

# Optimal Management of STEMI

## Cardiology Update 2013

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# ACS – appropriate use of antiplatelet agents



# Mrs. B., 75 y

## **HPI**

Intermittent chest pain for 2w, last time past night

## **PMH**

Arterial HTN (+/- controlled), no known CAD, intermittent Afib

## **Meds**

Coumadin, ARB

## **PE**

No CP, 160 cm/50 kg; 160/90, S02 88%, SR 100/‘, no CP

## **Labs**

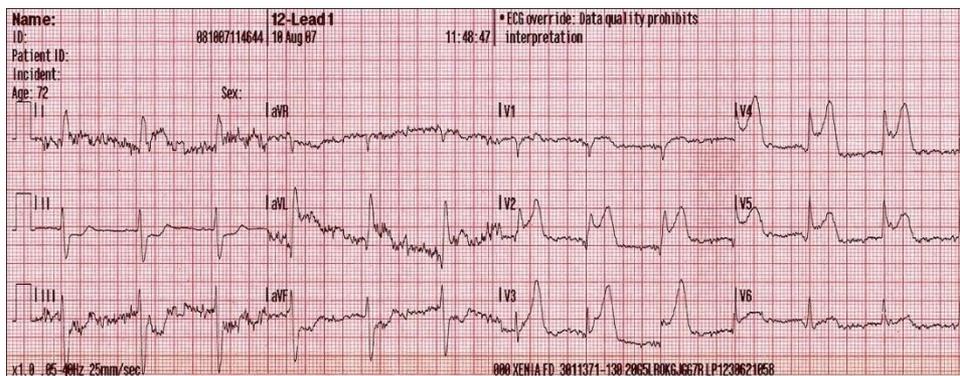
Lc 10‘000, Troponin elevated

## **EKG:**

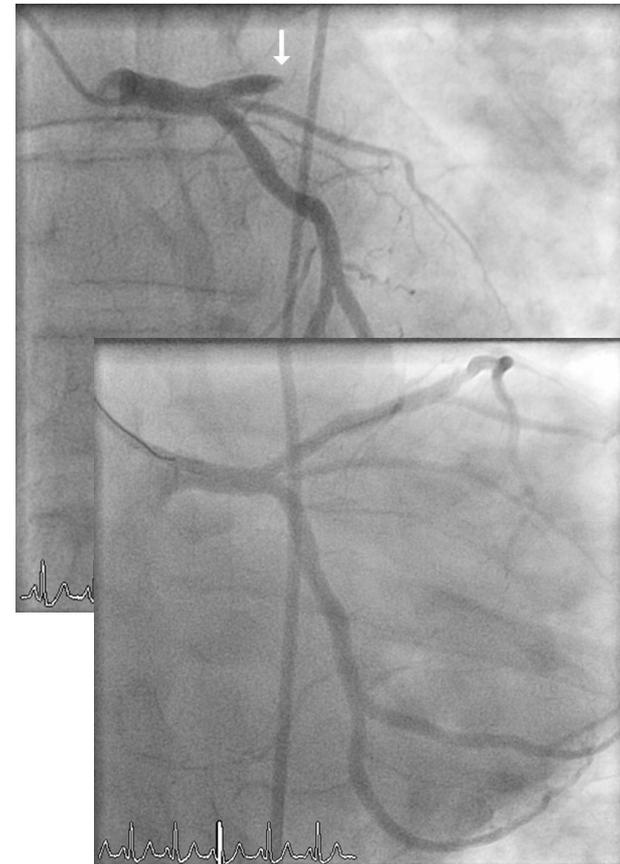
# ACS (STEMI)

## Approach

STEMI



### Reperfusion!



# ACS

## Drug therapy (checklists)

Basic measures

Acute therapy

PCI

Discharge

# ACS

## Drug therapy (checklists)

### Basic measures – ER

#### **PE**

mild CP

160/90, S02 88%, ST 120'

Lungs free

# ACS

## Drug therapy (checklists)

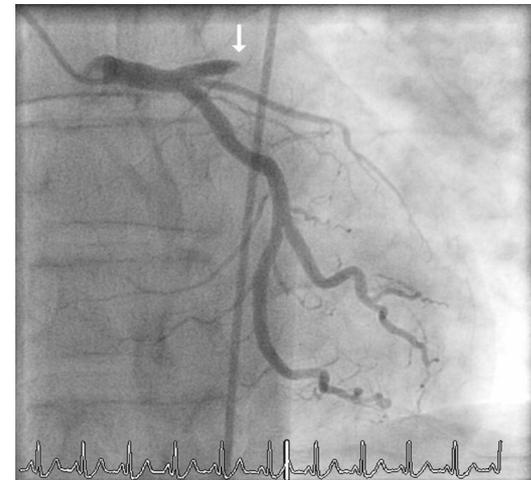
### Acute therapy – cath lab

#### PE

No previous CAD

SR 100/‘

Lungs free



# ACS

## Drug therapy (checklists)

### Acute therapy

**Table 13** Checklist of treatments when an ACS diagnosis appears likely

<b>Aspirin</b>	Initial dose of 150–300 mg non-enteric formulation followed by 75–100 mg/day (i.v. administration is acceptable)
<b>P2Y<sub>12</sub> inhibitor</b>	Loading dose of ticagrelor or clopidogrel <sup>a</sup>
<b>Anticoagulation</b>	Choice between different options depends on strategy: <ul style="list-style-type: none"><li>• Fondaparinux 2.5 mg/daily subcutaneously</li><li>• Enoxaparin 1 mg/kg twice daily subcutaneously</li><li>• UFH i.v. bolus 60–70 IU/kg (maximum 5000 IU) followed by infusion of 12–15 IU/kg/h (maximum 1000 IU/h) titrated to aPTT 1.5–2.5 × control</li><li>• Bivalirudin is indicated only in patients with a planned invasive strategy</li></ul>
<b>Oral β-Blocker</b>	If tachycardic or hypertensive without signs of heart failure

aPTT = activated partial thromboplastin time; IU = international units; i.v. = intravenous; UFH = unfractionated heparin.

<sup>a</sup>Prasugrel is not mentioned as it is not approved as medical therapy before invasive strategy, but only after angiography when anatomy is known.

# ACS

## Drug therapy (checklists)

### PCI

**Table 14** Checklist of antithrombotic treatments prior to PCI

<b>Aspirin</b>	Confirm loading dose prior to PCI.
<b>P2Y<sub>12</sub> inhibitor</b>	Confirm loading dose of ticagrelor or clopidogrel prior to PCI. If P2Y <sub>12</sub> naïve, consider prasugrel (if <75 years age, >60 kg, no prior stroke or TIA)
<b>Anticoagulation</b>	<ul style="list-style-type: none"><li>• Fondaparinux pre-treated: add UFH for PCI</li><li>• Enoxaparin pre-treated: add if indicated</li><li>• UFH pre-treated: titrate to ACT &gt;250 s, or switch to bivalirudin (0.1 mg/kg bolus followed by 0.25 mg/kg/h)</li></ul>
<b>GP IIb/IIIa receptor inhibitor</b>	<ul style="list-style-type: none"><li>• Consider tirofiban or eptifibatide in patients with high-risk anatomy or troponin elevation</li><li>• Abciximab only prior to PCI in high-risk patients.</li></ul>

ACT = activated clotting time; GP, glycoprotein; PCI = percutaneous coronary intervention; TIA = transient ischaemic attack; UFH = unfractionated heparin.

# Contraindications to fibrinolytic therapy

## Absolute

Previous intracranial haemorrhage or stroke of unknown origin at any time.

Ischaemic stroke in the preceding 6 months.

Central nervous system damage or neoplasms or atrioventricular malformation.

Recent major trauma/surgery/head injury (within the preceding 3 weeks).

Gastrointestinal bleeding within the past month.

Known bleeding disorder (excluding menses).

Aortic dissection.

Non-compressible punctures in the past 24 h (e.g. liver biopsy, lumbar puncture).

# ACS

## Drug therapy (Checklists)

### Discharge

**Table 15** Measures checked at discharge

Aspirin	Continue life long
P2Y <sub>12</sub> inhibitor	Continue for 12 months (unless at high risk of bleeding)
β-Blocker	If LV function depressed
ACE inhibitor/ ARB	If LV function depressed Consider for patients devoid of depressed LV function
Aldosterone antagonist/ eplerenone	If depressed LV function (LVEF ≤35%) and either diabetes or heart failure, without significant renal dysfunction
Statin	Titrate to achieve target LDL-C levels <1.8 mmol/L (<70 mg/dL)
Lifestyle	Risk-factor counselling, referral to cardiac rehabilitation / secondary prevention programme

Questions:

- Duration?
- Contraindications!

ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; LDL-C = low-density lipoprotein cholesterol; LV = left ventricular; LVEF = left ventricular ejection fraction.

# ACS

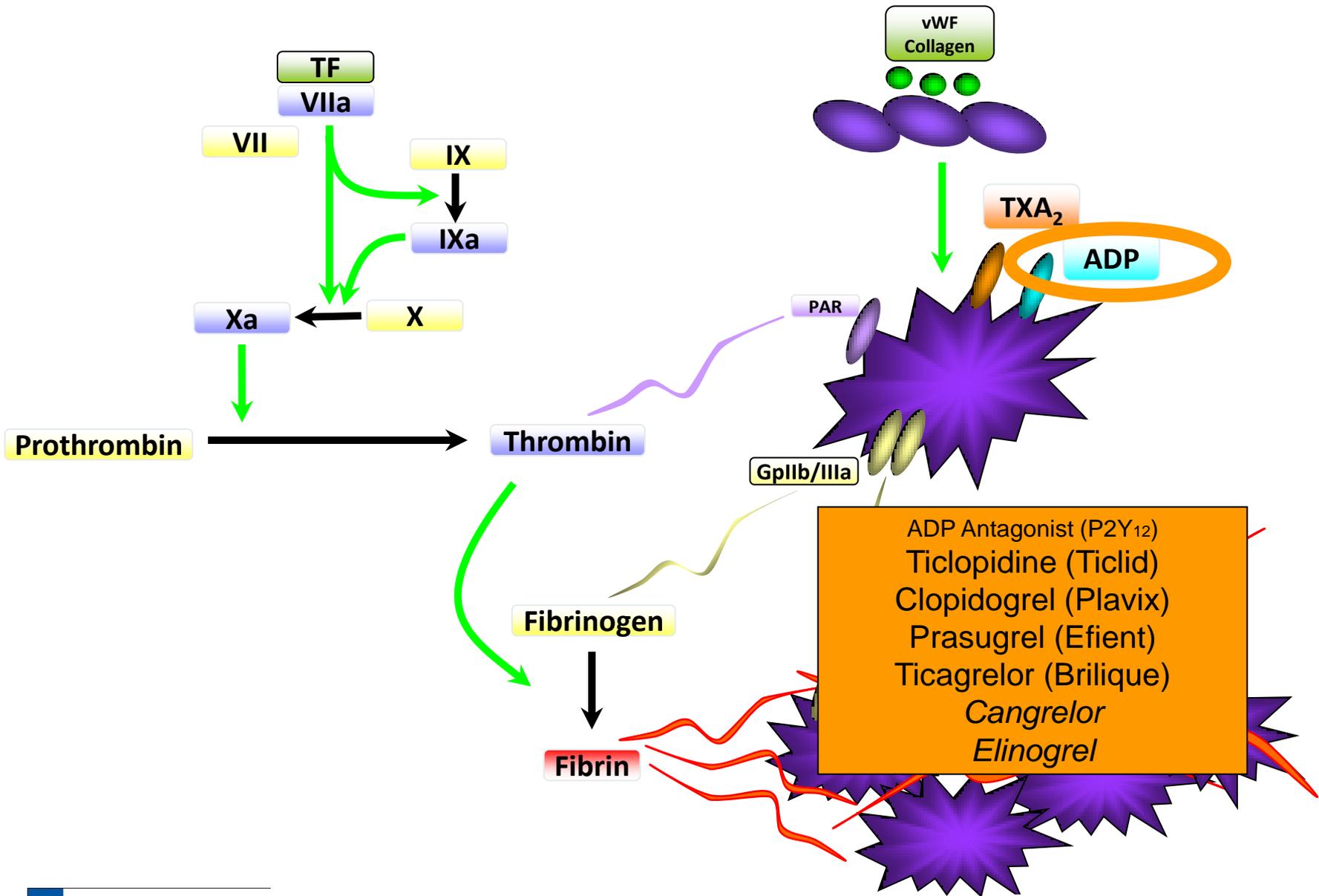
## Oral Antiplatelet Agents

### Recommendations for oral antiplatelet agents

Recommendations	Class <sup>a</sup>	Level <sup>b</sup>	Ref <sup>c</sup>
Aspirin should be given to all patients without contraindications 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	107, 108
A P2Y <sub>12</sub> 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	110, 130, 132
A proton pump inhibitor (preferably not omeprazole) in combination with DAPT is recommended in patients with a history of gastrointestinal haemorrhage or peptic ulcer, and appropriate for patients with multiple other risk factors ( <i>H. elicobacter pylori</i> infection, age ≥65 years, concurrent use of anticoagulants or steroids).	I	A	125–127
Prolonged or permanent withdrawal of P2Y <sub>12</sub> inhibitors within 12 months after the index event is discouraged unless clinically indicated.	I	C	-

#### Questions:

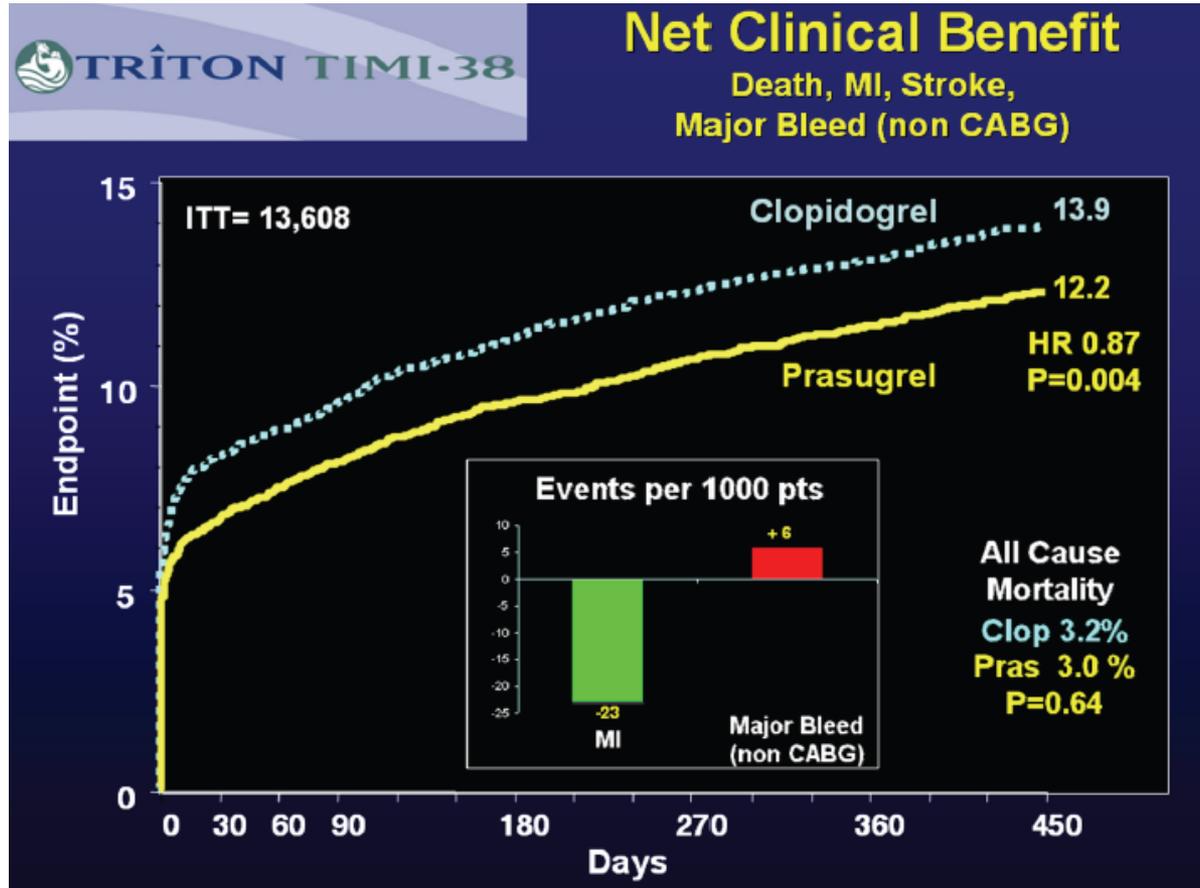
- ASA needed?
- Ticagrelor or prasugrel?
- Clopidogrel – patients who do not tolerate above



- ADP Antagonist (P2Y<sub>12</sub>)
- Ticlopidine (Ticlid)
- Clopidogrel (Plavix)
- Prasugrel (Efient)
- Ticagrelor (Brilique)
- Cangrelor
- Elinogrel

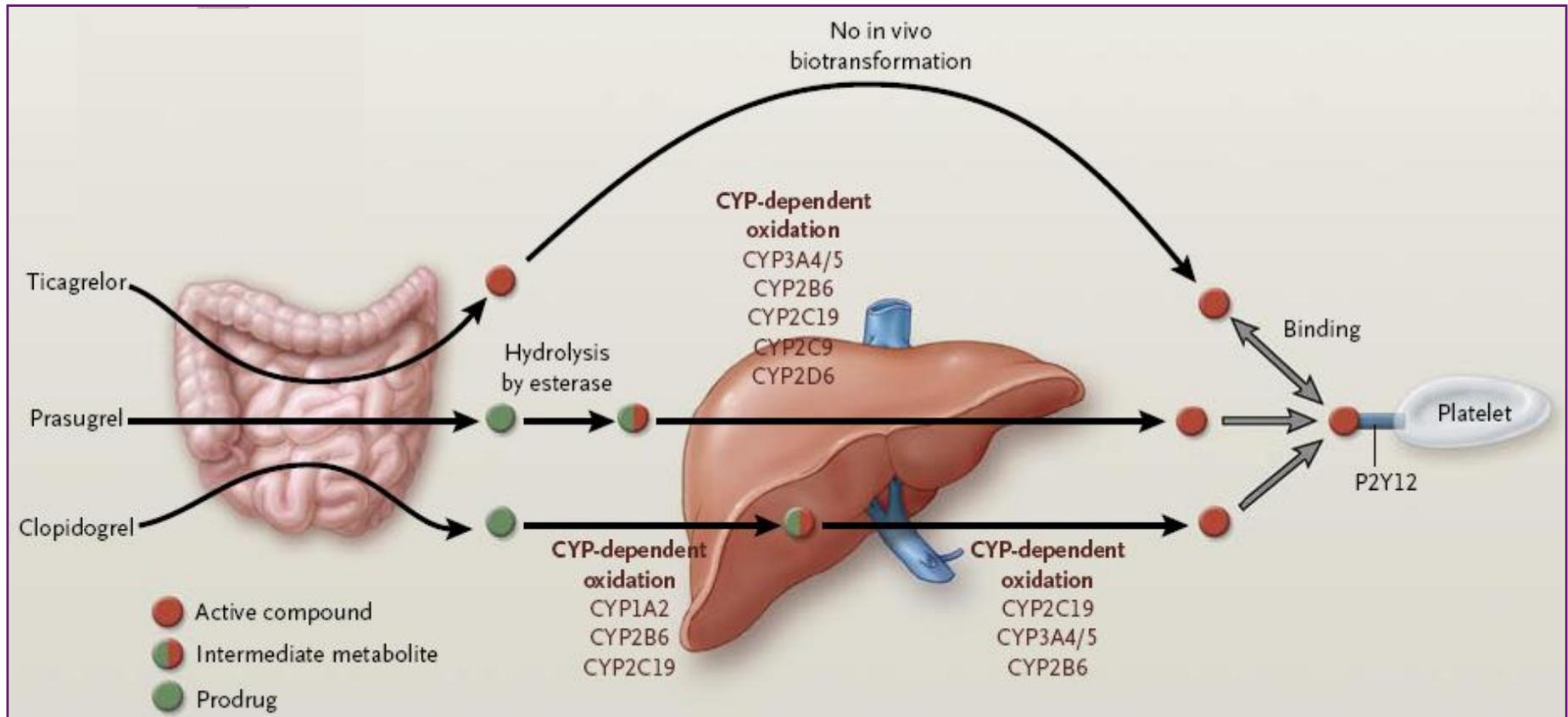
# P2Y<sub>12</sub>-Inhibition

## Prasugrel (Efient)



Wiviott S et al. *N Engl J Med* 2007;357:2001-15

# Biotransformation and mode of action of clopidogrel, prasugrel, ticagrelor



# ACS

## P2Y<sub>12</sub>-Inhibition

**Table 8** P2Y<sub>12</sub> inhibitors

	Clopidogrel	Prasugrel	Ticagrelor
<b>Class</b>	Thienopyridine	Thienopyridine	Triazolopyrimidine
<b>Reversibility</b>	Irreversible	Irreversible	<u>Reversible</u>
<b>Activation</b>	Prodrug, <u>limited by metabolization</u>	Prodrug, not limited by metabolization	Active drug
<b>Onset of effect<sup>a</sup></b>	<u>2–4 h</u>	30 min	30 min
<b>Duration of effect</b>	3–10 days	5–10 days	3–4 days
<b>Withdrawal before major surgery</b>	5 days	7 days	5 days 

<sup>a</sup>50% inhibition of platelet aggregation.

 7 days recommended

# ACS

## P2Y<sub>12</sub>-Inhibition

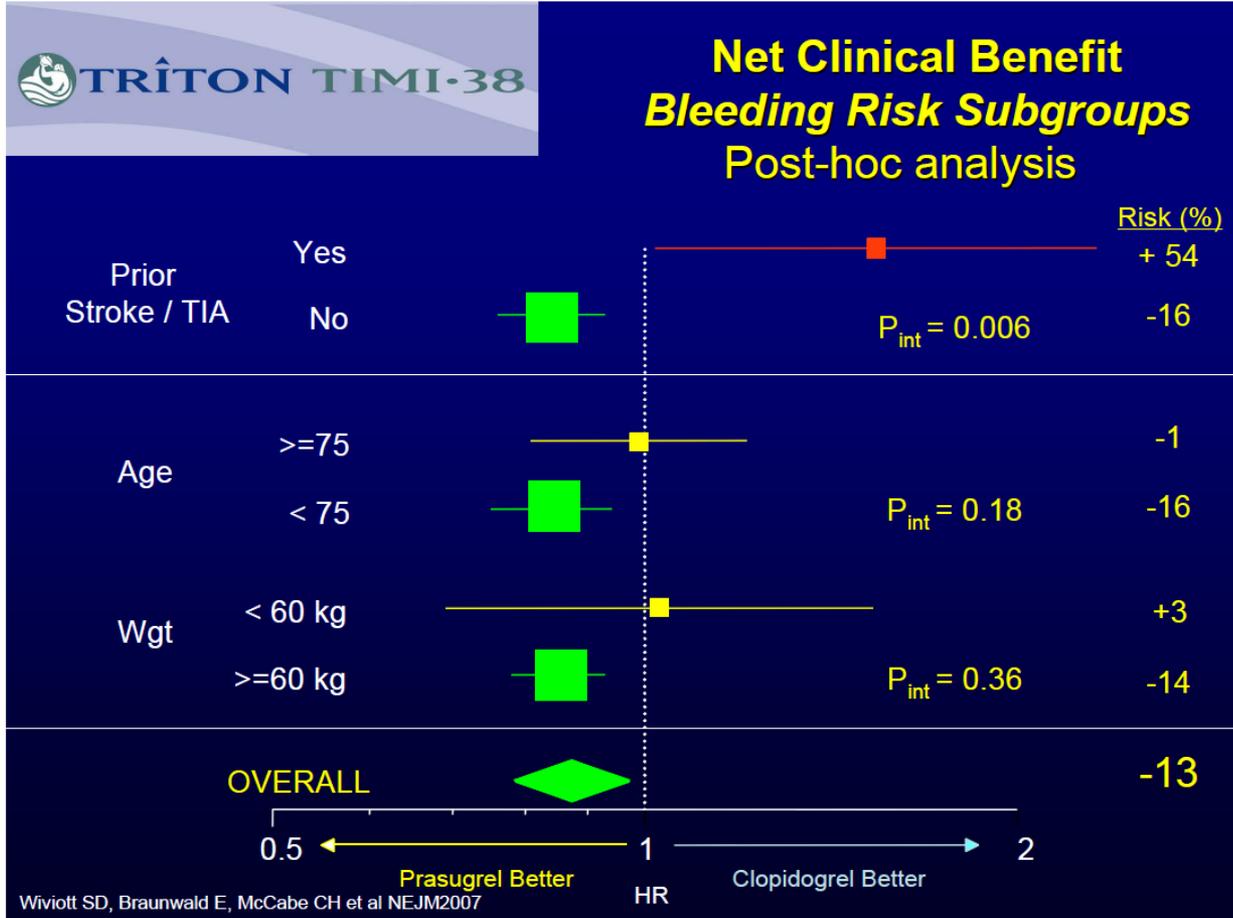
Ticagrelor (180-mg loading dose, 90 mg twice daily) is recommended for all patients at moderate-to-high risk of ischaemic events (e.g. elevated troponins) , regardless of initial treatment strategy and including those pre-treated with clopidogrel (which should be discontinued when ticagrelor is commenced).	I	B	132
Prasugrel (60-mg loading dose, 10-mg daily dose) is recommended for P2Y <sub>12</sub> -inhibitor-naïve patients (especially diabetics) in whom coronary anatomy is known and who are proceeding to PCI unless there is a high risk of life-threatening bleeding or other contraindications. <sup>d</sup>	I	B	130
Clopidogrel (300-mg loading dose, 75-mg daily dose) is recommended for patients who cannot receive ticagrelor or prasugrel.	I	A	110, 146, 147
A 600-mg loading dose of clopidogrel (or a supplementary 300-mg dose at PCI following an initial 300-mg loading dose) is recommended for patients scheduled for an invasive strategy when ticagrelor or prasugrel is not an option.	I	B	108, 114, 115
A higher maintenance dose of clopidogrel 150 mg daily should be considered for the first 7 days in patients managed with PCI and without increased risk of bleeding.	IIa	B	108

### Use of oral AC: WOEST trial (ESC 8/2012, Lancet 2013)

- Triple therapy (oral AC, ASA, clopidogrel) worse!
- increased bleeding (GI, skin) – dual 19.5%, triple 44.9%
- increased death – dual 2.6% vs triple 6.4%

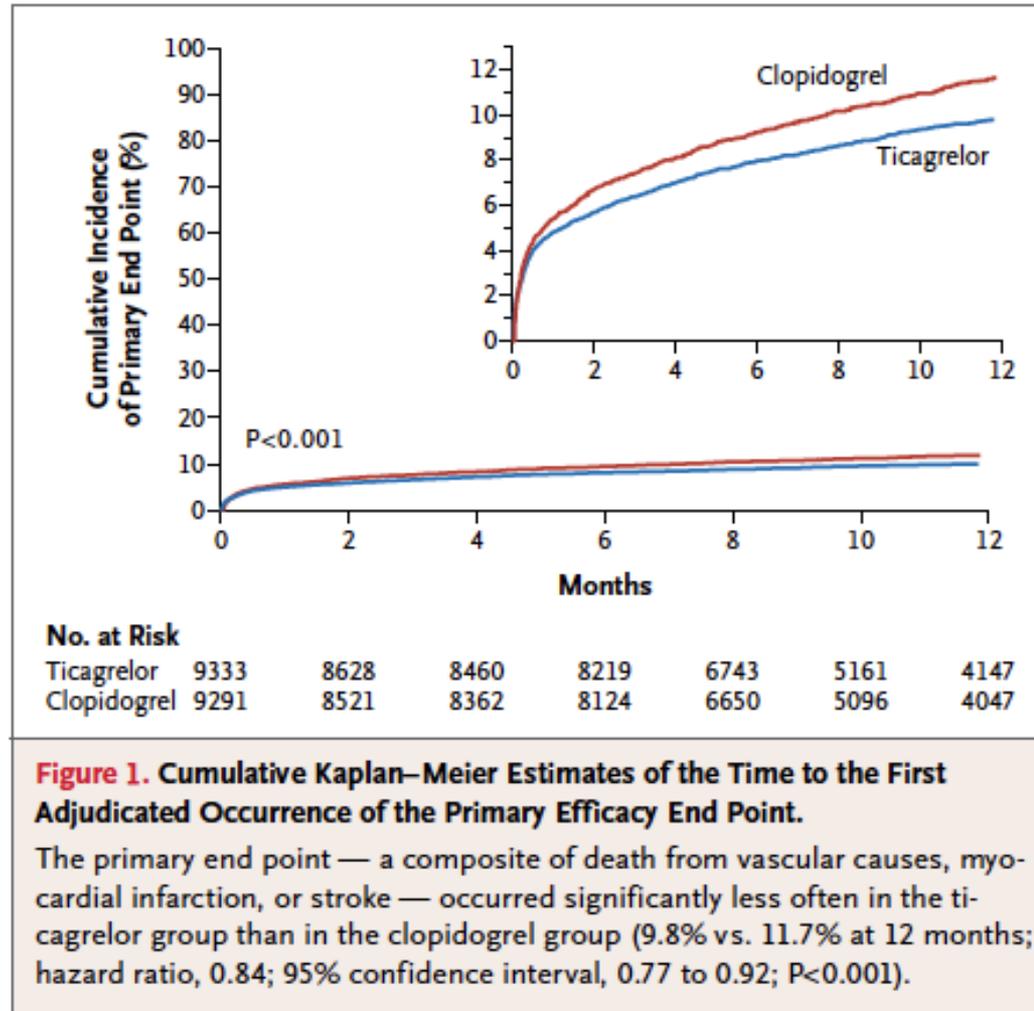
# P2Y<sub>12</sub>-Inhibition

## Prasugrel (Efient)



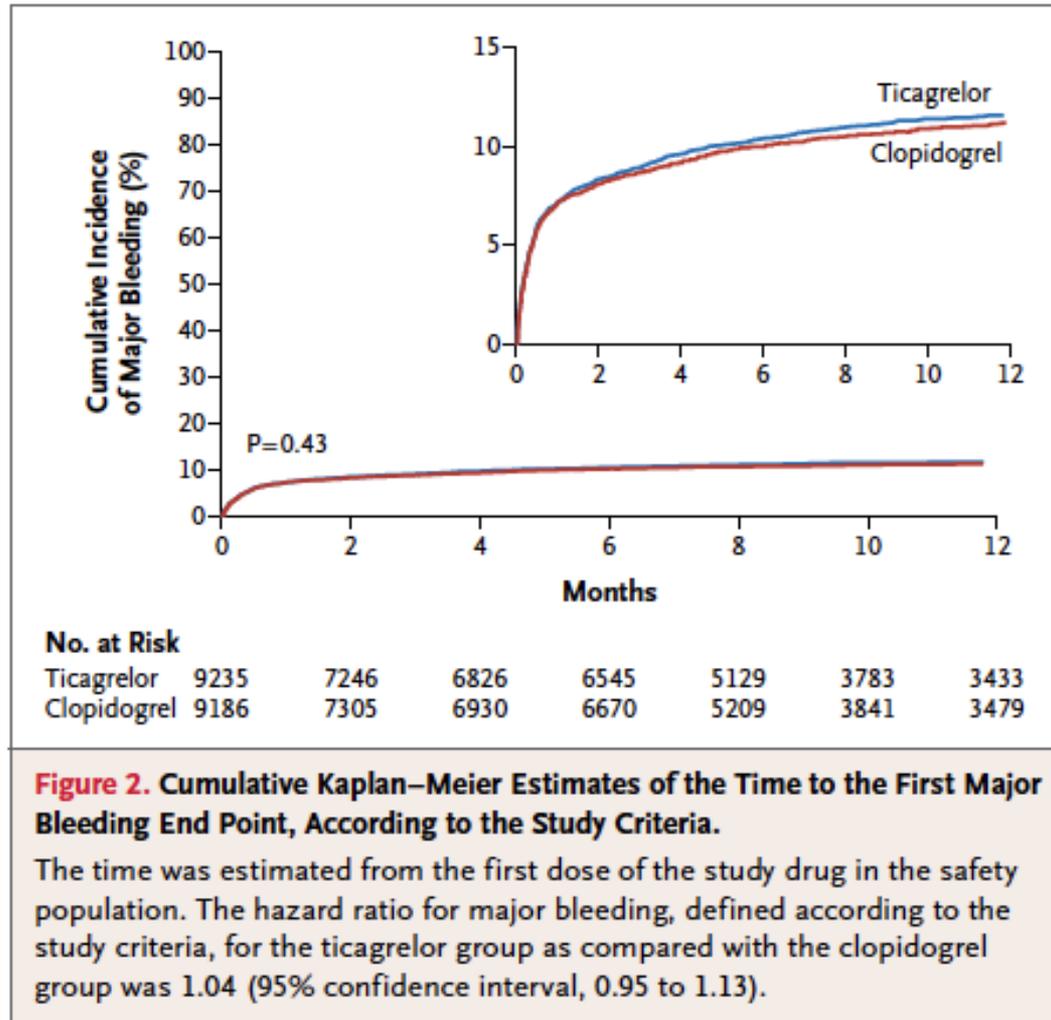
# P2Y<sub>12</sub>-Inhibition

## Ticagrelor (BRILIQUE) – PLATO 2009



# P2Y<sub>12</sub>-Inhibition

## Ticagrelor (BRILIQUE)



**Figure 2. Cumulative Kaplan–Meier Estimates of the Time to the First Major Bleeding End Point, According to the Study Criteria.**

The time was estimated from the first dose of the study drug in the safety population. The hazard ratio for major bleeding, defined according to the study criteria, for the ticagrelor group as compared with the clopidogrel group was 1.04 (95% confidence interval, 0.95 to 1.13).

# STEMI – use of antiplatelet agents – take-home:

## Optimize antiplatelet regimen – consider bleeding

- Aspirin recommended (low cost); needed with novel plt inhibitors?
- P2Y12 inhibitor x 12 months – duration?
- Consider contraindications: Age > 75y, stroke, TIA, (<60kg → half dose)
- Prasugrel better than clopidogrel (TRITON-TIMI38, NEJM 2007)
- Ticagrelor better than clopidogrel (PLATO, NEJM 2009)
- → Clopidogrel on the exit, comparison prasugrel vs ticagrelor is lacking
- Oral anticoagulation and plt inhibition: Use oral AC and **one** plt inhibitor (drop ASA)
  - Dual plt inhibition + oral AC: Increased bleeding, worse outcome (WOEST trial)

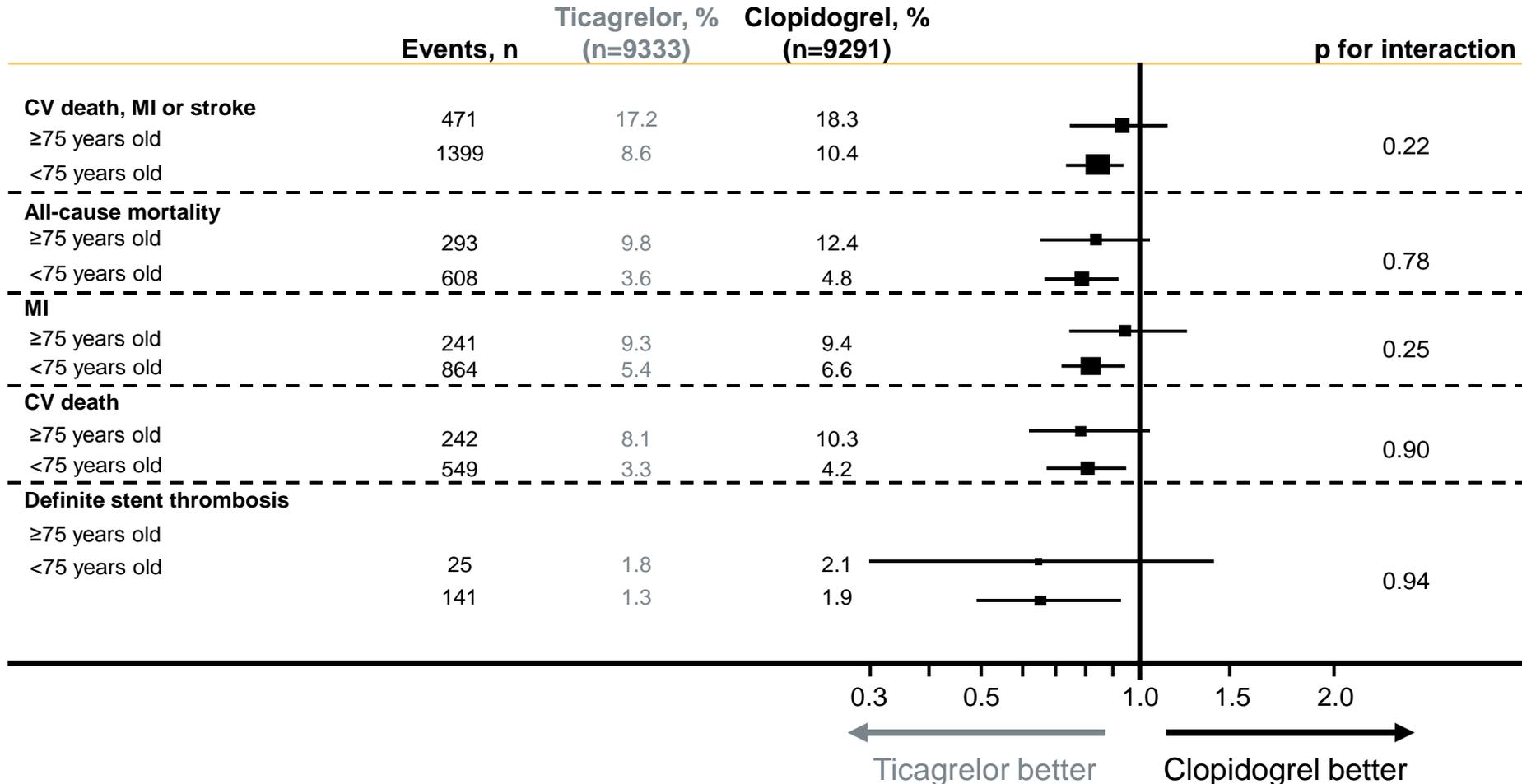
# Thank you!



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# Ticagrelor in elderly patients

subgroup analysis: Age, treatment and CV thrombotic outcomes



# ACS

## Drug therapy (checklists)

### Basic measures

**Table 12** Initial therapeutic measures

<b>Oxygen</b>	Insufflation (4–8 L/min) if oxygen saturation is <90%
<b>Nitrates</b>	Sublingual or intravenous (caution if systolic blood pressure is <90 mmHg)
<b>Morphine</b>	3–5 mg intravenous or subcutaneously, if severe pain

# Doses of anti-platelet co-therapies

## Doses of antiplatelet co-therapies

### With primary PCI

Aspirin	Loading dose of 150-300 mg orally or of 80-150 mg i.v. if oral ingestion is not possible, followed by a maintenance dose of 75-100 mg/day.
Clopidogrel	Loading dose of 600 mg orally, followed by a maintenance dose of 75 mg/day.
Prasugrel	Loading dose of 60 mg orally, followed by a maintenance dose of 10 mg/day. In patients with body weight <60 kg, a maintenance dose of 5 mg is recommended. In patients > 75 years, prasugrel is generally not recommended, but a dose of 5 mg should be used if treatment is deemed necessary.
Ticagrelor	Loading dose of 180 mg orally, followed by a maintenance dose of 90 mg b.i.d.
Abciximab	Bolus of 0.25 mg/kg i.v. and 0.125 µg/kg/min infusion (maximum 10 µg/min) for 12 h.
Eptifibatide	Double bolus of 180 µg/kg i.v. (given at a 10-min interval) followed by an infusion of 2.0 µg/kg/min for 18 h.
Tirofiban	25 µg/kg over 3 min i.v., followed by a maintenance infusion of 0.15 µg/kg/min for 18 h.

### With fibrinolytic therapy

Aspirin	Starting dose 150-500 mg orally or i.v. dose of 250 mg if oral ingestion is not possible.
Clopidogrel	Loading dose of 300 mg orally if aged ≤ 75 years, followed by a maintenance dose of 75 mg/day.

### Without reperfusion therapy

Aspirin	Starting dose 150-500 mg orally.
Clopidogrel	75 mg/day orally.

# P2Y<sub>12</sub>-Inhibition

## Prasugrel (Efient)

Loading Dose 60mg, then 10mg qd x12 months



# P2Y<sub>12</sub>-Inhibition

Ticagrelor (Brilique)

Loading Dose 180mg, then 90mg bid x 12 months

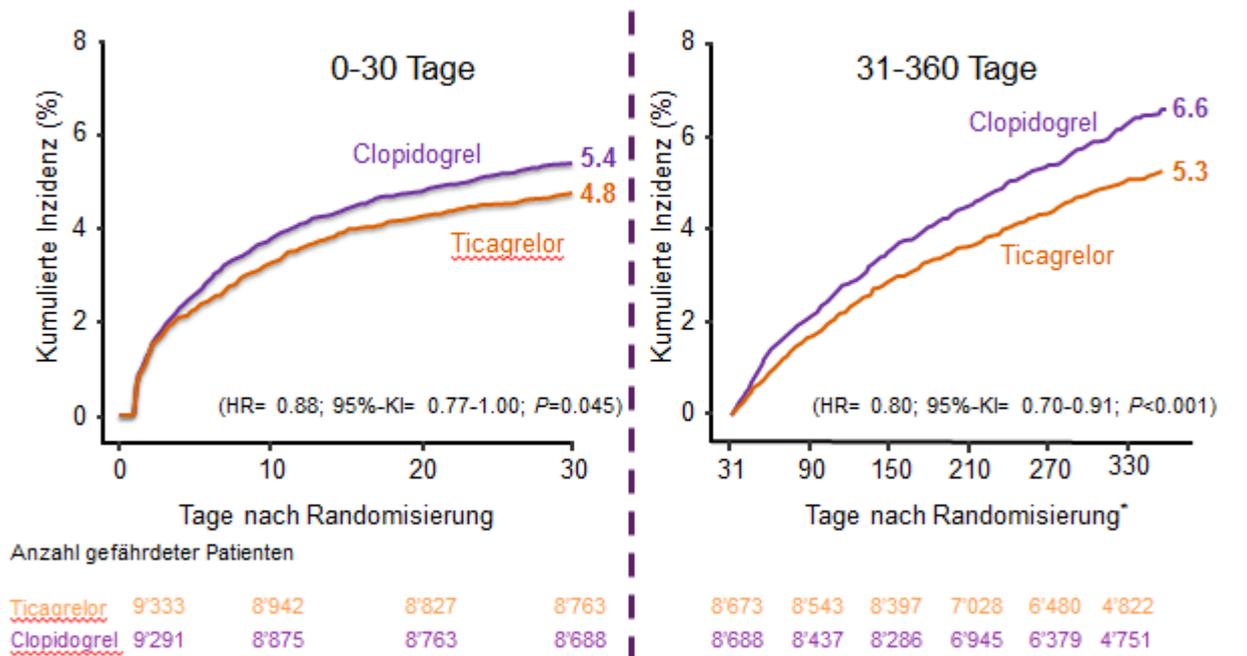


# P2Y<sub>12</sub>-Inhibition

## Ticagrelor (Brilique)

### PLATO – primärer Endpunkt im Zeitverlauf

(kombinierter Endpunkt von KV-Tod, MI oder Schlaganfall)



\*Ausschluss von Patienten mit einem Primäreignis während der ersten 30 Tage

Wallentin L, et al. Ticagrelor versus clopidogrel in patients with acute coronary syndromes. *NEngl J Med.* 2009;381:1045-1057.

# Infero-Posteriorer STEMI mit AV-Block III

Herr A.

78j., 175cm/80kg

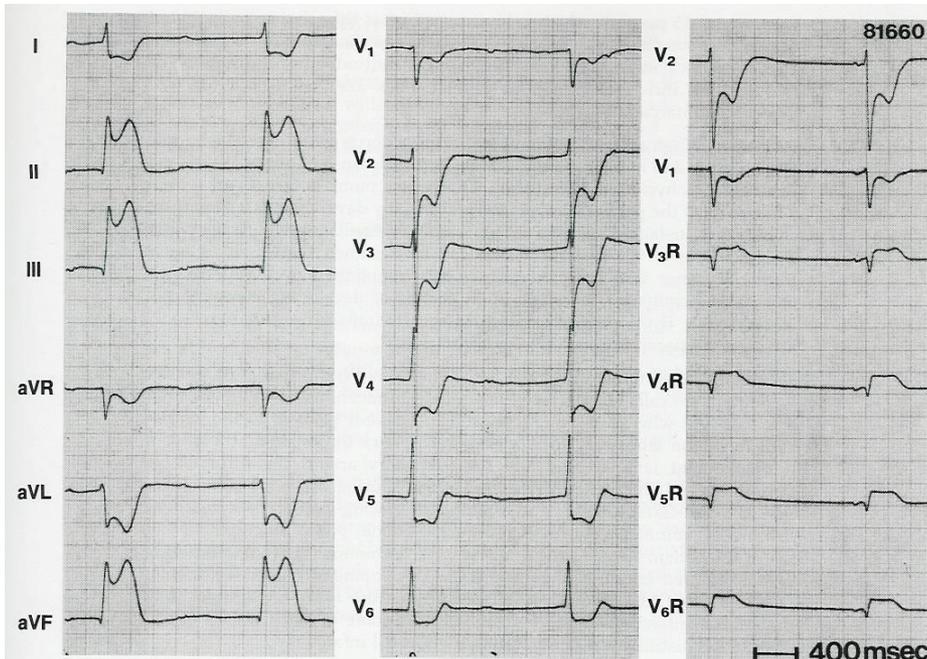
## Klinik:

Thoraxschmerzen seit 2 Stunden

## PA:

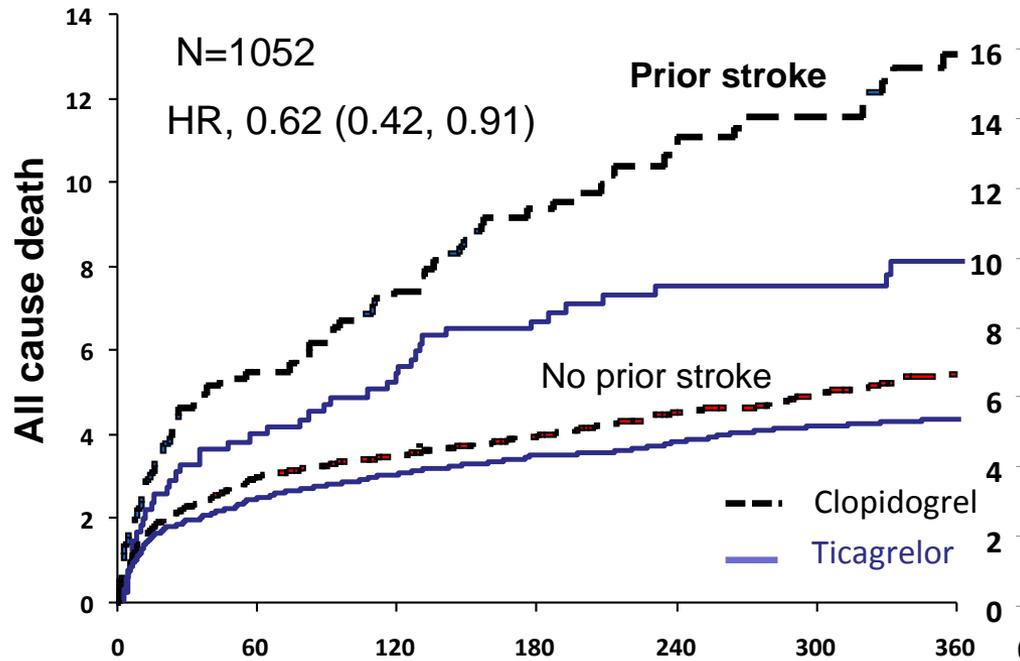
St. n. TIA, Diabetes, Chron. Niereninsuffizienz

## EKG:

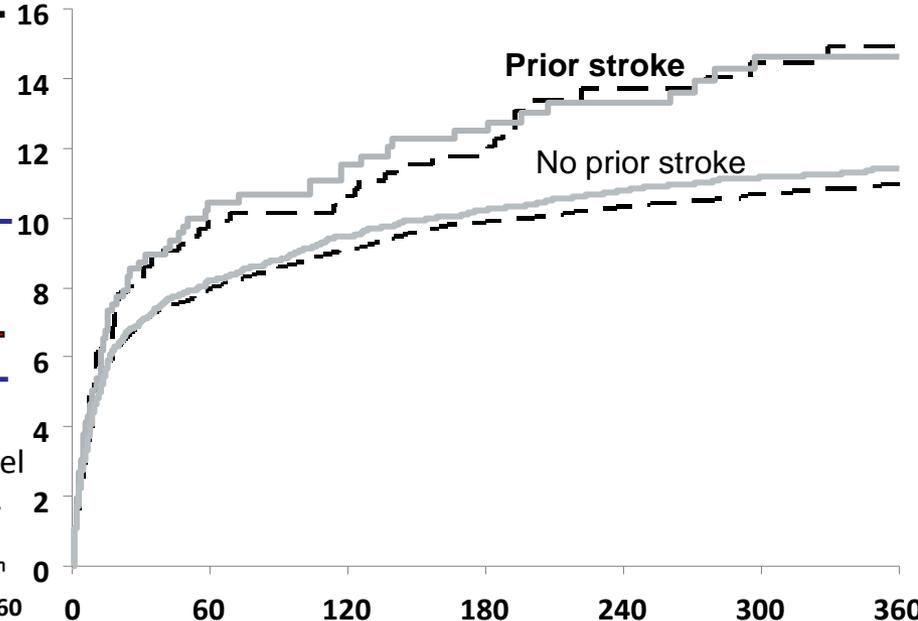


# Ticagrelor in prior stroke or TIA

## Mortality



## Major bleeding



### Patient at risk

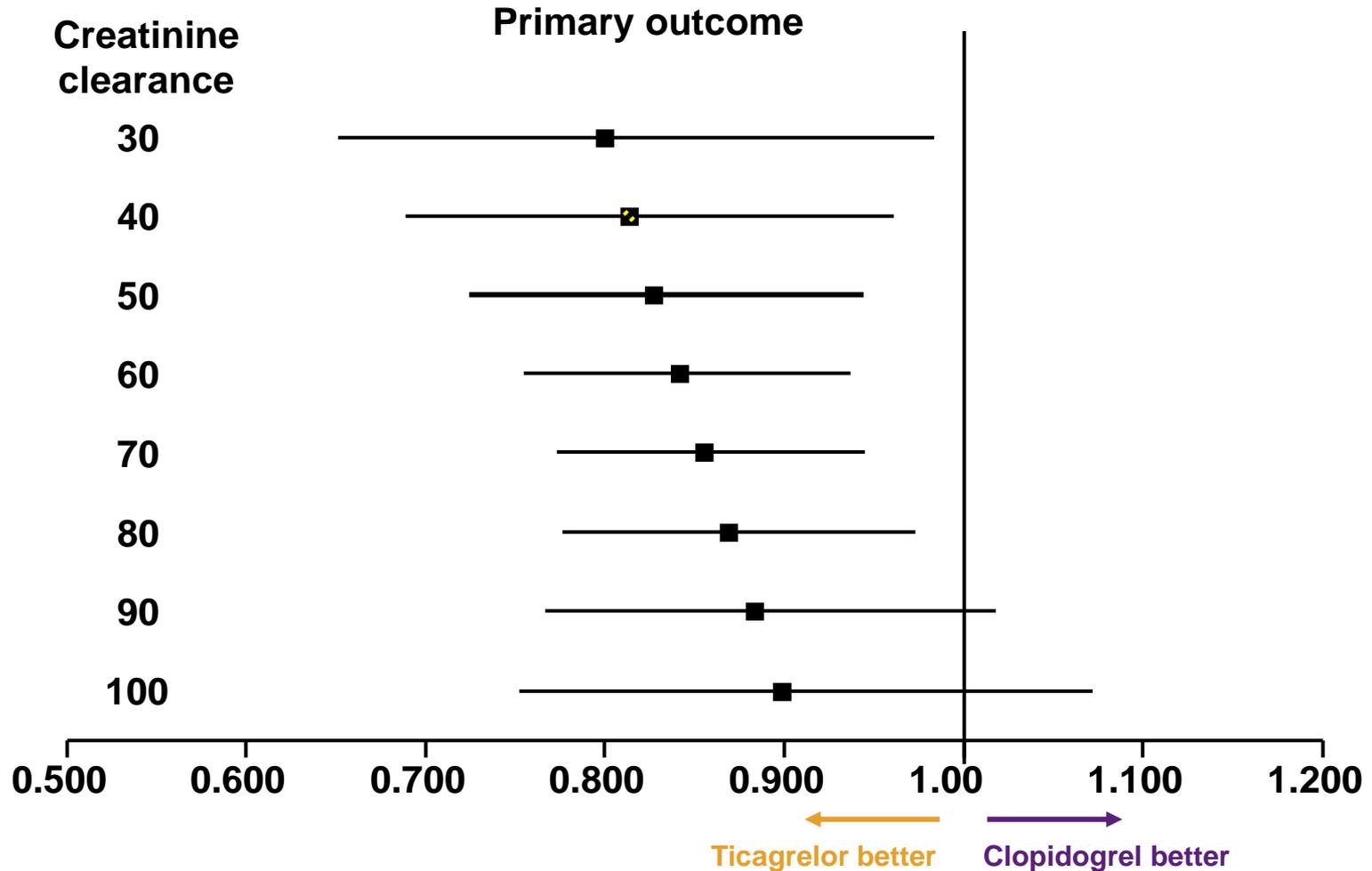
#### Prior stroke

Clopidogrel	588	542	530	507	397	314	246
Ticagrelor	564	534	525	511	411	332	254

#### No prior stroke

Clopidogrel	8699	8318	8245	8078	6679	5124	4115
Ticagrelor	8761	8382	8289	8107	6701	5143	4162

# Ticagrelor and renal function



# Kritische proximale RIVA-Stenose (Wellens-Syndrom)

Frau B.

60j., 160cm/50kg

## Klinik:

Intermittierende Thoraxschmerzen seit 2 Wochen, zuletzt gestern Nacht

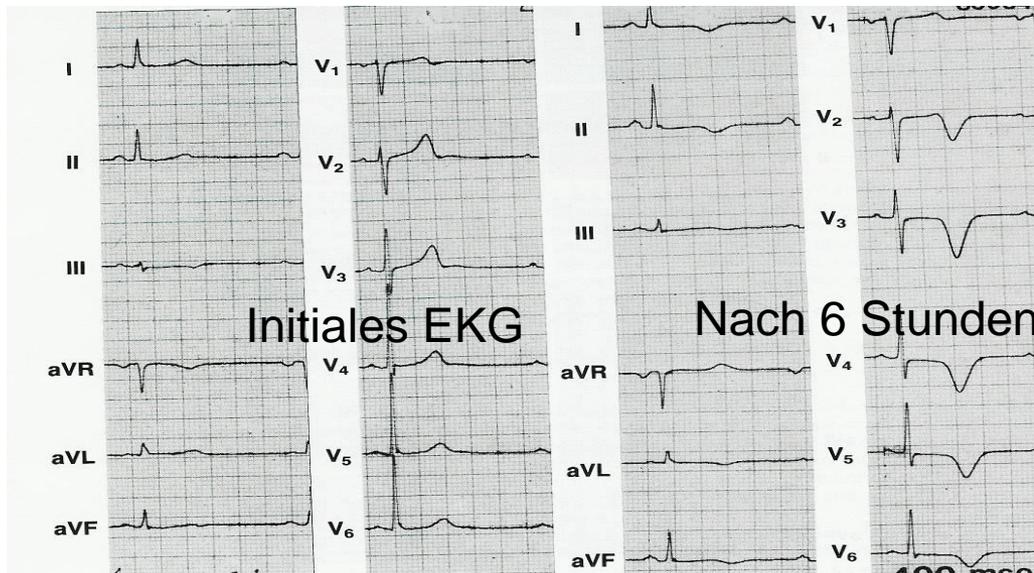
## PA:

-

## Labor:

Bland (Troponin-negativ)

## EKG:



# Akutes Koronarsyndrom

## P2Y<sub>12</sub>-Inhibition (Umloaden?)

- Clopidogrel (Plavix) 75mg /d
- Prasugrel (Efient) LD 60mg, 10mg/d
- Prasugrel (Efient) LD 30mg, 5mg/d
- Ticagrelor (Brilique) LD 180mg, 2x90mg/d
- Ticagrelor (Brilique) keine LD, 2x90mg/d



# Akutes Koronarsyndrom

## Nachbetreuung

### Entlassung

**Table 15** Measures checked at discharge

<b>Aspirin</b>	Continue life long
<b>P2Y<sub>12</sub> inhibitor</b>	Continue for 12 months (unless at high risk of bleeding)
<b>β-Blocker</b>	If LV function depressed
<b>ACE inhibitor/ ARB</b>	If LV function depressed Consider for patients devoid of depressed LV function
<b>Aldosterone antagonist/ eplerenone</b>	If depressed LV function (LVEF ≤35%) and either diabetes or heart failure, without significant renal dysfunction
<b>Statin</b>	Titrate to achieve target LDL-C levels <1.8 mmol/L (<70 mg/dL)
<b>Lifestyle</b>	Risk-factor counselling, referral to cardiac rehabilitation / secondary prevention programme

ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blocker; LDL-C = low-density lipoprotein cholesterol; LV = left ventricular; LVEF = left ventricular ejection fraction.

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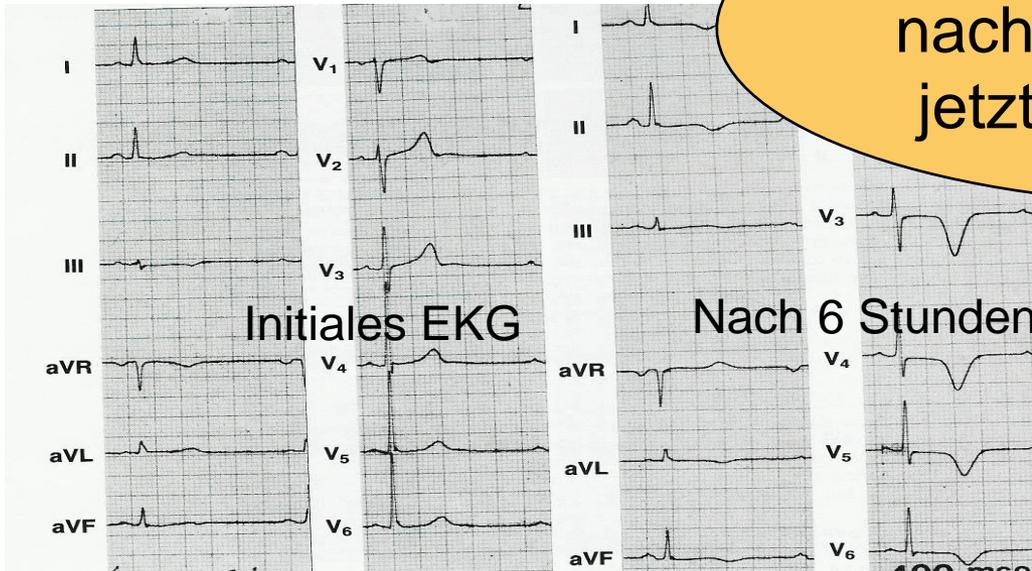
## PA:

-

## Labor:

Bland (Troponin-negativ)

## EKG:



# Akutes Koronarsyndrom

## Nachbetreuung

- Ist normal nach Herzinfarkt...
- Kann vom Clopidogrel (Plavix) sein...
- Koronarangiographie empfohlen
- Kann vom Ticagrelor (Brilique) sein...
- LuFu empfohlen
- Kann vom Statin sein...
- Depression evaluieren...

# Herr A.

78j., 175cm/80kg

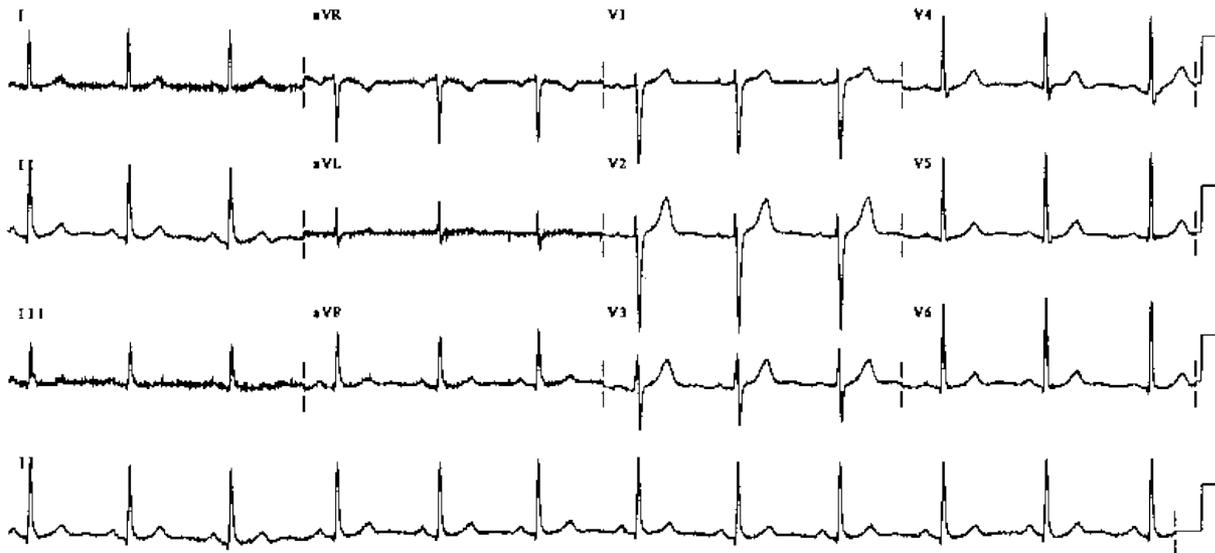
## Klinik:

Präsynkopale Zustände, Schwindel

## PA:

Inferoposteriorer STEMI vor 1 Woche, St. n. TIA, Diabetes, Chron. Niereninsuffizienz

## Ruhe-EKG:



LOC 00000-0000 Speed: 25 mm/sec Limb: 10 mV Chest: 10 mm/mV

50% 0.15-150 Hz

16405

# Herr A.

78j., 175cm/80kg

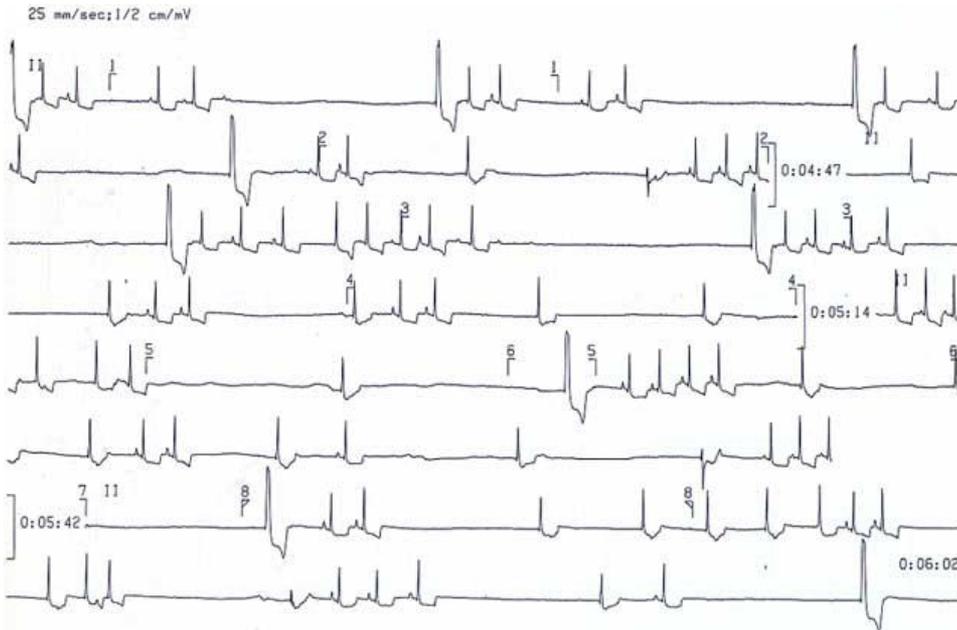
## Klinik:

Präsynkopale Zustände, Schwindel

## PA:

Inferoposteriorer STEMI vor 1 Woche, St. n. TIA, Diabetes, Chron. Niereninsuffizienz

## Holter-EKG:



# Akutes Koronarsyndrom

## Nachbetreuung

- Ist normal nach Herzinfarkt...
- Kann vom Clopidogrel (Plavix) sein...
- Koronarangiographie empfohlen
- Kann vom Ticagrelor (Brilique) sein...
- Herzschrittmacher empfohlen
- Kann vom Statin sein...
- Depression evaluieren...

# P2Y<sub>12</sub>-Inhibition

## Ticagrelor (Brilique) – ungewohnte Nebenwirkungen

**Table 4. Safety of the Study Drugs.\***

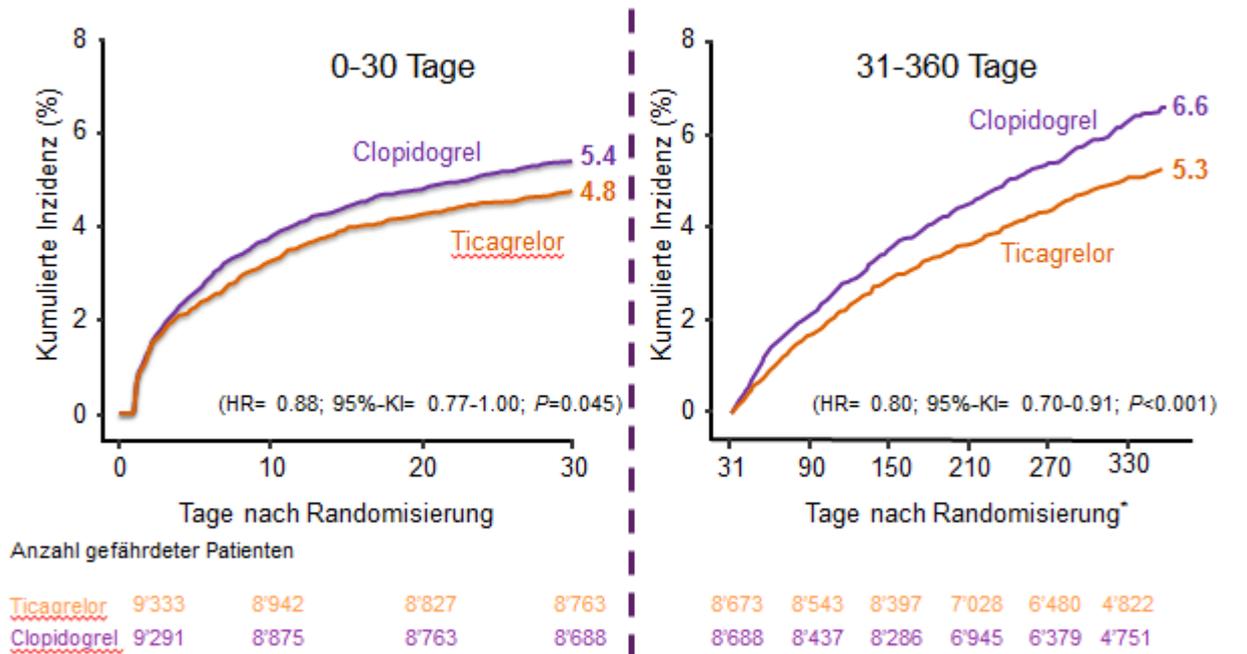
End Point	Ticagrelor Group	Clopidogrel Group	Hazard or Odds Ratio for Ticagrelor Group (95% CI) <sup>†</sup>	P Value
Dyspnea — no./total no. (%)				
Any	1270/9235 (13.8)	721/9186 (7.8)	1.84 (1.68–2.02)	<0.001
Requiring discontinuation of study treatment	79/9235 (0.9)	13/9186 (0.1)	6.12 (3.41–11.01)	<0.001
Bradycardia — no./total no. (%)				
Pacemaker insertion	82/9235 (0.9)	79/9186 (0.9)		0.87
Syncope	100/9235 (1.1)	76/9186 (0.8)		0.08
Bradycardia	409/9235 (4.4)	372/9186 (4.0)		0.21
Heart block	67/9235 (0.7)	66/9186 (0.7)		1.00
Holter monitoring — no./total no. (%)				
First week				
Ventricular pauses ≥3 sec	84/1451 (5.8)	51/1415 (3.6)		0.01
Ventricular pauses ≥5 sec	29/1451 (2.0)	17/1415 (1.2)		0.10
At 30 days				
Ventricular pauses ≥3 sec	21/985 (2.1)	17/1006 (1.7)		0.52
Ventricular pauses ≥5 sec	8/985 (0.8)	6/1006 (0.6)		0.60

# P2Y<sub>12</sub>-Inhibition

## Ticagrelor (Brilique)

### PLATO – primärer Endpunkt im Zeitverlauf

(kombinierter Endpunkt von KV-Tod, MI oder Schlaganfall)



\*Ausschluss von Patienten mit einem Primäreignis während der ersten 30 Tage

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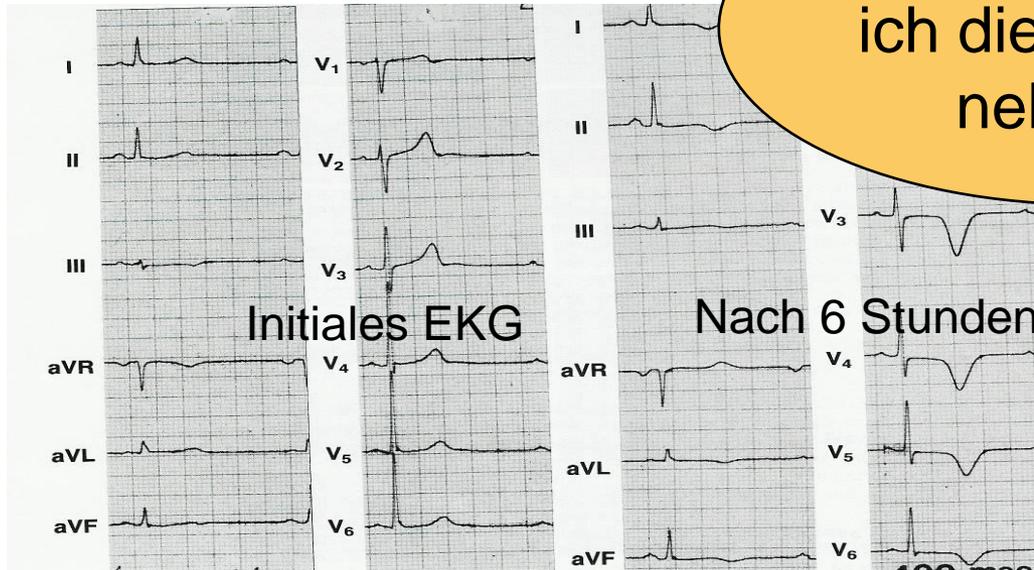
## PA:

-

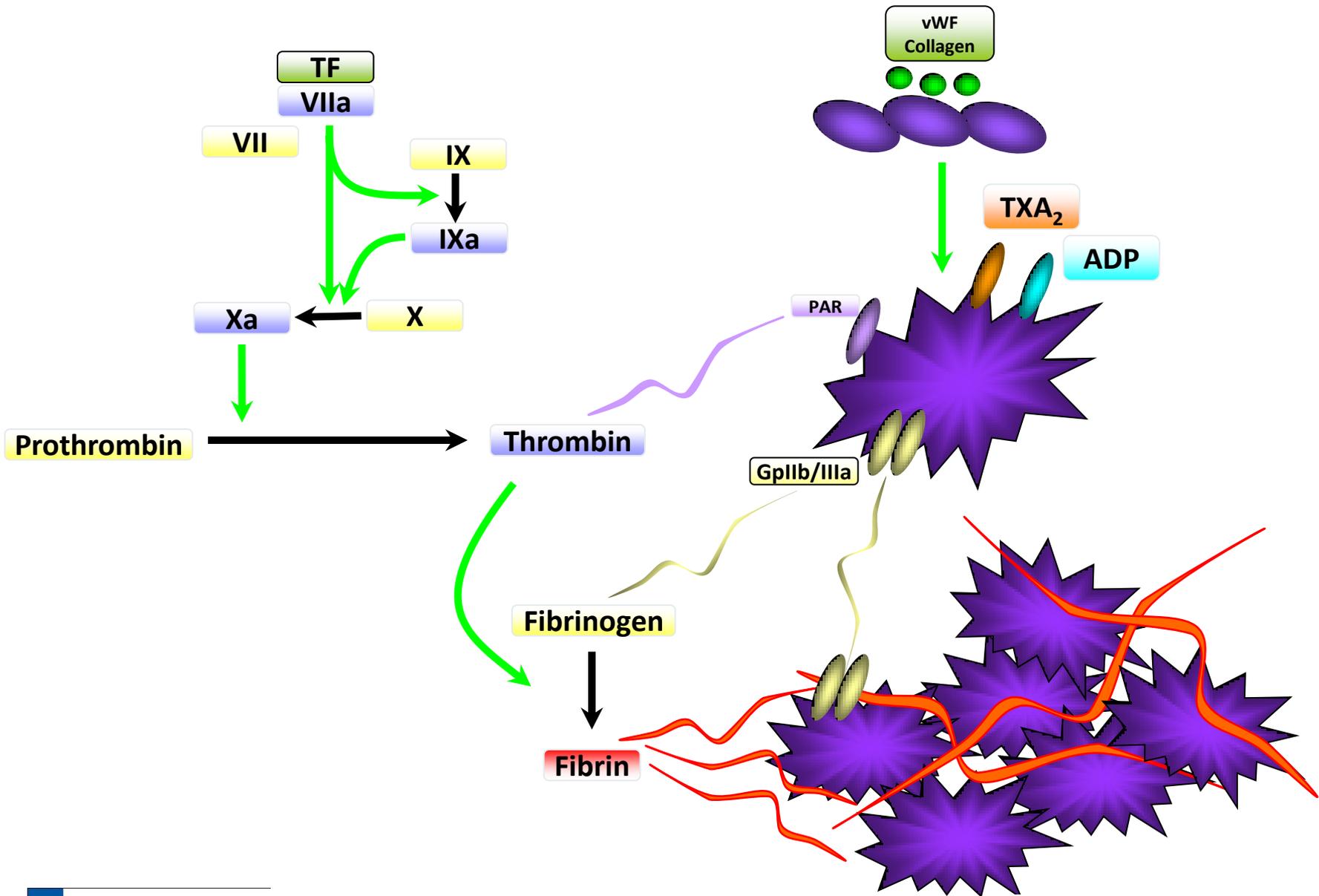
## Labor:

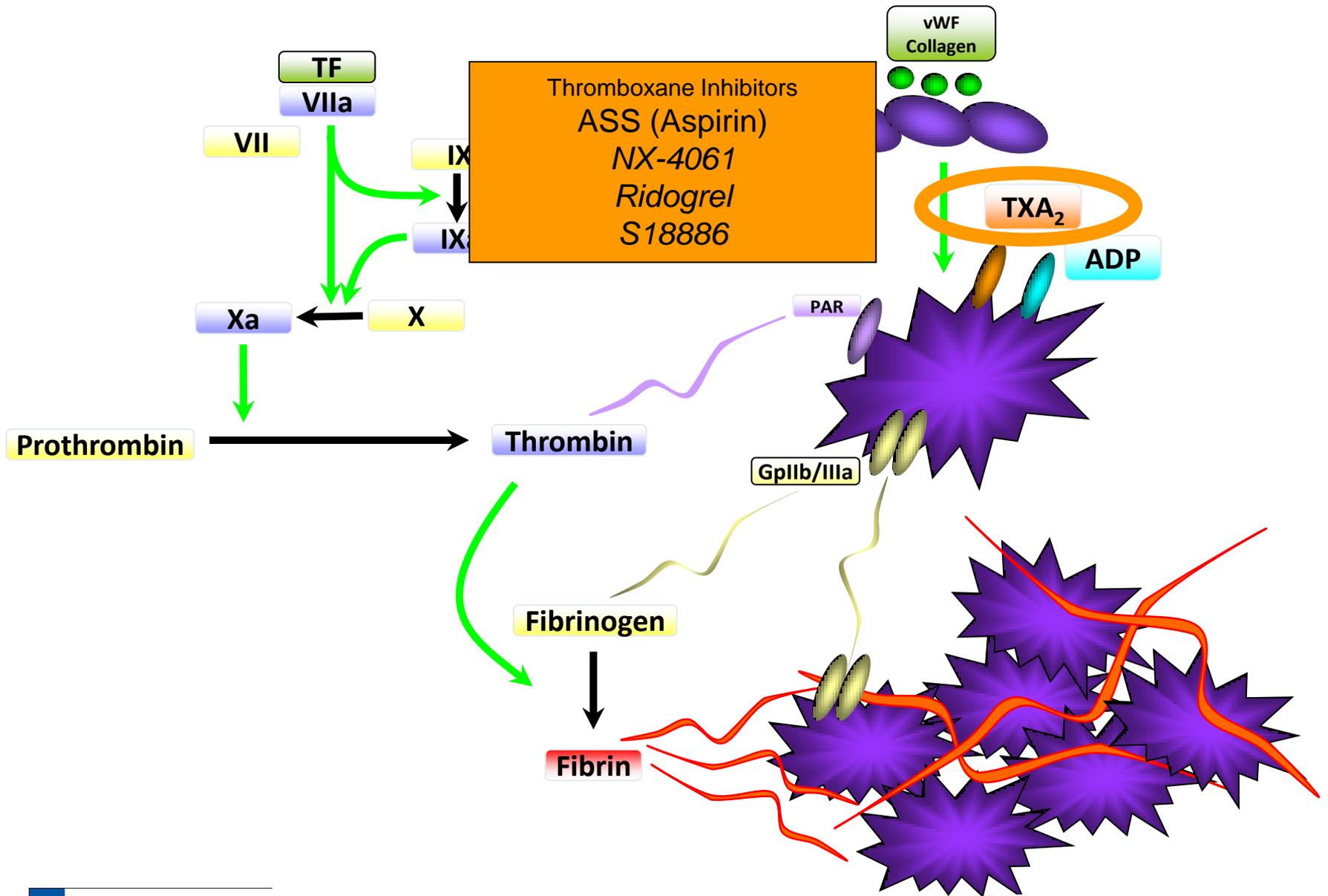
Bland (Troponin-negativ)

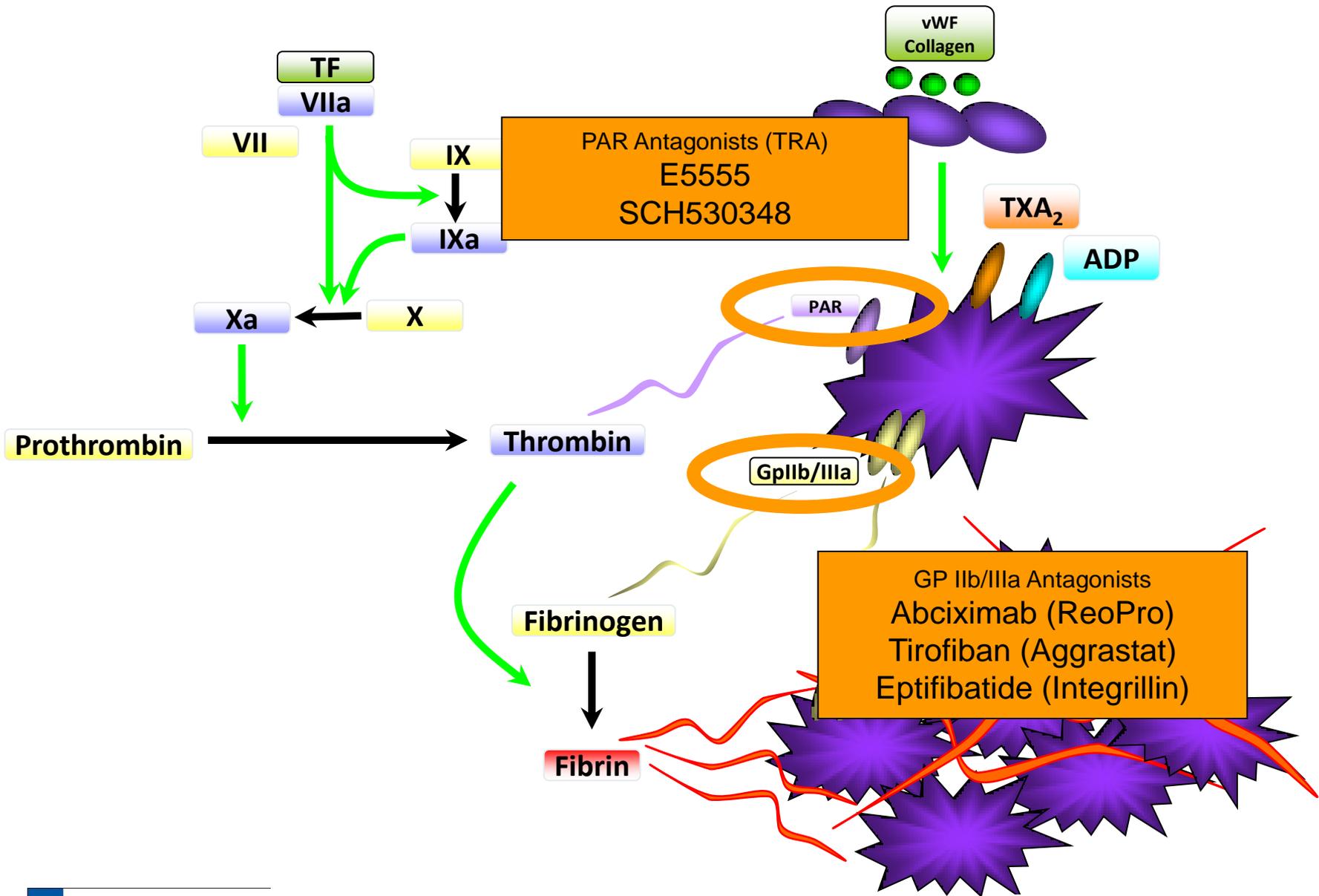
## EKG:



Wie lange muss ich die Tabletten nehmen?



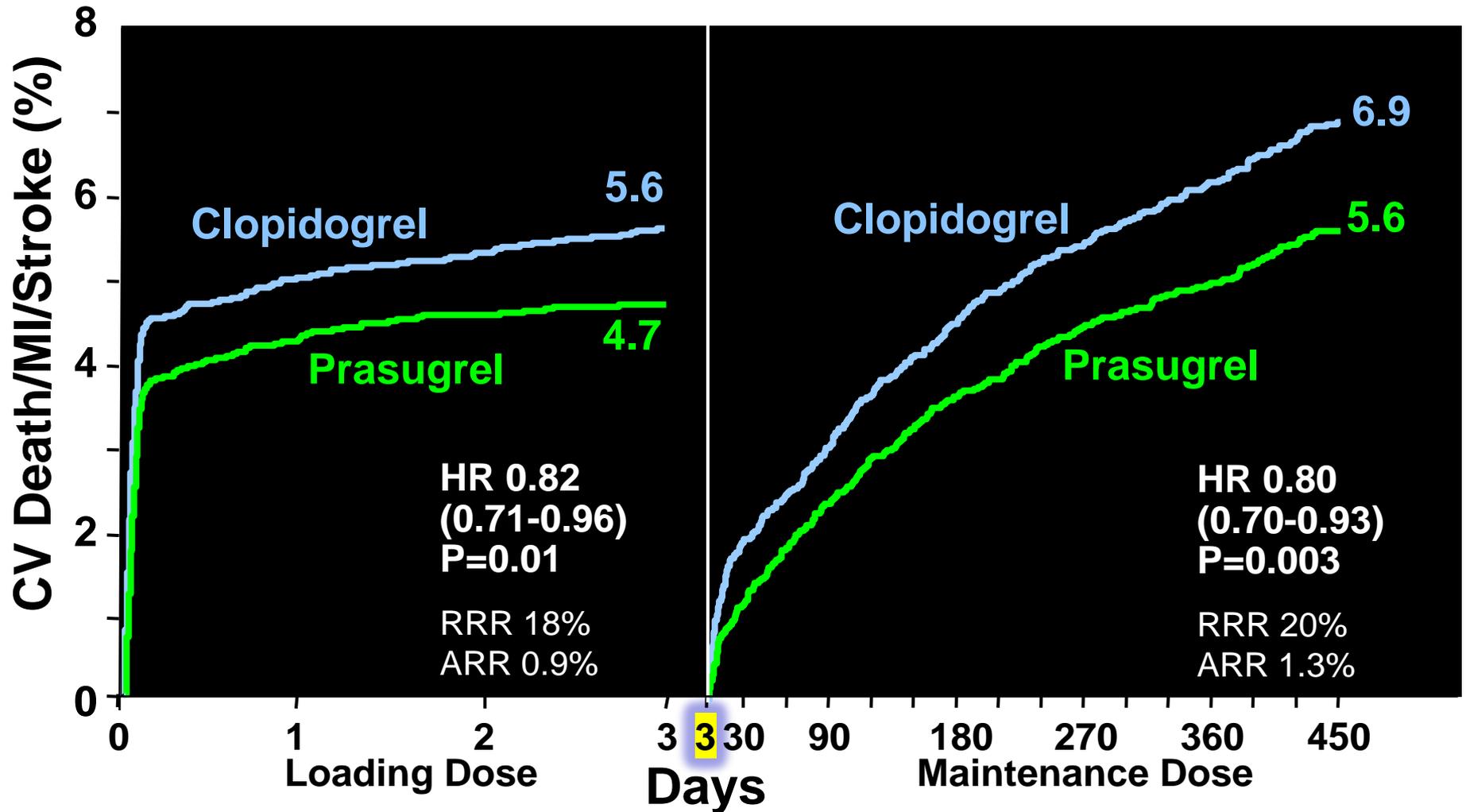




# Fibrinolytic therapy

Recommendations	Class	Level
Fibrinolytic therapy is recommended within 12 h of symptom onset in patients without contraindications if primary PCI cannot be performed by an experienced team within 120 min of FMC.	I	A
In patients presenting early (< 2 h after symptom onset) with a large infarct and low bleeding risk, fibrinolysis should be considered if time from FMC to balloon inflation is > 90 min.	IIa	B
If possible, fibrinolysis should start in the prehospital setting.	IIa	A
A fibrin-specific agent (tenecteplase, alteplase, reteplase) is recommended (over non-fibrin specific agents).	I	B
Oral or i.v. aspirin must be administered.	I	B
Clopidogrel is indicated in addition to aspirin.	I	A

# TRITON-TIMI 38: Timing of Benefit (Primary Endpoint, All ACS 3-Day Landmark Analysis)

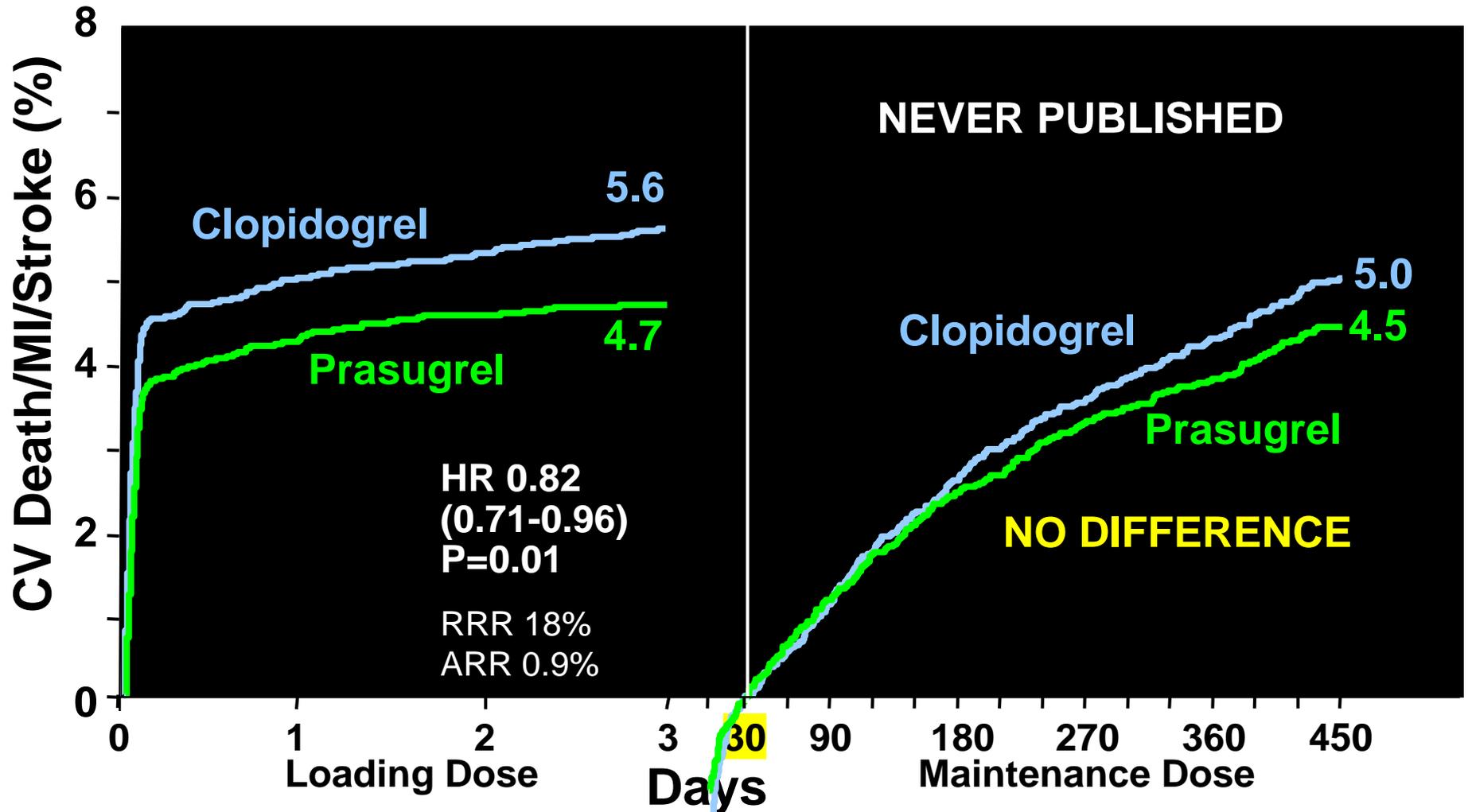


ARR=Absolute Risk Reduction; CV=Cardiovascular; HR=Hazard Ratio;  
MI=Myocardial Infarction; RRR=Relative Risk Reduction

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

# TRITON-TIMI 38: Timing of Benefit

**NO DIFFERENCE vs Clopidogrel after 30 days**



ARR=Absolute Risk Reduction; CV=Cardiovascular; HR=Hazard Ratio;  
MI=Myocardial Infarction; RRR=Relative Risk Reduction

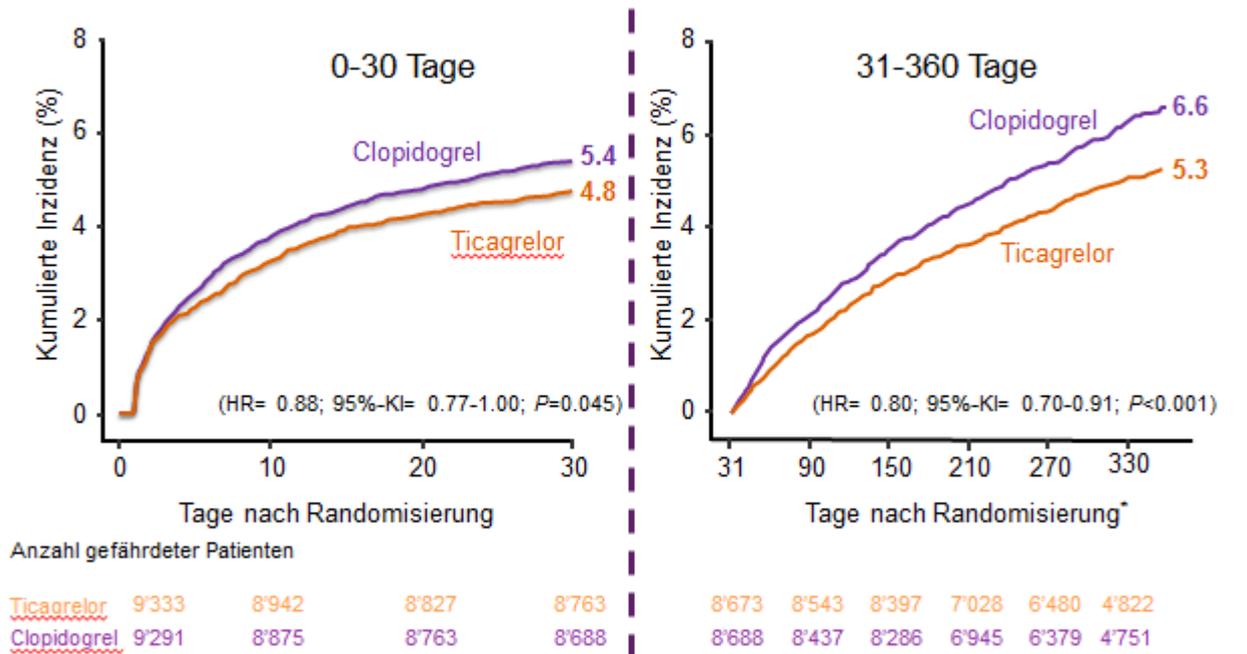
Wiviott SD et al. *New Engl J Med* 2007;357:2001-2015

# P2Y<sub>12</sub>-Inhibition

## Ticagrelor (Brilique)

### PLATO – primärer Endpunkt im Zeitverlauf

(kombinierter Endpunkt von KV-Tod, MI oder Schlaganfall)



\*Ausschluss von Patienten mit einem Primäreignis während der ersten 30 Tage

Wallentin L, et al. Ticagrelor versus clopidogrel in patients with acute coronary syndromes. *NEngl J Med.* 2009;381:1045-1057.

# Kritische proximale RIVA-Stenose (Wellens-Syndrom)

Mrs. B.

60 y, 160cm/50kg

## HPI

Intermittent chest pain for 2w, last time past night

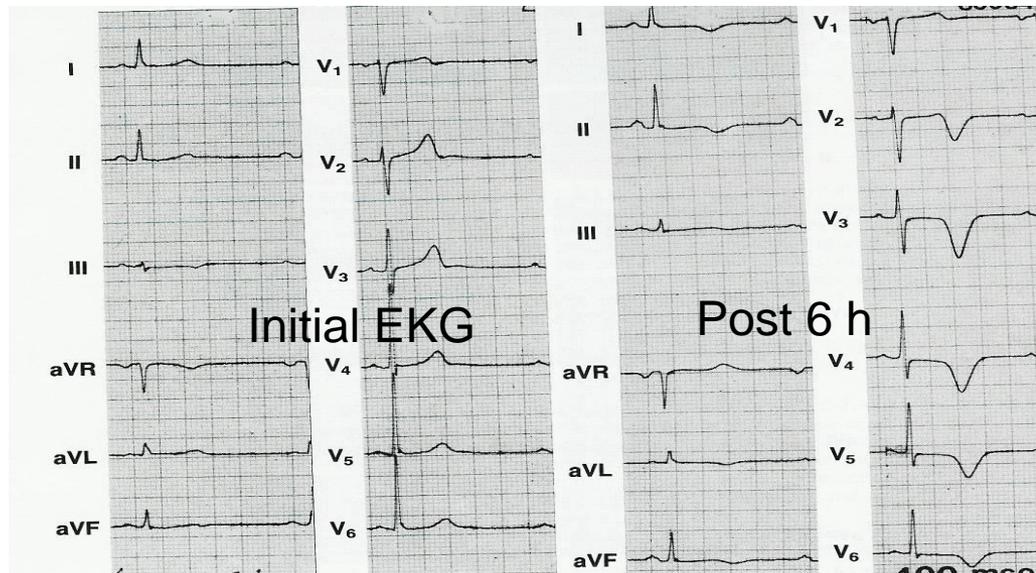
## PMH

Art. HTN (badly controlled)

## Labs

NI (Troponin – neg.)

## EKG:



# Mister A.

78y, 175cm/80kg

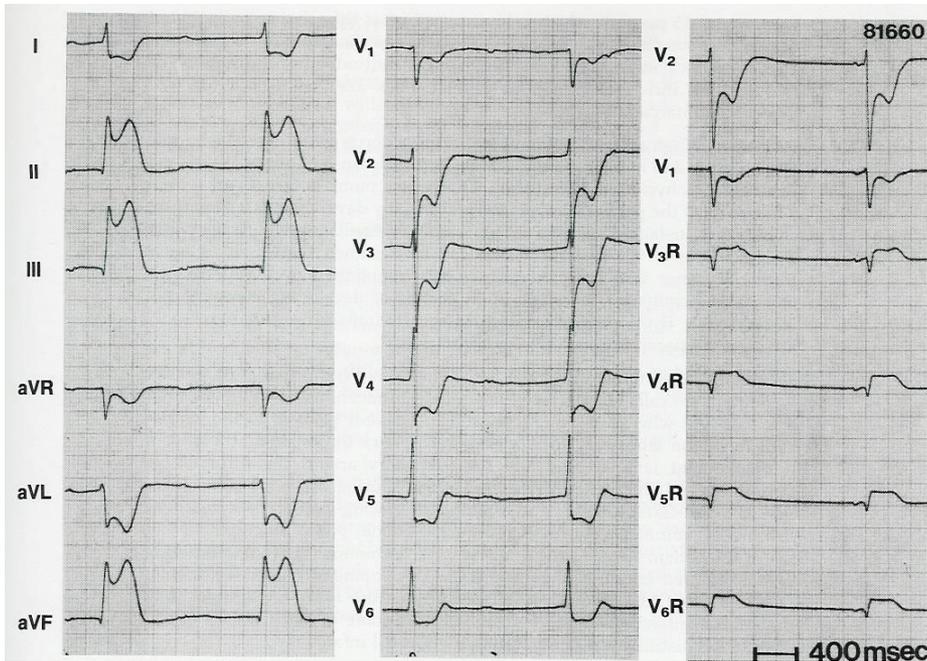
## HPI

Chest pain for 2 h

## PMH

St. p. TIA, Diabetes, Chron. Renal insufficiency

## EKG



# Akutes Koronarsyndrom (NSTEMI/UA)

## Strategie

### Conservative (no or elective angiography)

- No recurrence of chest pain.
- No signs of heart failure.
- No abnormalities in the initial ECG or a second ECG (at 6–9 h).
- No rise in troponin level (at arrival and at 6–9 h).
- No inducible ischaemia.

### Invasive (<72h)

#### Early (<24h)

- GRACE Risk Score >140
- Primary High Risk Kriterium

#### Urgent (<120min)

- Persistierende Beschwerden
- Hämodynamische Instabilität
- Lebensbedrohliche Rhythmusstörungen

**Table 9** Criteria for high risk with indication for invasive management

#### Primary

- Relevant rise or fall in troponin<sup>a</sup>
- Dynamic ST- or T-wave changes (symptomatic or silent)

#### Secondary

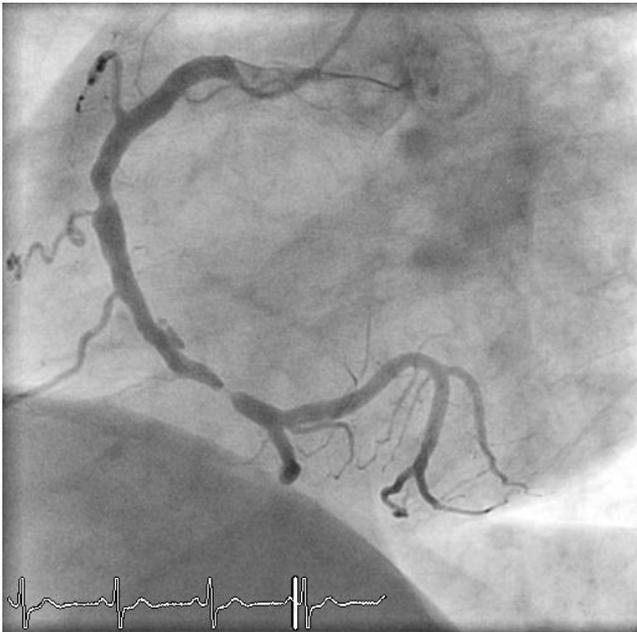
- Diabetes mellitus
- Renal insufficiency (eGFR <60 mL/min/1.73 m<sup>2</sup>)
- Reduced LV function (ejection fraction <40%)
- Early post infarction angina
- Recent PCI
- Prior CABG
- Intermediate to high GRACE risk score (Table 5)

# Akutes Koronarsyndrom (NSTEMI/UA)

## Strategie

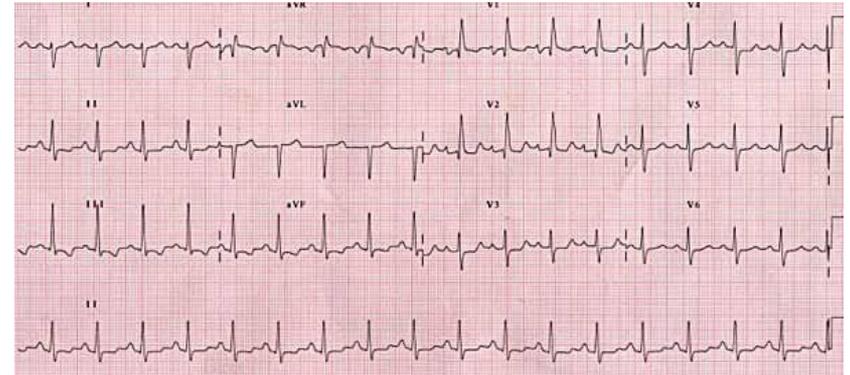
### Risk Stratification!

- Invasive (<72h)
  - urgent (<120min)
  - early invasive (< 24h)
- conservative / elective



NSTEMI

Unstable Angina



Troponin

+

-

# Koronare Herzkrankheit

## Natural History

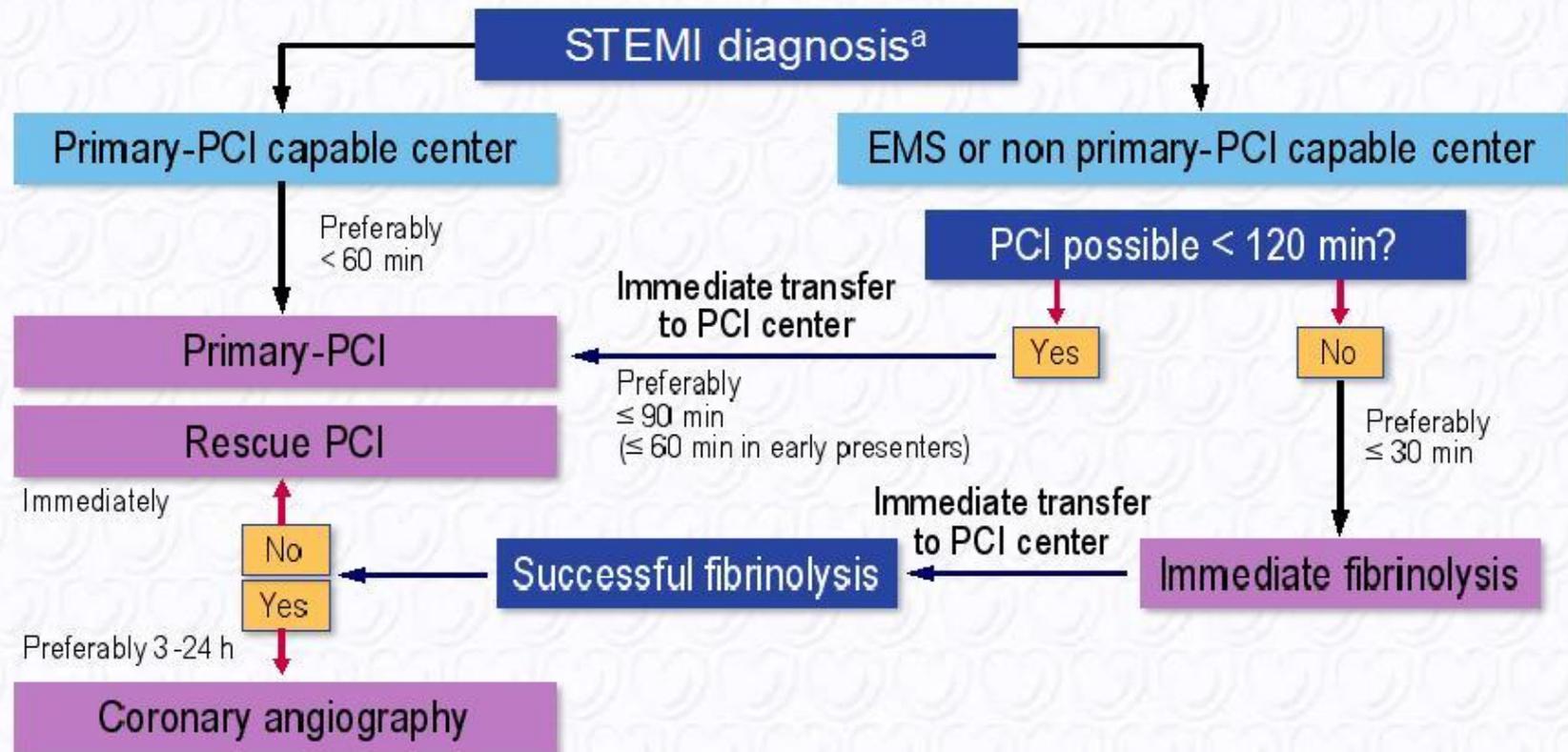


# Akutes Koronarsyndrom

## P2Y<sub>12</sub>-Inhibition

- Nur Aspirin
- Clopidogrel (Plavix)
- Prasugrel (Efient)
- Ticagrelor (Brilique)

# Prehospital and in-hospital management, and reperfusion strategies within 24 h of FMC



<sup>a</sup> The time point the diagnosis is confirmed with patient history and ECG ideally within 10 min from the first medical contact (FMC). All delays are related to FMC (first medical contact).

Cath = catheterization laboratory; EMS = emergency medical system; FMC = first medical contact; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

# Periprocedural anti thrombotic medication in primary PCI

Recommendations	Class	Level
<b>Antiplatelet therapy</b>		
Aspirin oral or i.v. (if unable to swallow) is recommended	I	B
An ADP-receptor blocker is recommended in addition to aspirin. Options are:	I	A
<ul style="list-style-type: none"><li>Prasugrel in clopidogrel-naive patients, if no history of prior stroke/TIA, age &lt; 75 years.</li></ul>	I	B
<ul style="list-style-type: none"><li>Ticagrelor.</li></ul>	I	B
<ul style="list-style-type: none"><li>Clopidogrel, preferably when prasugrel or ticagrelor are either not available or contraindicated.</li></ul>	I	C

ADP = adenosine diphosphate.