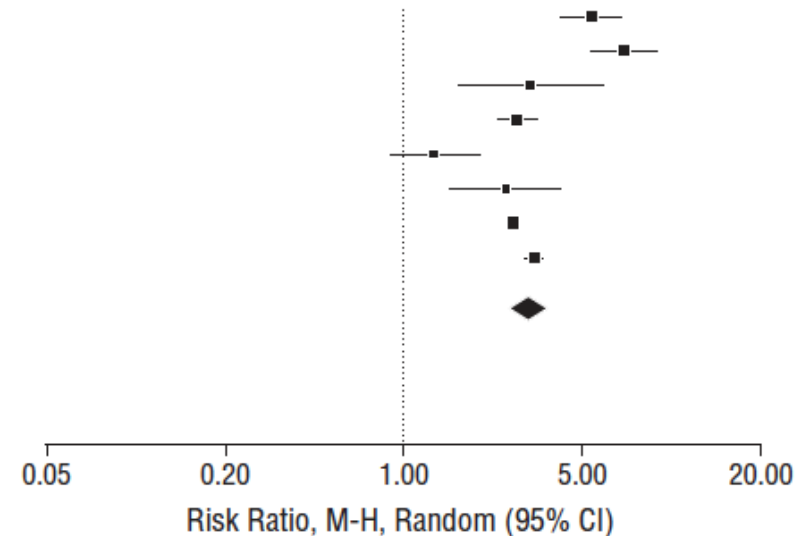
ONLINE FIRST | LESS IS MORE

# Association of Blood Transfusion With Increased Mortality in Myocardial Infarction

*A Meta-analysis and Diversity-Adjusted Study Sequential Analysis*

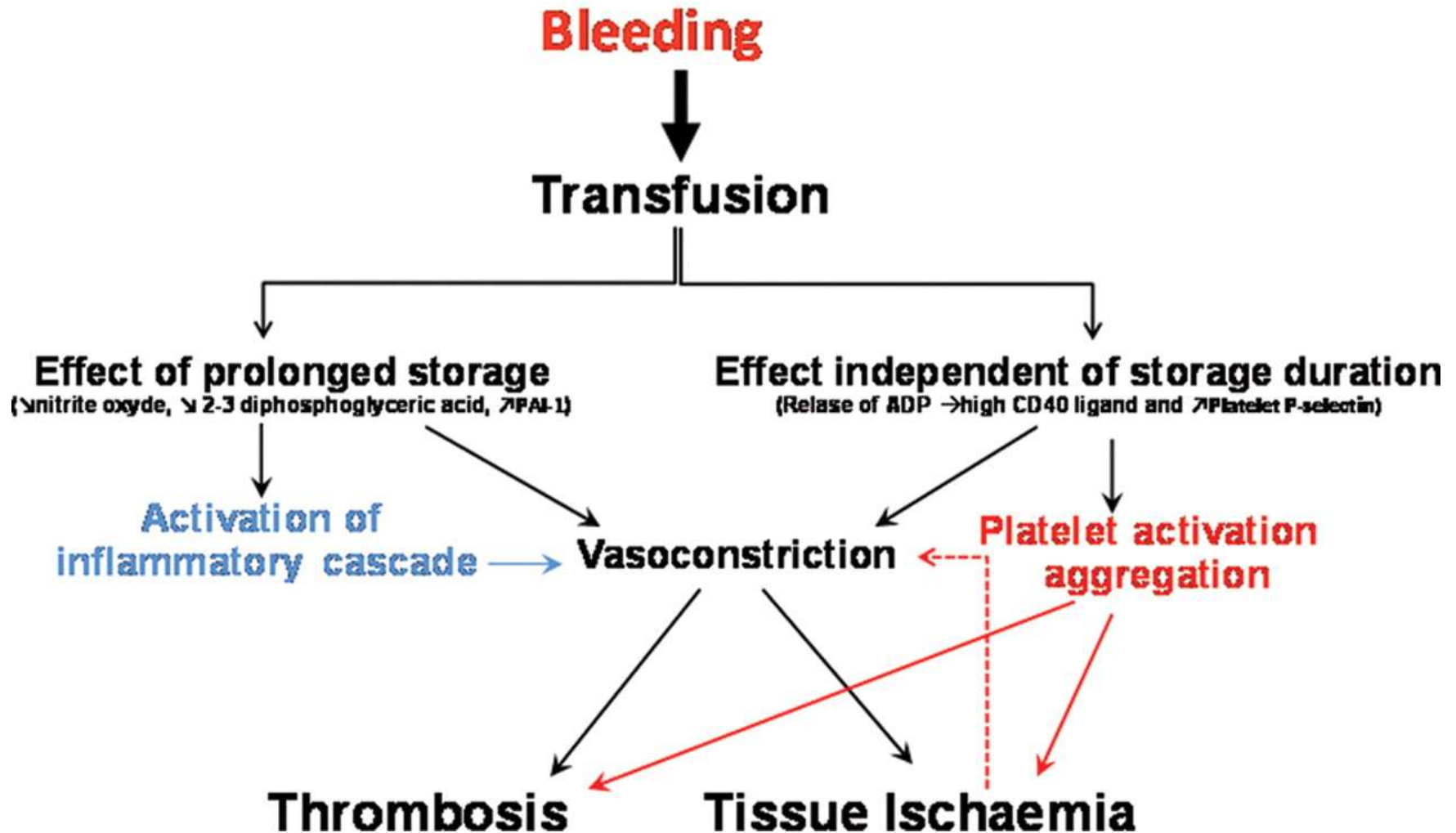
Saurav Chatterjee, MD; Jørn Wetterslev, MD, PhD; Abhishek Sharma, MD; Edgar Lichstein, MD; Debabrata Mukherjee, MD, MS

- Meta analysis of 203665 patients
- Blood transfusion increased the all cause mortality RR 2.91
- Blood transfusion also doubled the risk of subsequent MI



Potential mechanisms of the detrimental effect of blood transfusion.

## Detrimental effect of transfusion



**A Randomised Control Trial on  
PCI in STEMI Patients with Active GI Bleed**





**Bleeding causing MI (Type II MI)  
or  
Treatment of MI (stress & drugs) causing GI bleed**



## **Bleeding causing MI (Type II MI)**

**or**

### **Treatment of MI (stress & drugs) causing GI bleed**

- An acute MI occurring simultaneously with or after GI bleeding is usually precipitated by massive bleeding causing hypovolaemia, hemodynamic compromise, and hypoperfusion.
- Conversely, the anticoagulant, anti-platelet, or thrombolytic drugs given to treat MI can precipitate GI bleeding.
- GI bleeding that precipitates an acute MI tends to be massive, whereas GI bleeding after treatment of acute MI tends to be self-limited and often resolves with reversal of underlying coagulopathy.

## **Bleeding causing MI (Type II MI)**

**or**

### **Treatment of MI (stress & drugs) causing GI bleed**

- Endoscopy carries a higher risk in patients with recent acute MI, with mortality rates as high as 1% (The usual rate is 0.0004%).
- MI patients who present with upper GI bleeding as the inciting event or who are hemodynamically unstable due to GI bleeding are significantly more likely to have a high-risk lesion and so have the greatest need for endoscopic therapy.
- Endoscopic intervention may be offered to MI patients at high risk who have been started on antiplatelet agents.



# Upper GI Bleeding with Myocardial Infarction: Evaluation of Safety for Endoscopy

Roxanne G. Lim MD<sup>1</sup>; William J. Cobell MD<sup>1</sup>; Shoba Theivanayagam MD<sup>1</sup>; Todd W. Kilgore MD<sup>1</sup>;  
Michelle Matteson PhD<sup>1</sup>; Srinivas Puli MD<sup>2</sup>; Matthew L. Bechtold MD, FACC<sup>1</sup>

<sup>1</sup>Division of Gastroenterology – Department of Internal Medicine, University of Missouri, Columbia, MO; <sup>2</sup>OSF MG Gastroenterology, Peoria, Illinois

## BACKGROUND

Upper gastrointestinal bleeding (UGIB) in the setting of acute myocardial infarction (MI) is a complex medical condition with substantial morbidity and mortality. The anemia due to the UGIB may exacerbate the MI or the anticoagulation for the MI may contribute to UGIB. In addition, both have many significant complications. Several studies have been performed in studying the safety of EGD after MI; however, these studies vary in definitions and results. This study evaluated the safety and effect of EGD in patients with acute MI in a tertiary-care center.

## METHODS

- Retrospective study (1/01 - 3/12).
- 86 patients who underwent EGD within 30 days of a MI at a single tertiary-care center.
- Patients identified by ICD-9 codes for MI (STEMI & NSTEMI) and CPT codes for EGD.
- An extensive chart review was performed.
- MI was defined as troponin I greater than laboratory reference "diagnostic of MI."
- Medical complications were defined as any documented changes in patients' symptoms, vital signs (BP < 90/60 or > 180/100 mmHg, HR > 100 or < 60 bpm, RR > 24/minute, O<sub>2</sub> saturation < 90%, temperature < 35.0°C), and telemetry (ventricular or atrial arrhythmias) within 24 hours of EGD.
- The study was statistically analyzed by the t-test and Fisher's exact test with significance indicated by *p-value* < 0.05.

Patients	TOTAL	STEMI	NSTEMI	<i>p-Value</i>	Prior CC	No Prior CC	<i>p-Value</i>
Peak Trop I (ng/mL) (mean)	23.17 ± 59.17	40.71 ± 40.04	19.3 ± 62.17	0.10	23.63 ± 31.82	23.33 ± 68.44	0.49
Time to Endoscopy (days) (mean)	5.15 ± 6.00	2.01 ± 2.27	5.96 ± 6.40	0.006	5.06 ± 5.49	5.02 ± 6.20	0.49
Apache II Score (n) (mean)	12.73 ± 6.53	13.56 ± 9.95	12.51 ± 5.33	0.27	12.46 ± 8.25	12.86 ± 5.57	0.40
Cardiac Cath/Total (%)	32.6%	77.8%	20.6%	0.08	100%	0%	-
Complications (%)	31.4%	50.0%	26.5%	0.05	39.3%	27.6%	0.14

Table 1: Summary of study results. CC = cardiac catheterization.

## RESULTS

- Summary of results in **Table 1**.
- Complications were identified in 31.4%. (**Figure 1**)
  - Hypotension (8)
  - Sinus Tachycardia (8)
  - PVCs (1)
  - Tachypnea (2)
  - Hypertension (2)
  - Sinus Bradycardia (3)
  - Hypothermia (1)
  - Chest Pain (2)
- STEMI patients underwent EGD sooner than NSTEMI patients (*p*=0.006).
- No other significant differences were noted between types of MI and cardiac catheterization status for peak troponin I, Apache II score, or complications.

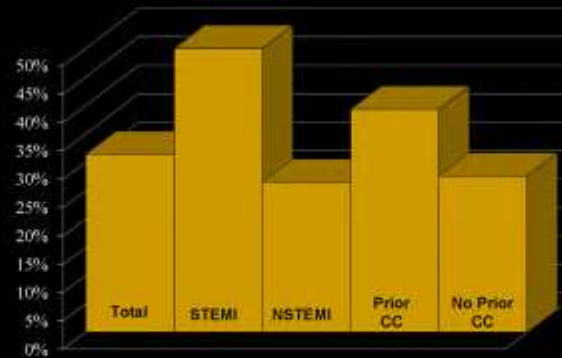


Figure 1: Comparisons of complications between type of MI and cardiac catheterization (CC) status.

## CONCLUSION

EGD appears relatively safe for diagnosis and management of UGIB in patients with acute MI. Only minor complications were observed. The type of MI and the need for cardiac catheterization do not result in a higher incidence of complications.

# Use Plavix Only (Class I A)

**Circulation**  
JOURNAL OF THE AMERICAN HEART ASSOCIATION



ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction): Developed in Collaboration with the American College of Emergency Physicians, the Society for Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons: Endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation and the Society for Academic Emergency Medicine

Jeffrey L. Anderson, Cynthia D. Adams, Elliott M. Antman, Charles R. Bridges, Robert M. Califf, Donald E. Casey, Jr., William E. Chavey II, Francis M. Fesmire, Judith S. Hochman, Thomas N. Levin, A. Michael Lincoff, Eric D. Peterson, Pierre Theroux, Nanette Kass Wenger and R. Scott Wright

## 3.2.1. Antiplatelet Therapy Recommendations

### CLASS I

1. Aspirin should be administered to UA/NSTEMI patients as soon as possible after hospital presentation and continued indefinitely in patients not known to be intolerant of that medication. (*Level of Evidence: A*) (Figs. 7 and 8; Box A)
2. Clopidogrel (loading dose followed by daily maintenance dose)\* should be administered to UA/NSTEMI patients who are unable to take ASA because of hypersensitivity or major gastrointestinal intolerance. (*Level of Evidence: A*)

**How I would Treat?**  
**Difficult to treat due to opposing treatment goals**



# How I would treat this patient?

- Stabilize patient haemodynamically
  - iv fluid; inotropes or IABP as necessary
  - Avoid transfusion if possible
- Systemic anticoagulation – UFH vs LMWH
  - $<70$  IU/kg
- Plavix 300mg
- VLST
  - Discontinuation of antiplatelet
  - Uncovered Taxus stent strut
  - Malaposition of the stent
  - IVUS or OCT

# How I would treat?

## 1) Clear The Clot 2) Balloon The Stent 3) Get Out

- Thrombectomy
- POBA with NC balloon under OCT or IVUS guidance for optimal stent expansion and apposition
- Quick in and out procedure aiming to re-establish TIMI 3 flow
- Not implant more devices
- In CCU
- Close contact with Gastro team
- Iv omeprazole
- If further sign of bleeding
  - Drop in Hb or BP
- Urgent OGD



# How I would treat?

- Single APT with just clopidogrel
- Platelet function to exclude non responder
- Consider DAPT once GI bleed settled in weeks time (GI consult)



# ASIA PRIMARY ANGIOPLASTY CONGRESS 2014

*Doing our best to treat AMI*

2nd & 3rd August 2014

Marina Mandarin, Singapore

Organized by:



Endorsed by:

