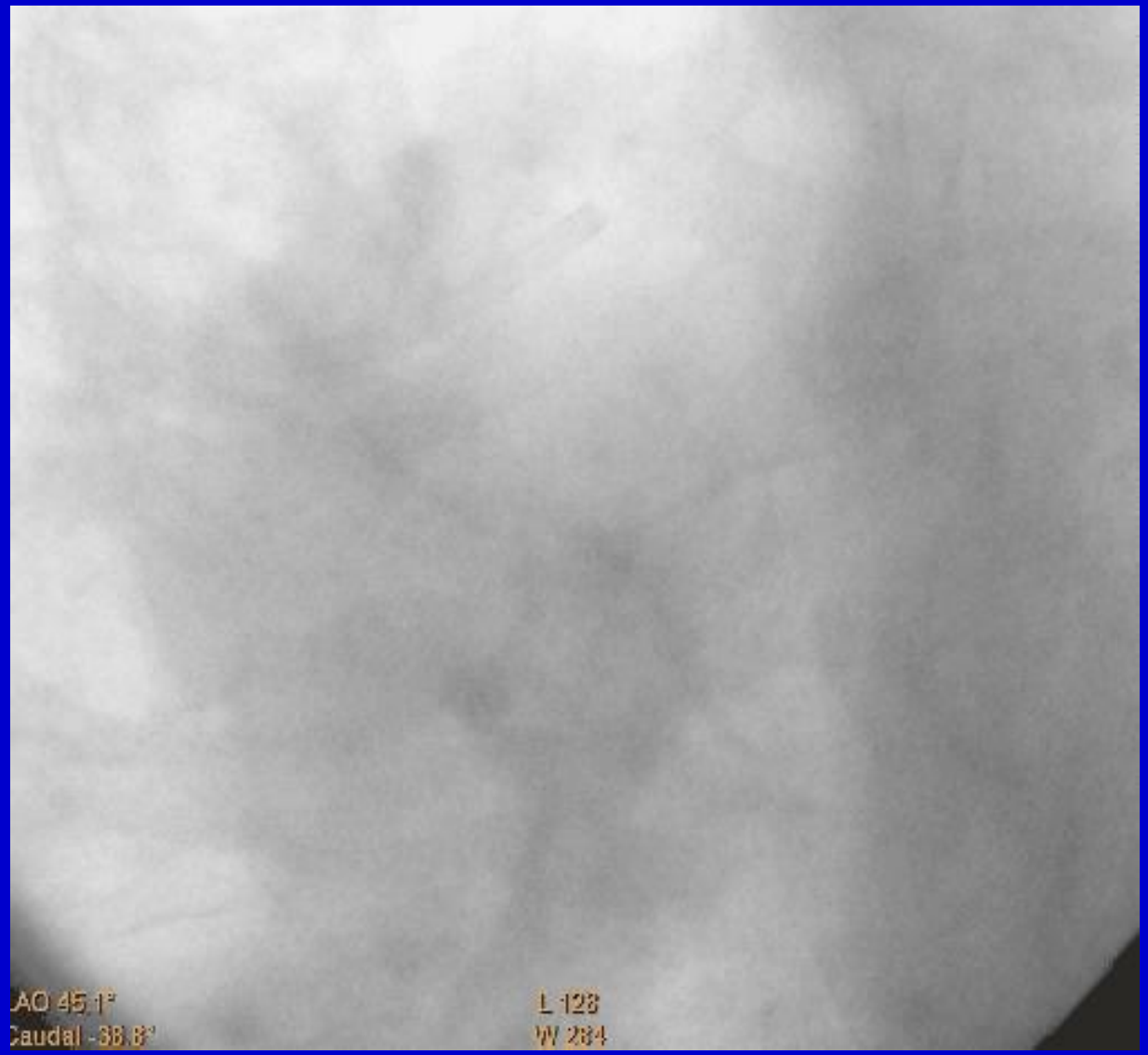
Case Challenges in ACS

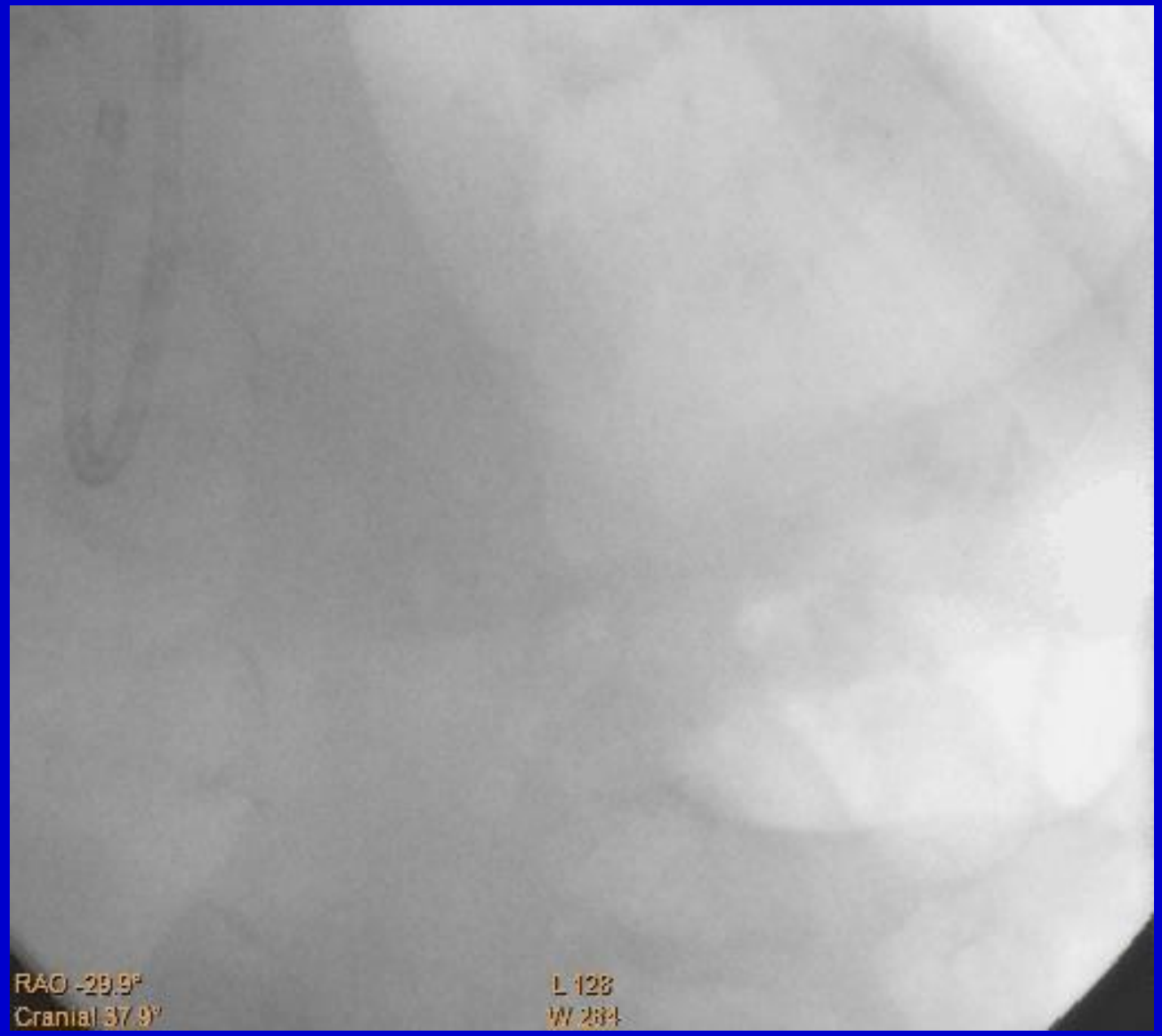
The Very Elderly in the Cath Lab

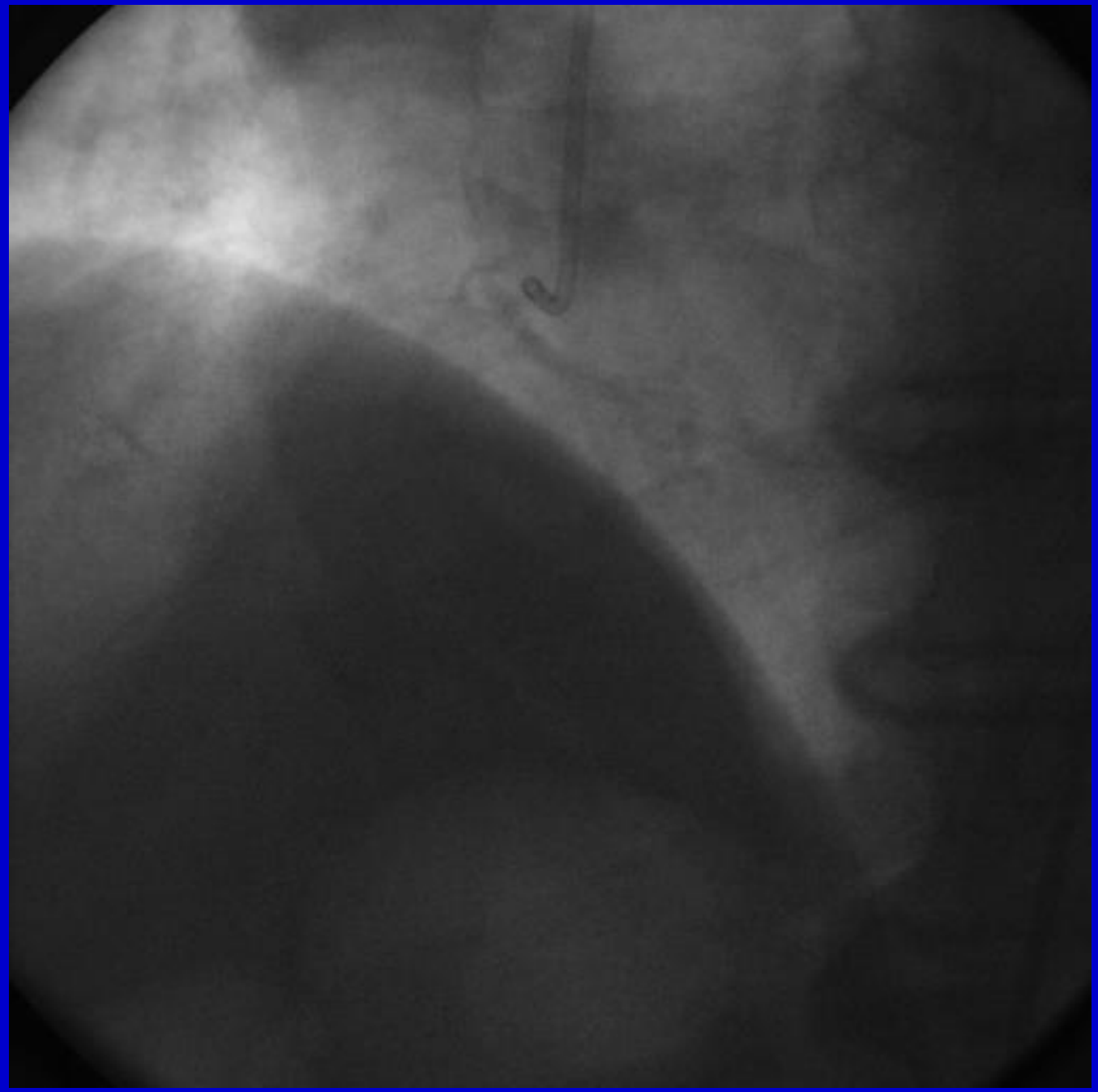
Sameh Salama, MD, FSCAI
Professor of Cardiology,
Cairo University

- 86 yrs old male
- IDDM (controlled on insulin and oral hypoglycemics)
- Hypertensive (controlled on valsartan/HCT 80/12.5 mg, Bisoprolol 5mg)
- Stopped smoking 6 yrs ago (smoked for > 30yrs,)
- Dyslipidemic (LDL : 142 mg/dl, on Rusovastatin 10mg)
- Positive FH for CAD and hypercholesterolemia
- Crescendo Angina since few months (nocturnal angina)
- Normal ECG / Negative Troponin
- Echocardiogram: LVEF (52%). No regional wall motion abnormalities.
- History of active peptic ulcer 10 yrs ago (on PPI, Omeprazole, for life)
- Renal impairment: Serum creatinine 1.7 mg/dl (Creatinine clearance 36)
- Antidepressant : Paroxetene {Seroxate}
- Lumbar disc prolapse (infrequent intake of NSAIDS)
- Weight : 76 Kg, BMI : 32 Kg/m2


AO 45.1°
Caudal -36.8°
L 128
W 264


LAO 41.1°
Cranial 32.3°
L 123
W 284


RAO -29.9°
Cranial 37.9°
L 128
W 284



What’s the best management strategy for this patient?

A- CABG

B- PCI

C- Medical treatment

D- Risk Stratification and Heart team decision

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EURO-SCORE II

Patient related factors			Cardiac related factors		
Age [1] (years)	86	0.77	NYHA	II	.1070545
Gender	male	0	CCS class 4 angina [8]	yes	.2226147
Renal impairment [2] *See calculator below for creatinine clearance*	severe (CC <50)	.8592256	LV function	good (LVEF > 50%)	0
Extracardiac arteriopathy [3]	yes	.5360268	Recent MI [9]	no	0
Poor mobility [4]	no	0	Pulmonary hypertension [10]	no	0
Previous cardiac surgery	no	0	Operation related factors		
Chronic lung disease [5]	yes	.1886564	Urgency [11]	elective	0
Active endocarditis [6]	no	0	Weight of the intervention [12]	isolated CABG	0
Critical preoperative state [7]	no	0	Surgery on thoracic aorta	no	0
Diabetes on insulin	yes	.3542749			

EuroSCORE II

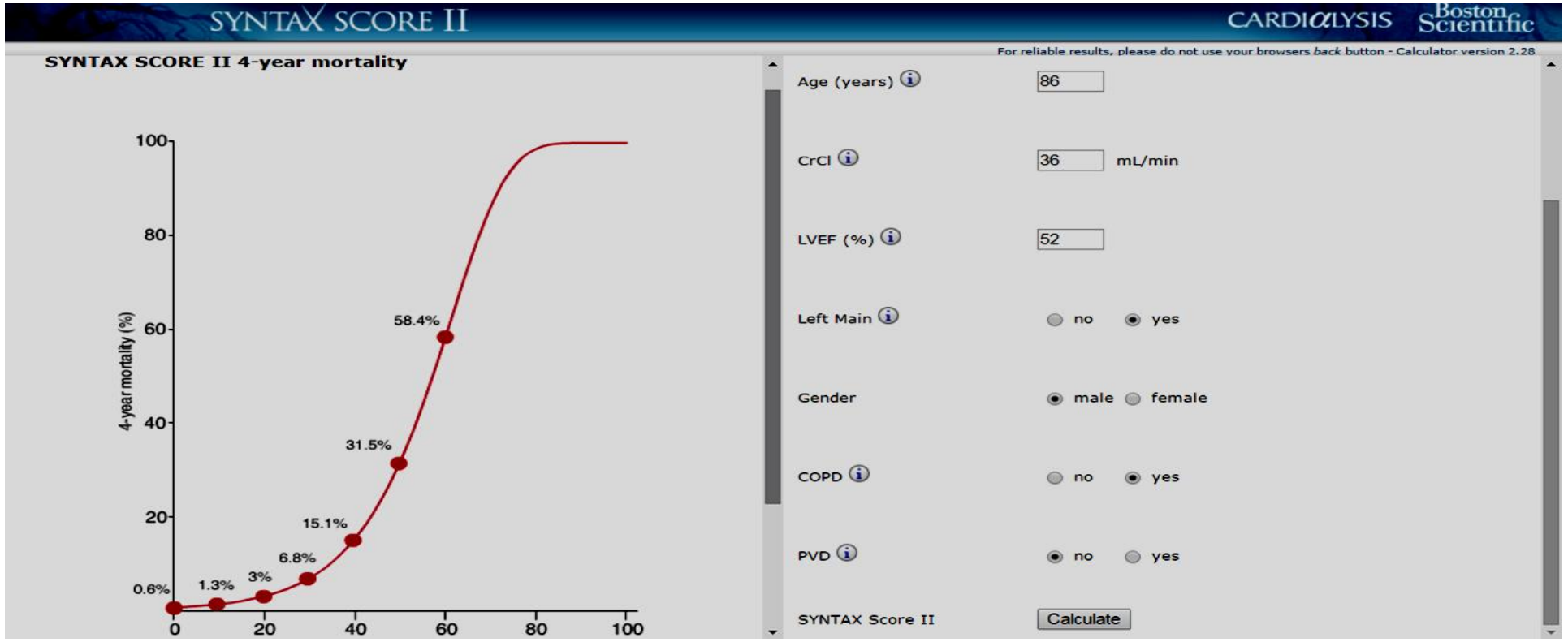
*Euro*SCORE II

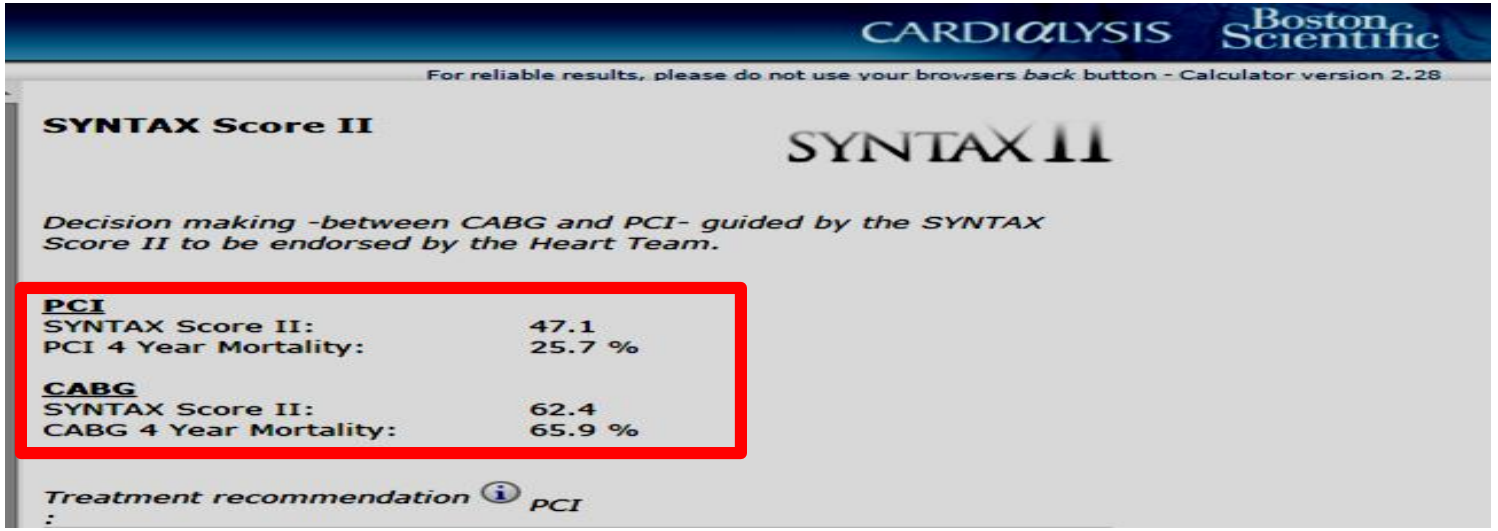
9.22 %

Note: This is the 2011 EuroSCORE II

Calculate Clear

Clinical SYNTAX SCORE (SYNTAX SCORE II)





Acute Coronary Syndromes in the Very Elderly

Is The Treatment of ACS in The Very Elderly Patient Different From The Younger Ones?

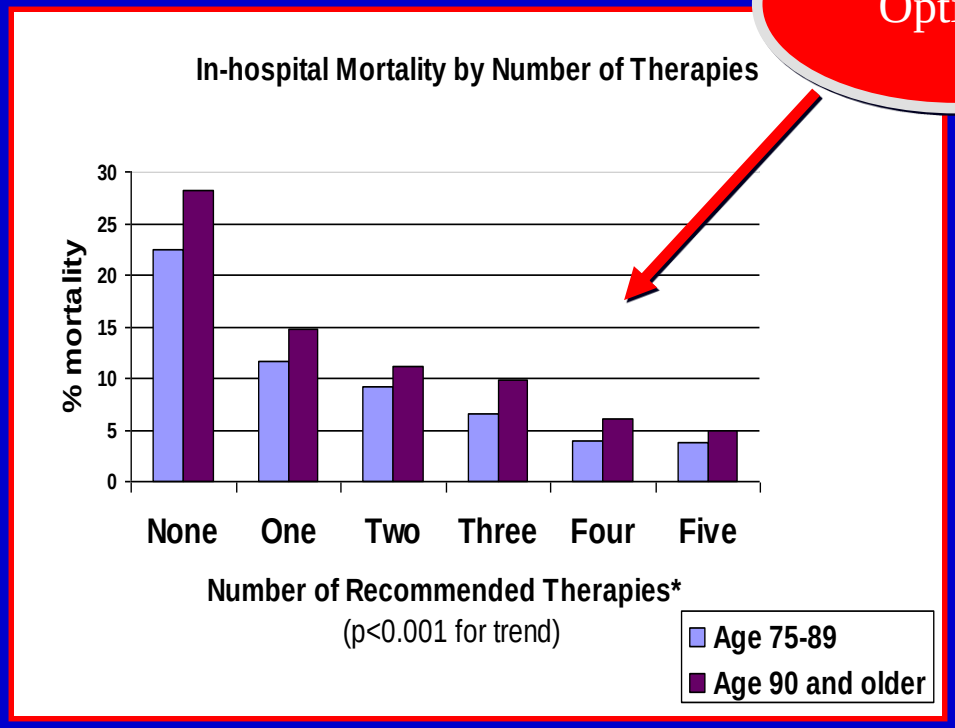
5 Decisions to make

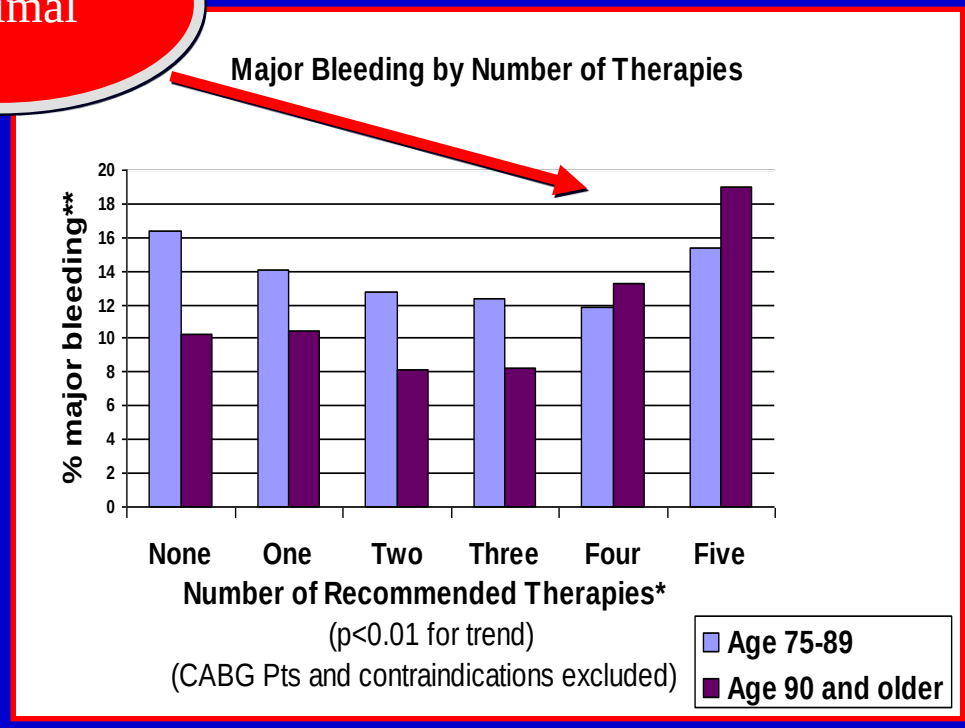
Therapeutics in ACS Among Patients >90 Years Old

Mortality

Major Bleeding

Optimal





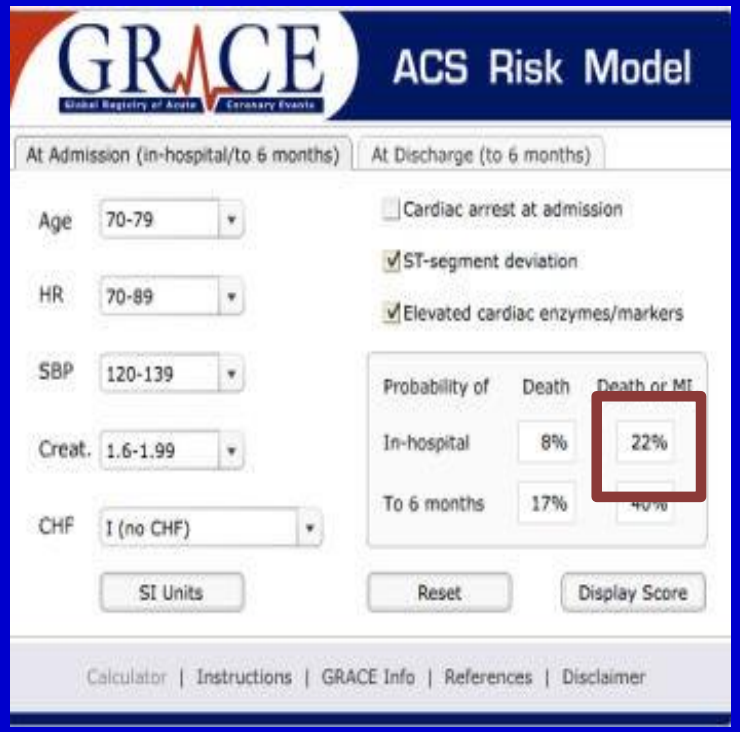
Even among oldest old – better outcomes with better adherence to ACC/AHA Guidelines

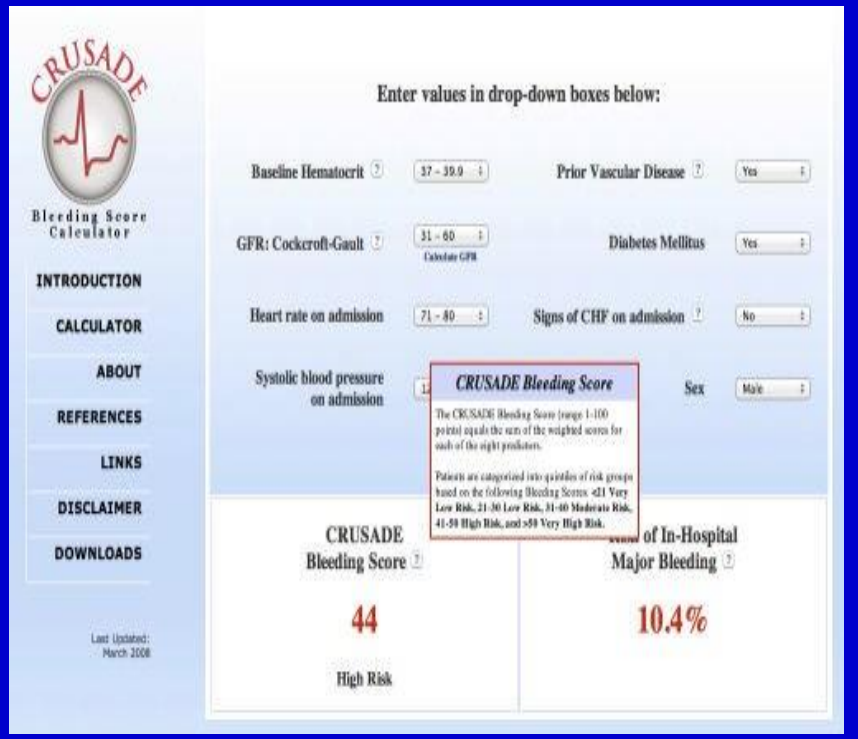
- Skolnick et al, ACC 2006

1- Risk assessment: Thrombotic *and B*leeding

Recommendations	Class [a]	Level [b]
In patients with a suspected NSTE-ACS, diagnosis and short-term ischaemic/bleeding risk stratification should be based on a combination of clinical history, symptoms, physical findings, ECG (repeated or continuous ST monitoring), and biomarkers.	I	A
ACS patients should be admitted preferably to dedicated chest pain units or coronary care units.	I	C
It is recommended to use established risk scores for prognosis and bleeding (e.g. GRACE, CRUSADE).	I	B
A 12-lead ECG should be obtained within 10 min after first medical contact and immediately read by an experienced physician. This should be repeated in the case of recurrence of symptoms, and after 6–9 and 24 h, and before hospital discharge.	I	B
Additional ECG leads (V_3R,V_4R,V_7–V_9) are recommended when routine leads are inconclusive.	I	C

- **Much overlap:** many elderly have both high bleeding and high ischemic risk score
- **GRACE score** is accurate for predicting ischemic risk in elderly patients
- **CRUSADE bleeding score** is not predictive in elderly patients, AUC ≥75 years: 0,52
- **ESC guidelines:** "A high CRUSADE score should not be a reason to deny antithrombotic treatment"
- **Clinical judgement e.g. when frail wait with strong antithrombotic treatment**





Frailty in the elderly

- 19% frail / 47% intermediate frail / 21% not frail
- Frail pts. had more co-morbidities, LM disease and multivessel disease

	ODDs Ratio	P-value
30-d mortality	4,8	0.013
12-mo mortality	5,9	<0.001

Independent of age, gender or co-morbidities

Urali-Krishnan et al. Open Heart 2015

2- What's the best P2Y2 inhibitor to use in this patient?

A- Clopidogrel

B- Prasugrel

C- Ticagrelor

D- Any one of them

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2. P2Y12

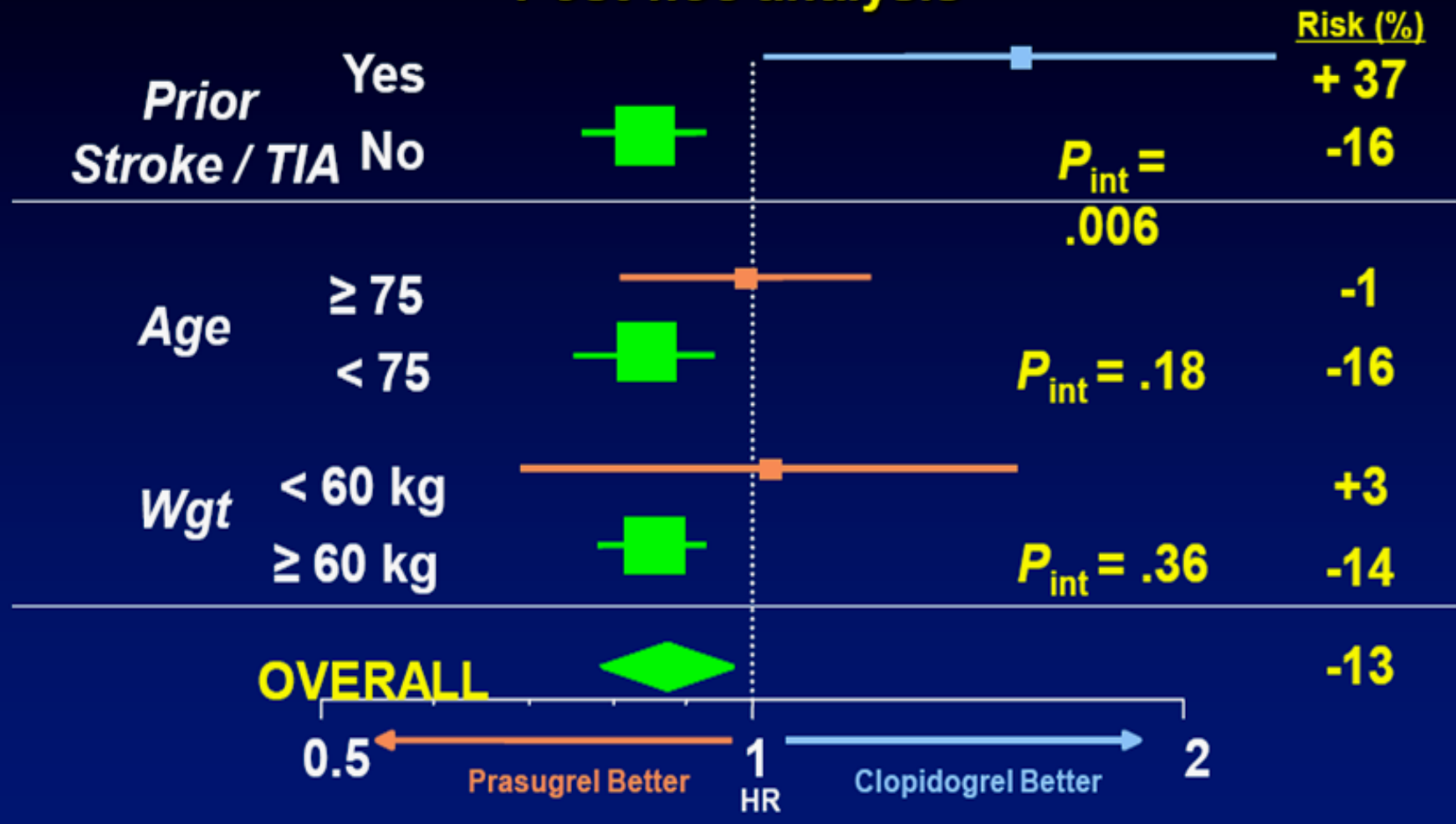
No recommendation for the elderly

A $P2Y_{12}$ inhibitor is recommended, in addition to aspirin, for 12 months unless there are contraindications such as excessive risk of bleeds.	I	A	137, 148, 153
• Ticagrelor (180 mg loading dose, 90 mg twice daily) is recommended, in the absence of contraindications,[e] for all patients at moderate-to-high risk of ischaemic events (e.g. elevated cardiac troponins), regardless of initial treatment strategy and including those pretreated with clopidogrel (which should be discontinued when ticagrelor is started).	I	B	153
• Prasugrel (60 mg loading dose, 10 mg daily dose) is recommended in patients who are proceeding to PCI if no contraindication.[e]	I	B	148, 164
• Clopidogrel (300–600 mg loading			

Clopidogrel in the elderly: Yes

Study	compare	N	Age	CVD/MI/Stroke	Bleeding
Yusuf et al 2001 12,562 patients (CURE-trial)	Clopi vs placebo	6354	≤65	5.4% (clopi) vs 7.6% (placebo) P <0.001	3.7% (clopi) vs 2.7% (placebo), P= 0.001
		6208	>65	13.3% (clopi) vs 15.3% (placebo) P <0.05	N.A

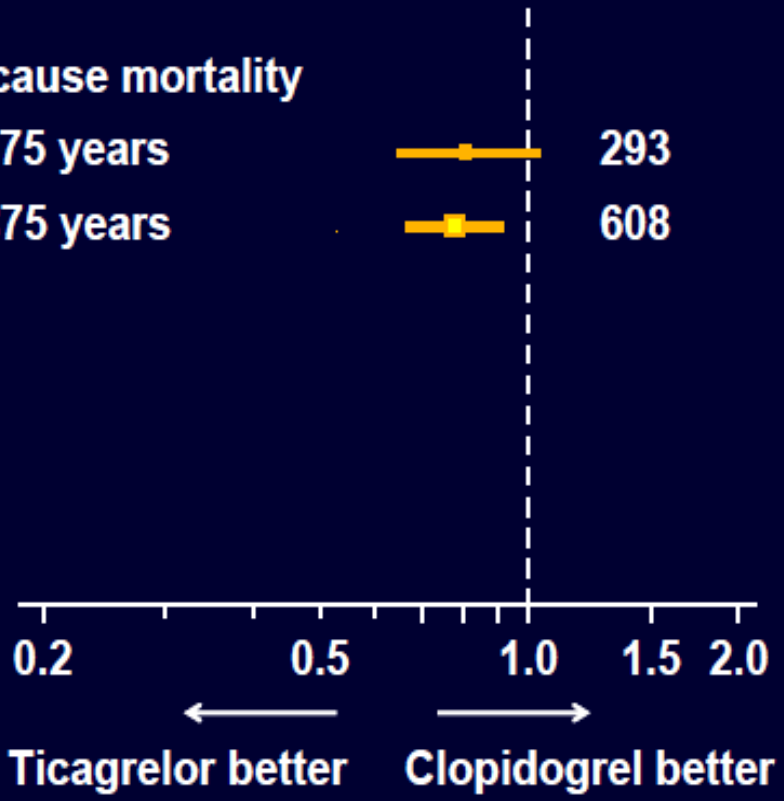
TRITON-TIMI 38: Net Clinical Benefit
Bleeding Risk Subgroups
Post-hoc analysis



Wiviott SD, et al. *N Engl J Med*. 2007;357:2001-2015.

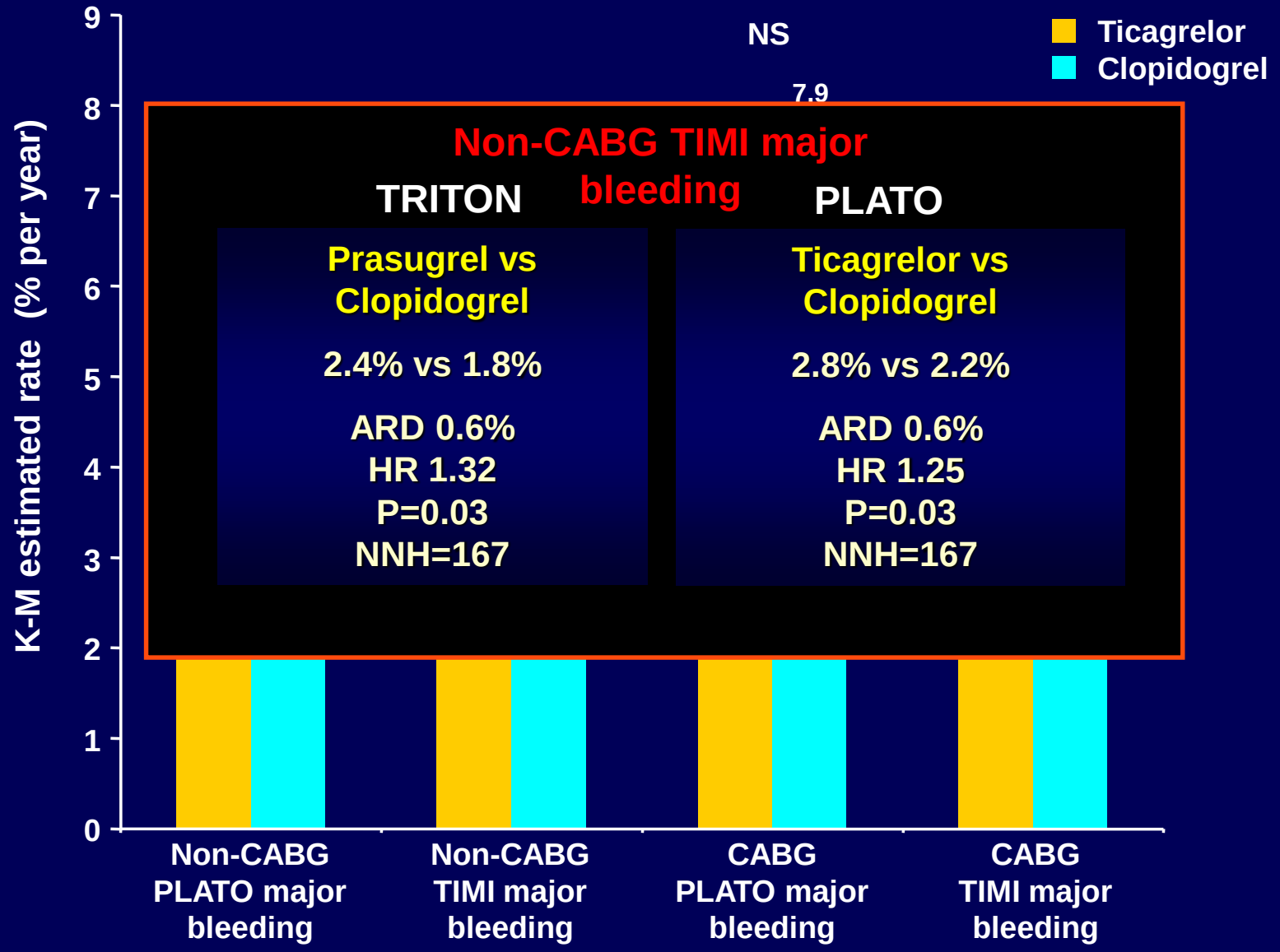
PLATO: Association of age and treatment with all-cause mortality

Characteristic	Hazard ratio (95% CI)	Total patients	KM % at month 12 Ti.*	KM % at month 12 Clop.†	HR (95% CI)	*P* value (interaction)
All-cause mortality						
≥75 years		293	9.8	12.4	0.81 (0.65–1.03)	0.78
<75 years		608	3.6	4.8	0.78 (0.67–0.92)	



Non-CABG and CABG-related major bleeding

PLATO



3. Is pretreatment with P2Y2 inhibitor mandatory in the very elderly with UA/NSTEMI?

A- Yes

B- No

3. When to start the P2Y12 inhibitor in The elderly?

NSTE-ACS Guidelines (2011)

Aspirin should be given to all patients without contraindication at an initial loading dose of 150-300 mg, and at a maintenance dose of 75-100 mg daily long-term regardless of treatment strategy	I	A
A P2Y12 inhibitor should be added to aspirin as soon as possible and maintained over 12 months, unless there are contraindications such as excessive risk of bleeding	I	A

Cure study **Yusuf S, et al.**
Effects of clopidogrel in addition to aspirin in patients with acute coronary syndromes without ST-segment elevation.
N Engl J Med 2001;345:494–502.

TRITON study **Wiviott S,et al.**
Prasugrel versus clopidogrel in patients with acute coronary syndromes.
N Engl J Med 2007;357:2001–2015.

PLATO study **Wallentin L,et al, for the PLATO Investigators.**
Ticagrelor versus clopidogrel in patients with acute coronary syndromes.
N Engl J Med 2009;361:1045–1057.

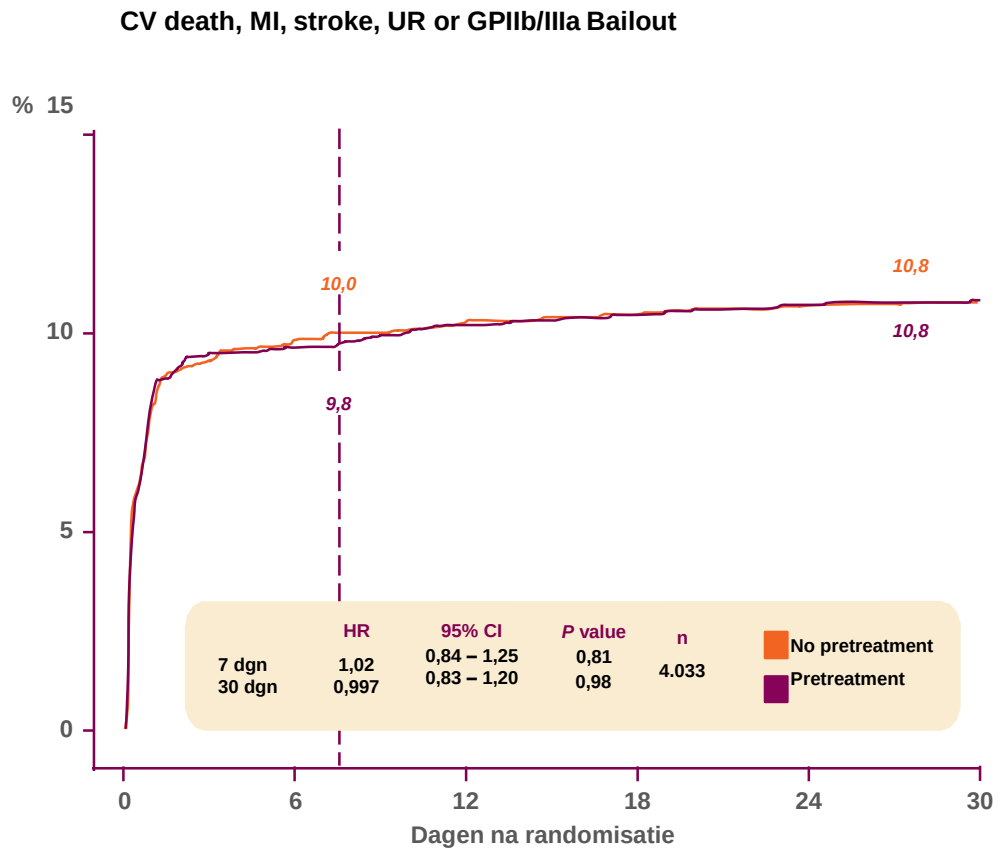
Metaanalyis

Pre-treatment with Clopidogrel

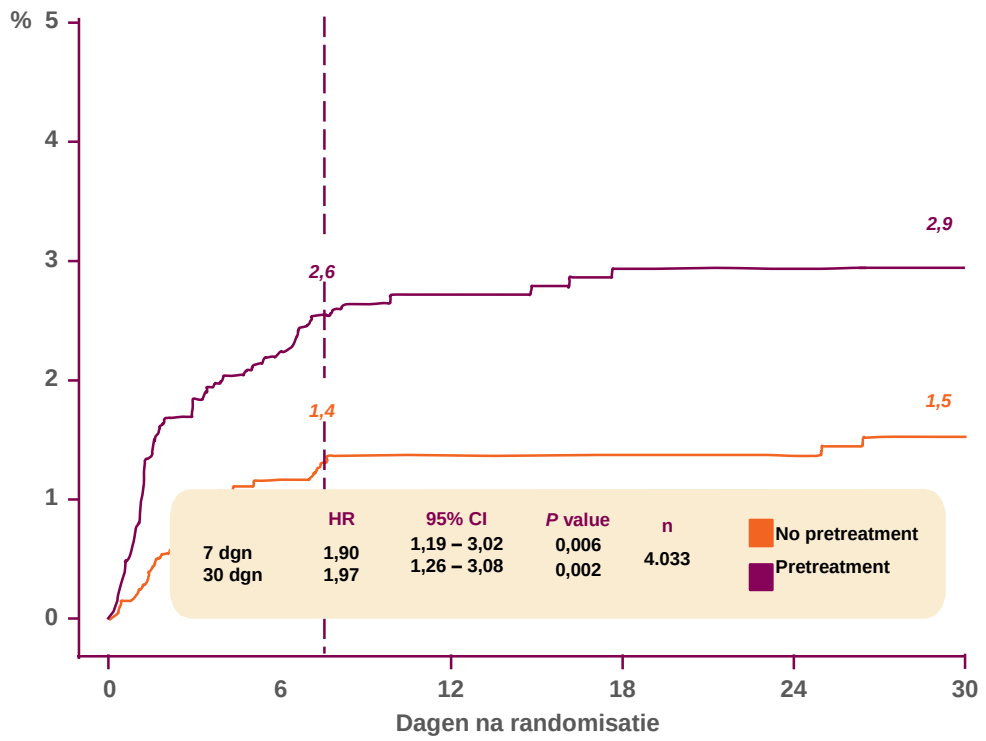
A Bellemain-Appaix et al. JAMA 2012

Timing of P2Y12

ACCOAST: pre-treatment Prasugrel



ACCOAST
All TIMI (CABG or non-CABG Major Bleeding)



Pre-Treatment with P2Y12-inhibitors in NSTE-ACS

(95% CI 1.19, 3.02), $P = 0.006$]. Arguments for and against pretreatment with $P2Y_{12}$ inhibitors in NSTE-ACS patients have been discussed extensively and the topic remains controversial.[165,166] As the optimal timing of ticagrelor or clopidogrel administration in NSTE-ACS patients scheduled for an invasive strategy has not been adequately investigated, no recommendation for or against pretreatment with these agents can be formulated. Based on the ACCOAST results, pretreatment with prasugrel is not recommended. In

Elderly:

Roffi et al. Eur Heart J 2016

- More doubt on the diagnosis of UA/NSTEMI
- Higher bleeding risk
- Medical treatment is a likely option
- ***When in doubt, do not pre- treat.***

4. What is the most important goal of treatment in the very elderly ?

A- Prolong life

B- Maintain mental ability

C- Maintain independence

D- All of the above

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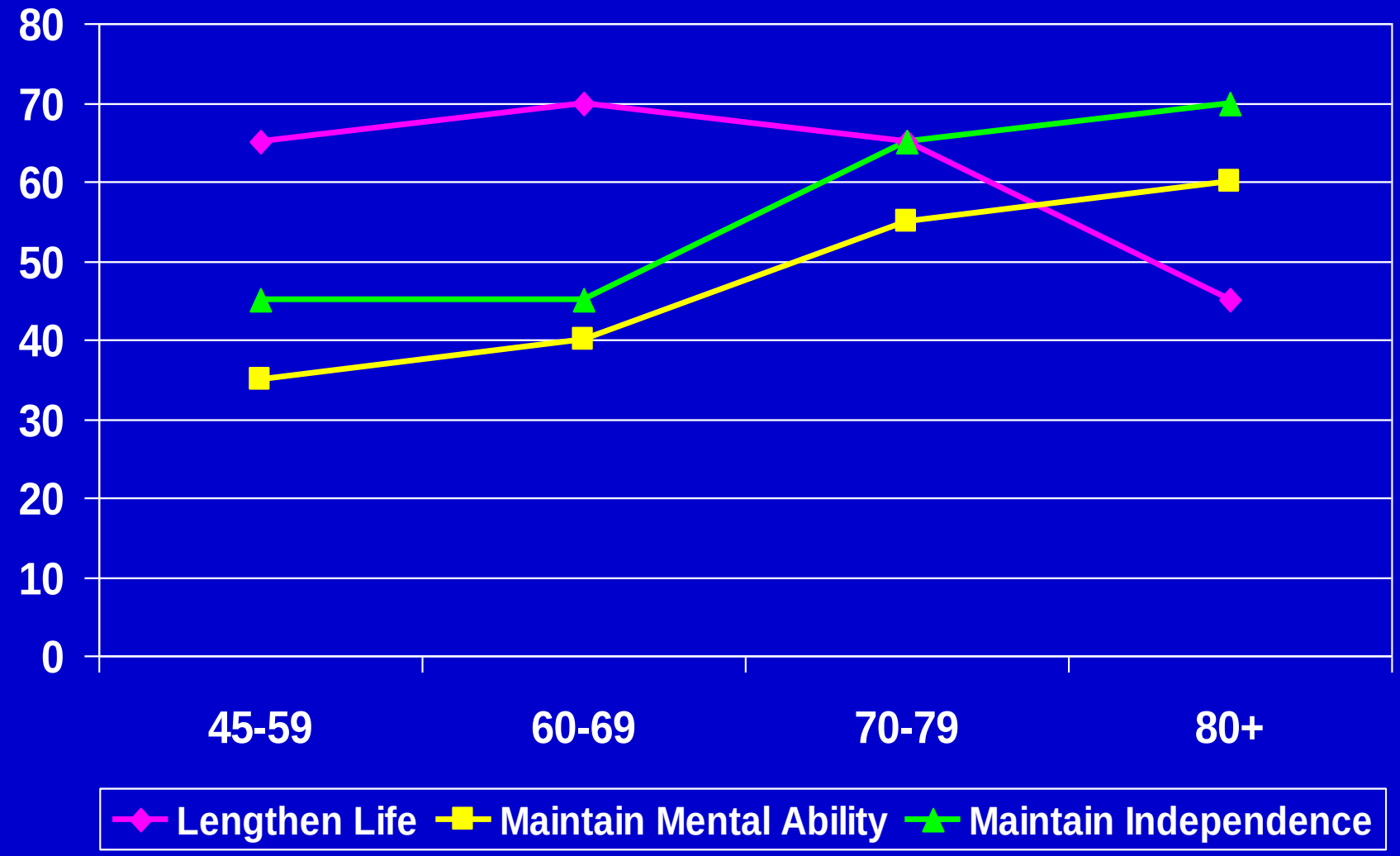
“What are the most important goals from the treatment of your heart disease?”



Invasive versus conservative strategy in patients aged 80 years or older with non-ST-elevation myocardial infarction or unstable angina pectoris (After Eighty study): an open-label randomised controlled trial

Nicolai Tegn, Michael Abdelnoor, Lars Aaberge, Knut Endresen, Pål Smith, Svend Aakhus, Erik Gjertsen, Ola Dahl-Hofseth, Anette Hylen Ranhoff, Lars Gullestad, Bjørn Bendz, for the After Eighty study investigators

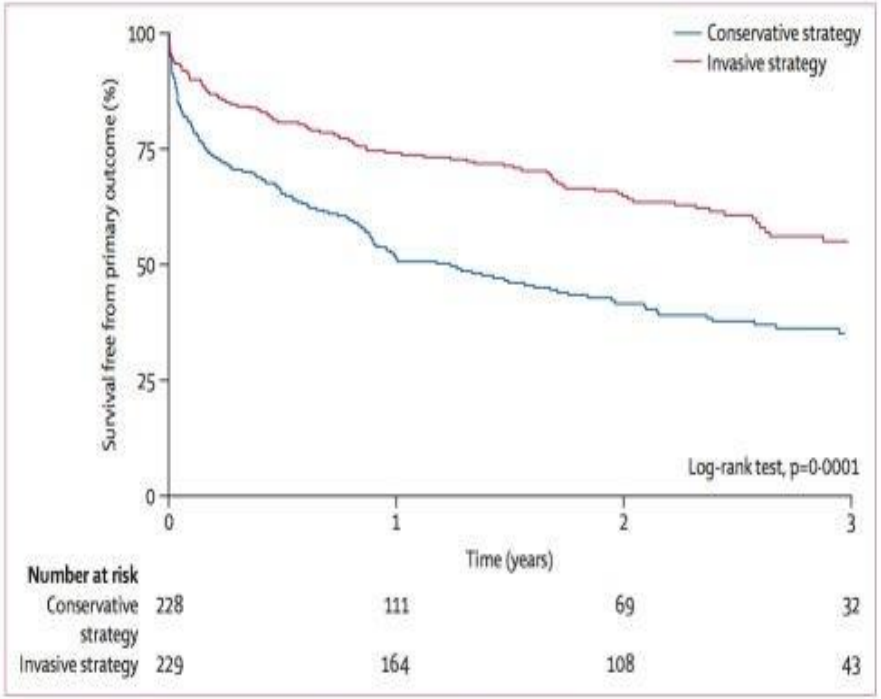


Figure 2: **Kaplan-Meier curves of survival free from composite outcome**
The primary outcome was a composite of myocardial infarction, need for urgent revascularisation, stroke, and death.

- Consistent with RITA3,TACTICS TIMI-18
- Bleeding similar.
- Use radial (Rival elderly 3.6% vs 6.6%, p=0.03

Evidence-based Guidelines & Patients with Multiple Conditions

A Balancing Act in Older Persons

Evidence-based Therapies

Personalized Care

5. The best options regarding the type of stent and duration of DAPT in this patient are :

A- BMS and DAPT for 1 month

B- DES and DAPT for 1 year

C- 2nd generation DES and DAPT for 3-6 months

D- None of the above

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5. Which stent in elderly?

ZEUS and Leaders Free studies

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
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Zotarolimus-Eluting Versus Bare-Metal Stents in Uncertain Drug-Eluting Stent Candidates

Marco Valgimigli, MD, PhD,* Athanasios Patialiakas, MD,†‡ Attila Thury, MD, PhD,§ Eugene McFadden, MD,‖

N=1600;> 50% high bleeding risk, mean 38 days DAPT

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Polymer-free Drug-Coated Coronary Stents in Patients at High Bleeding Risk

Philip Urban, M.D., Ian T. Meredith, M.B., B.S., Ph.D.,

N=2400; high bleeding risk; 1 month DAPT

Polymer-Free BIOFREEDOM DES

LEADERS FREE

2466 patients with clinical indication for PCI
& 1 or more inclusion criteria (high bleeding risk)

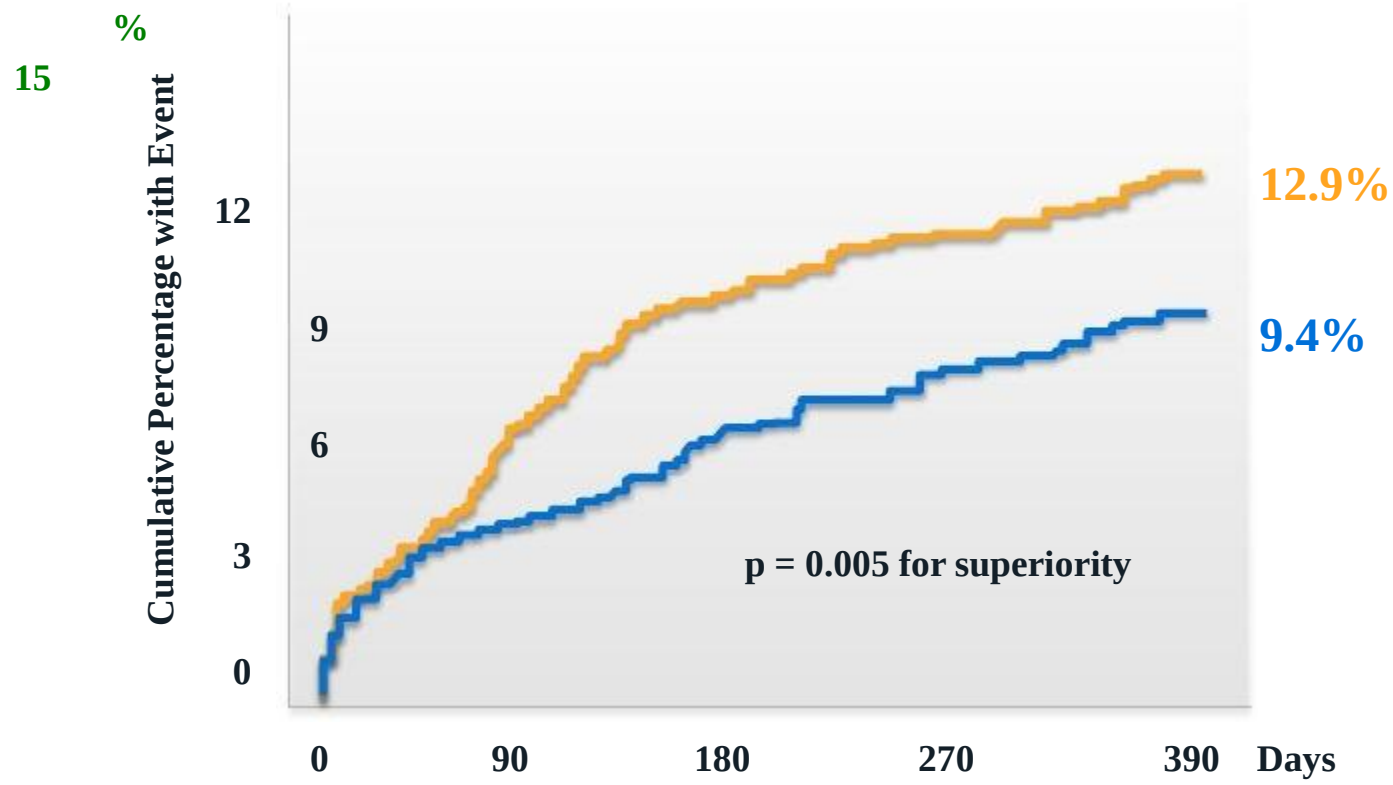
BioFreedom (n=1239)

- Age ≥ 75 years
- OAC planned after PCI
- Baseline Hb < 11g / dl or transfusion during prior 4 weeks
- Planned major surgery (within next year)
- Cancer diagnosed or treated ≤ 3 years
- Creatinine clearance < 40 ml / min
- Hospital admission for bleeding during past year
- Thrombocytopenia (< 100.000 / mm3)
- Any prior intra-cerebral bleed
- Any stroke during the past year
- Severe liver disease
- NSAID or steroids planned after PCI
- Anticipated poor DAPT compliance for other medical reason

Urban et al. New Engl J Med 2015

LEADERS FREE Trial

Primary Safety Endpoint (Cardiac Death, MI, ST)



Number at Risk

DCS	1221	1146	1105	1081	1045
BMS	1211	1115	1066	1037	1000

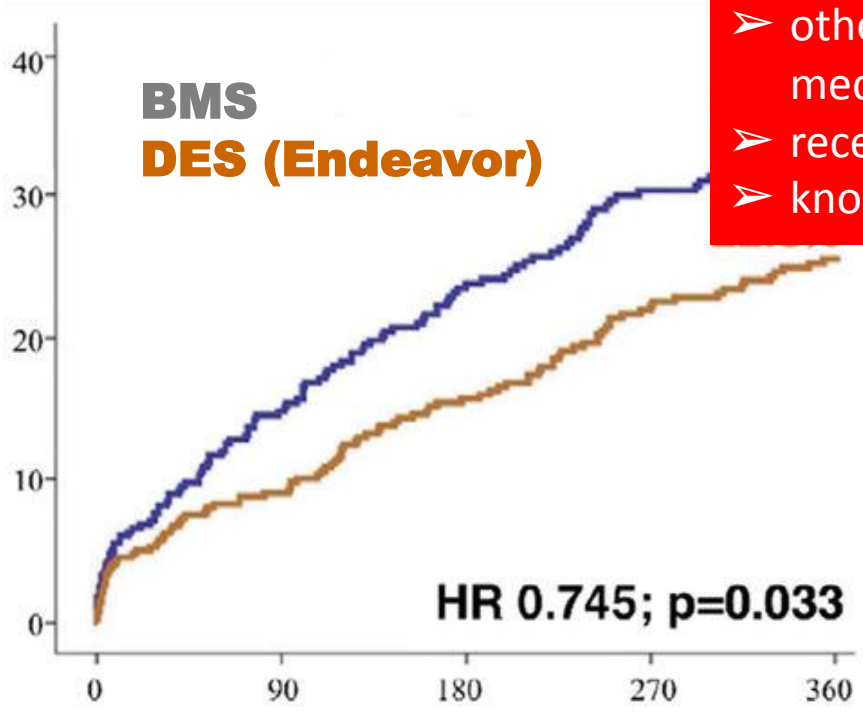
390 days chosen for assessing primary EP to capture potential events driven by the 360 day FU contact

Urban et al. New Engl J Med 2015

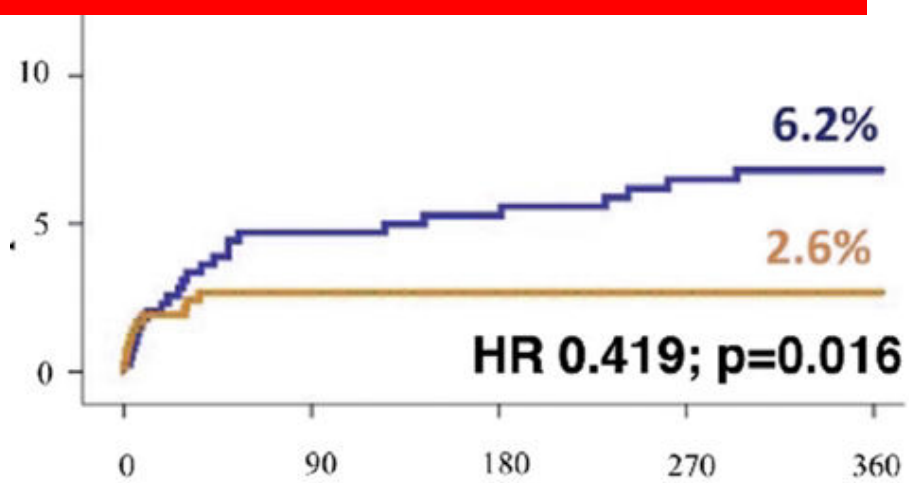
DES vs. BMS in Patients with High Bleeding Risk & DAPT for 1 Mo.

Pre-specified subgroup analysis of 828 patients (~48% ACS) with at least 1 bleeding risk criterion

Primary EP
death, MI or TVR



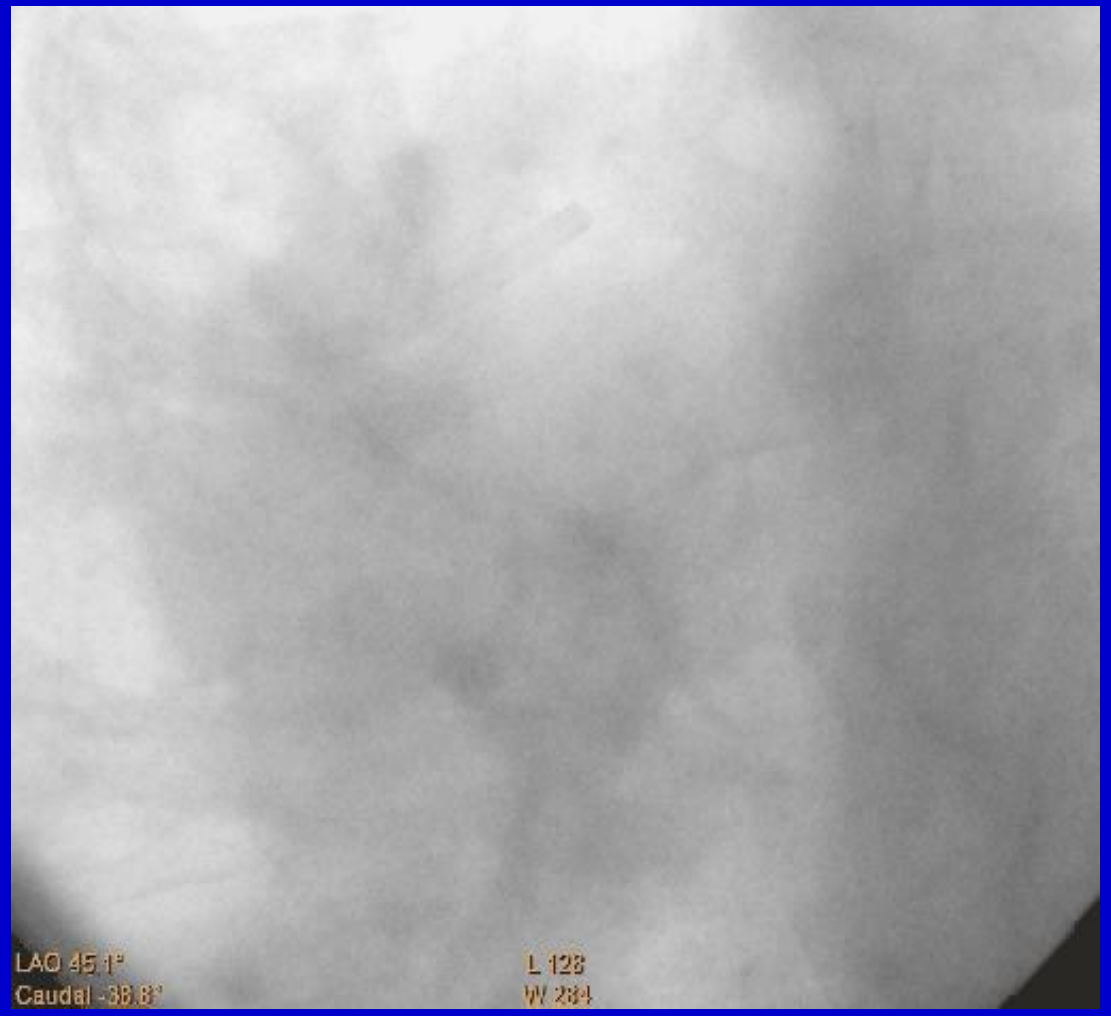
Bleeding Risk Criteria
- age > 80 yrs
- indication for oral anticoagulation
- other pro-hemorrhagic medication(steroids, NSAID)
- recent bleeding episode
- known anemia (<10 mg/dl)

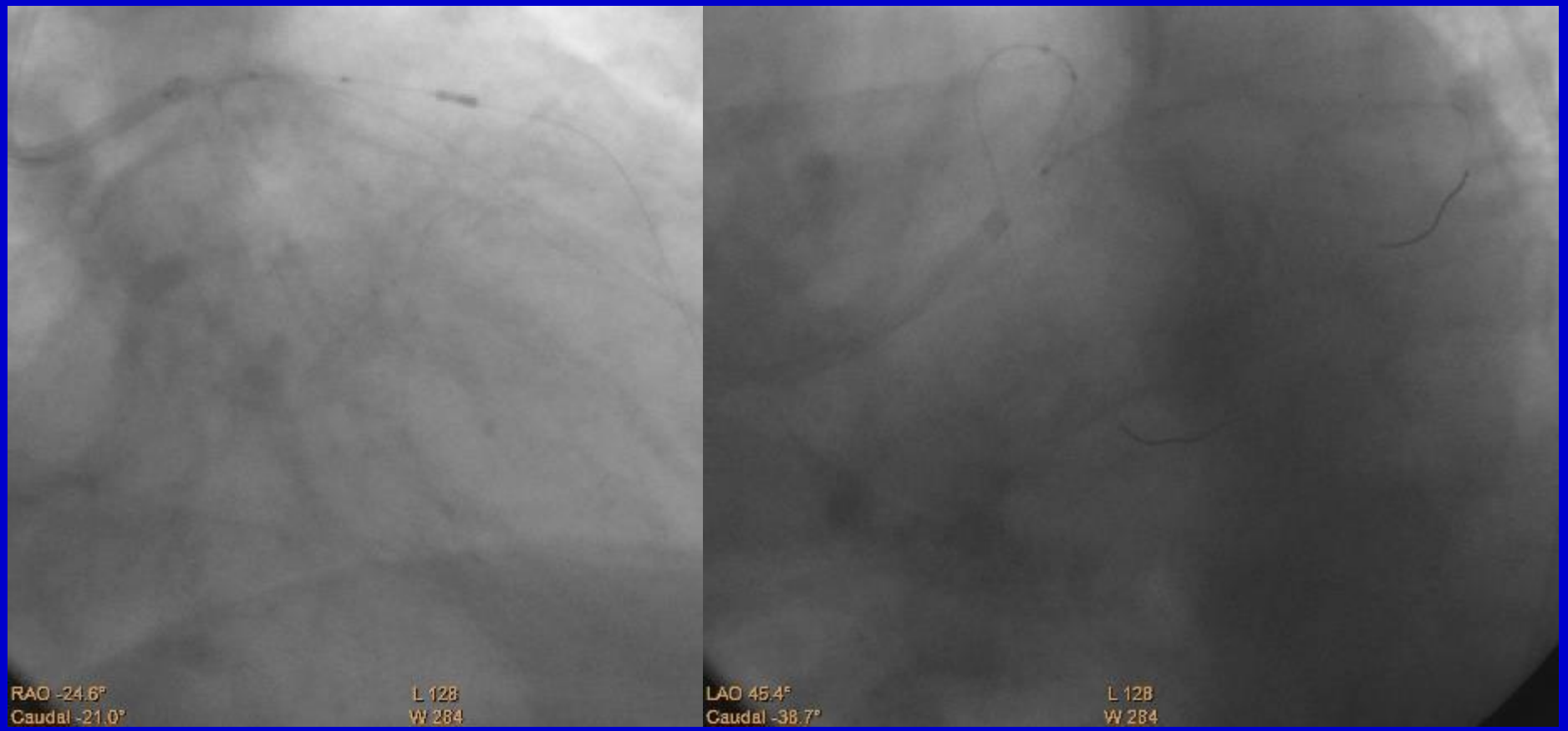


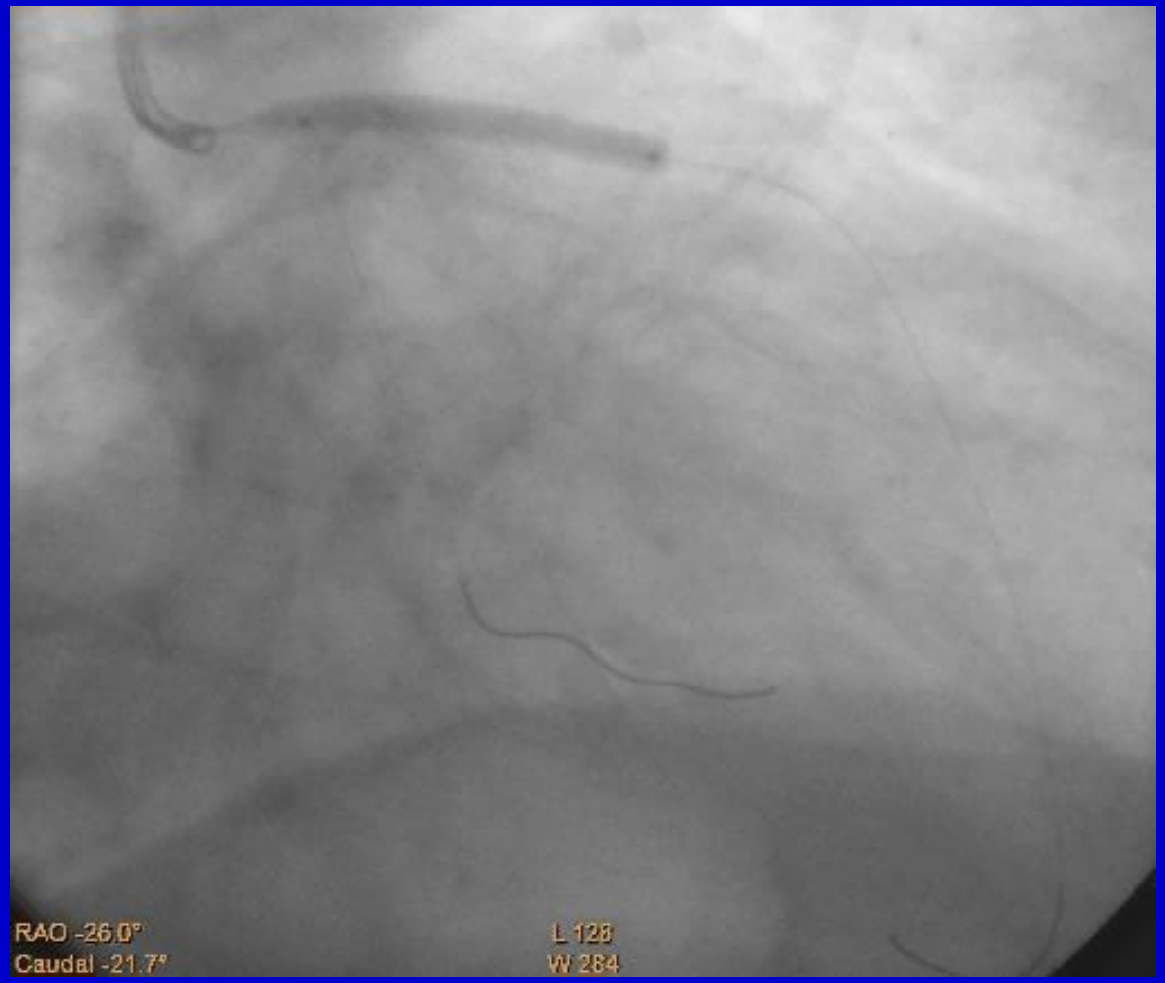
Ariotti et al., J Am Coll Cardiol Intv 2016

DAPT Duration In The Elderly?

$P2Y_{12}$ inhibitor administration for a shorter duration of 3–6 months after DES implantation may be considered in patients deemed at high bleeding risk.	IIb	A


LAO 45.1°
Caudal -38.8°
L 128
W 284


RAO -24.6°
Caudal -21.0°
L 128
W 284
LAO 45.4°
Caudal -38.7°
L 128
W 284


RAO -26.0°
Caudal -21.7°
L 128
W 264


LAO 43.5°
Caudal -37.4°
L 128
W 264


RAO -26.0°
Caudal -21.7°
L 128
W 284

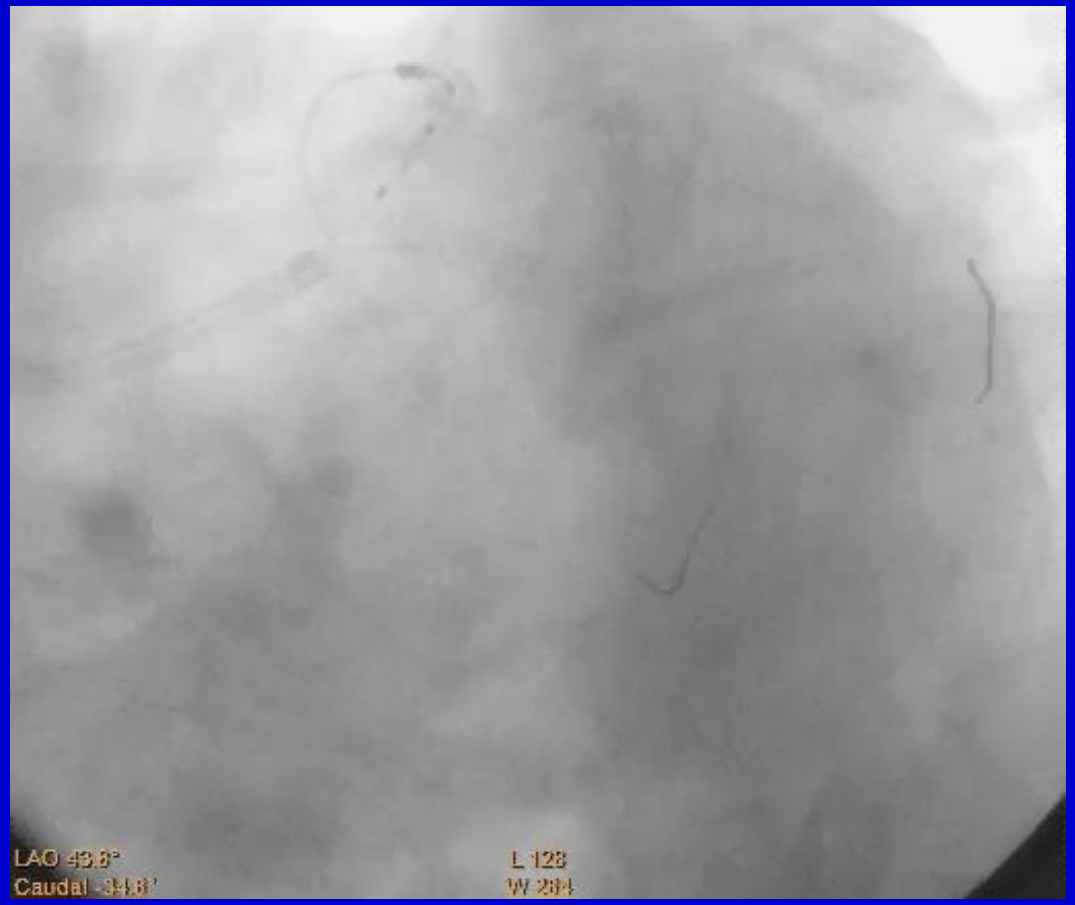

LAO 43.5°
Caudal -37.4°
L 128
W 264


RAO -8.5°
Caudal -30.7°
L 128
W 284


RAO -8.5°
Caudal -30.7°
L 128
W 284


LAO 43.6°
Caudal -34.8°
L 128
W 264


LAO 43.6°
Caudal -34.8°
L 128
W 264


LAO 43.6°
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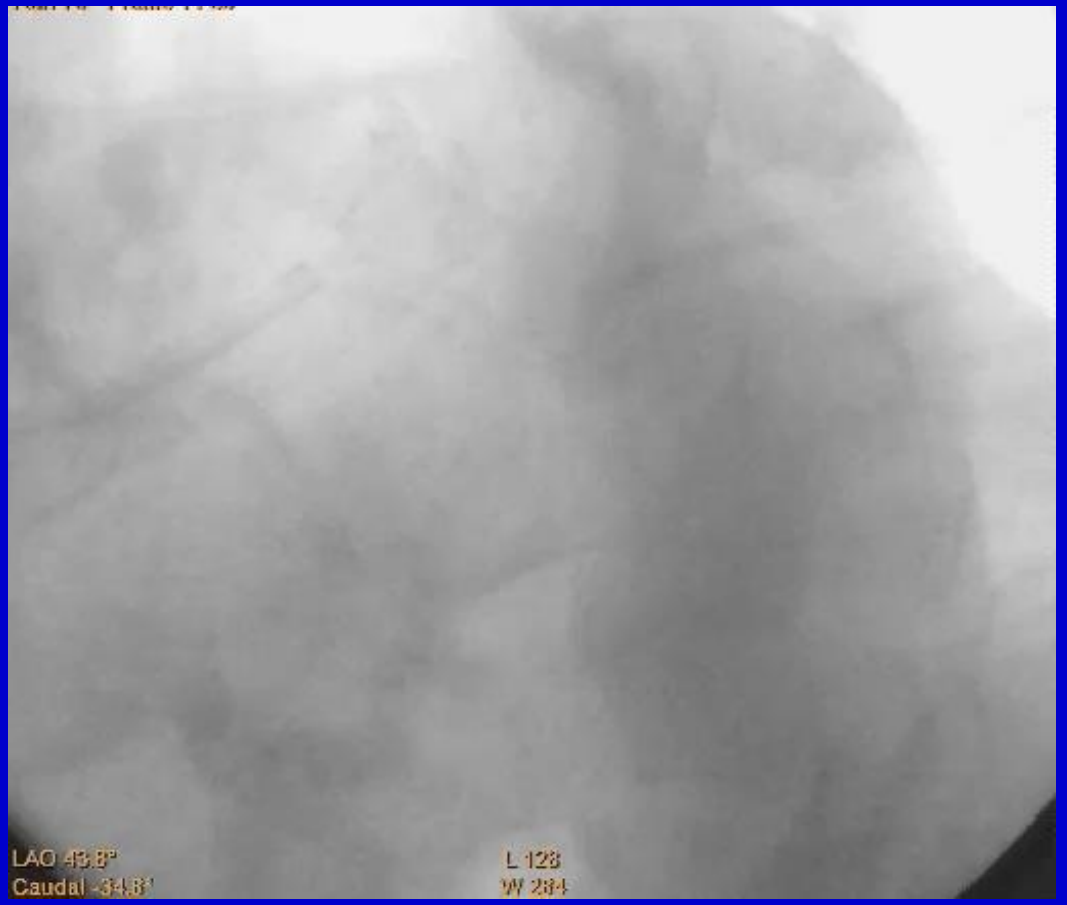
LAO 43.8°
Caudal -34.8°
L 128
W 284


RAO -12.2°
Caudal -30.5°
L 128
W 264

Conclusions

- **The elderly (especially when > 80 yrs) as compared to younger patients have:**
  - more co-morbidities
  - a higher clinical SYNTAX score
  - a higher bleeding risk
  - a less favorable clincial outcome
- **Frailty is present in up to 20% in pts. >65 yrs and might influence clincial outcome independant of age and co-morbidities**

What are the Recommendations in the very elderly?

Use clopidogrel instead of stronger P2Y12-inhibitors

Perform gastric protection

Avoid dual antiplatelet pre-treatment if not clearly indicated

Use DES of the latest generation

Shorten post PCI dual antiplatelet therapy

Thank you