GP 2b/3a Receptor Inhibitors are Superior to Bivalirudin or Standard Therapy in Re-opening the Culprit Lesion in STEMI Patients During Transfer for Primary PCI

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Conflict of interest

None of the authors of this presentation have any conflict of interest

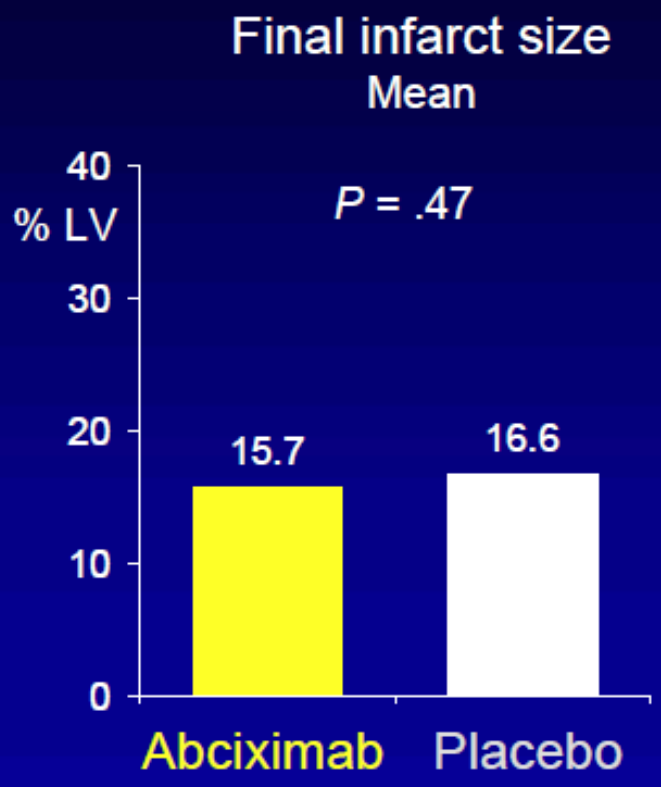
Background

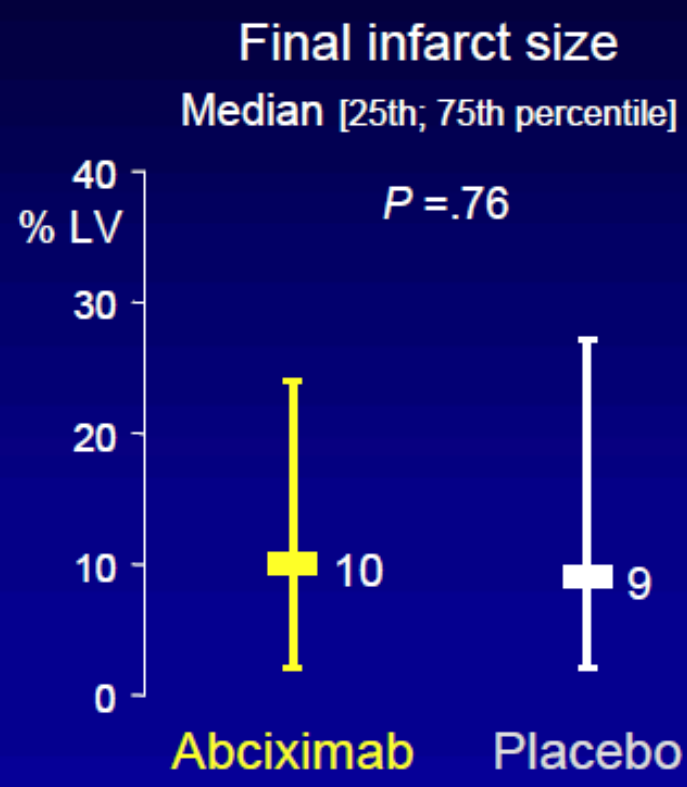
* The use of GP-2b/3a Inhibitors in patients with STEMI, during and prior Primary PCI is controversial
* Furthermore, no clear beneficial effect is evident in the era of potent P2Y12 inhibitors

BRAVE-3 trial

800 STEMI patient after 600mg clopidogrel loading

Primary endpoint: infarct size assessed by SPECT

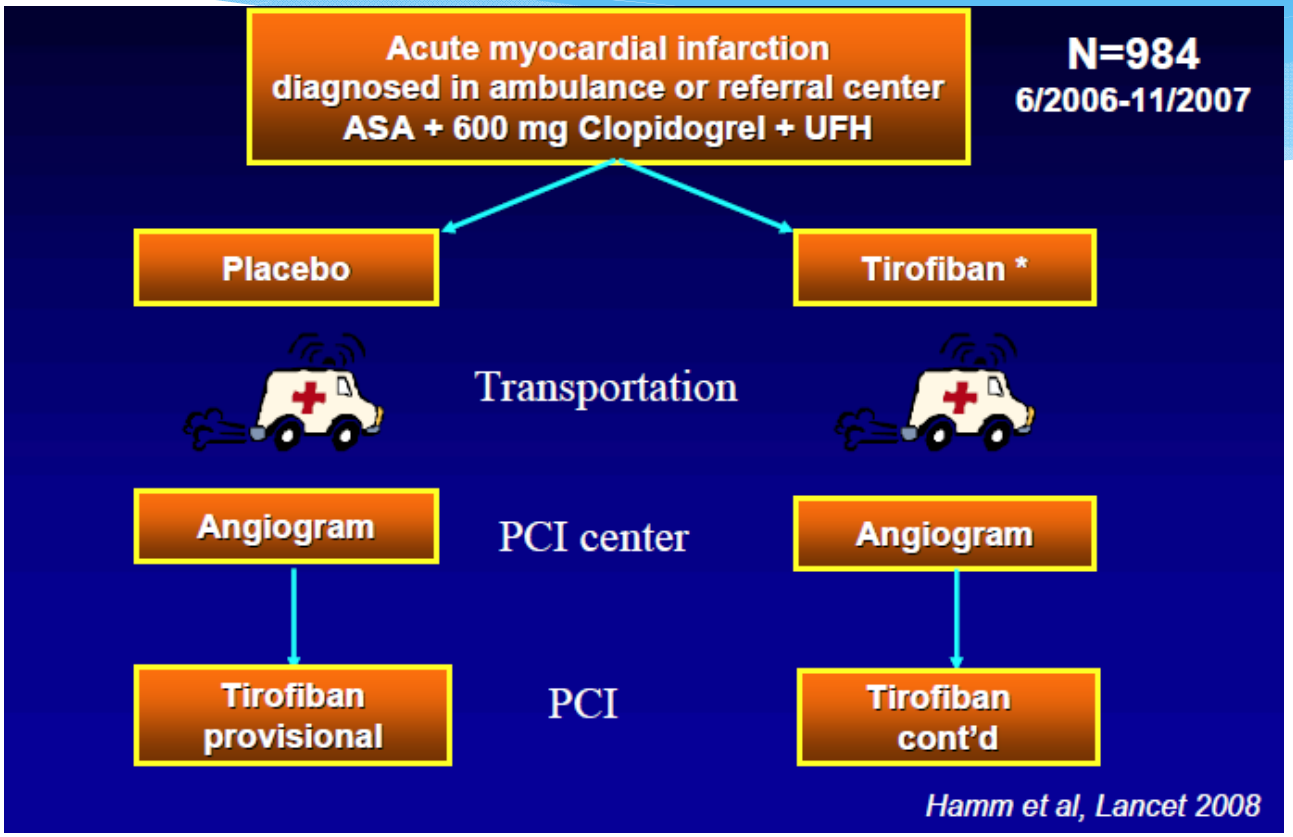




***Median time from symptoms onset to PCI >300 minutes**

Mehilli J et al. Circulation 2009

On-TIME 2

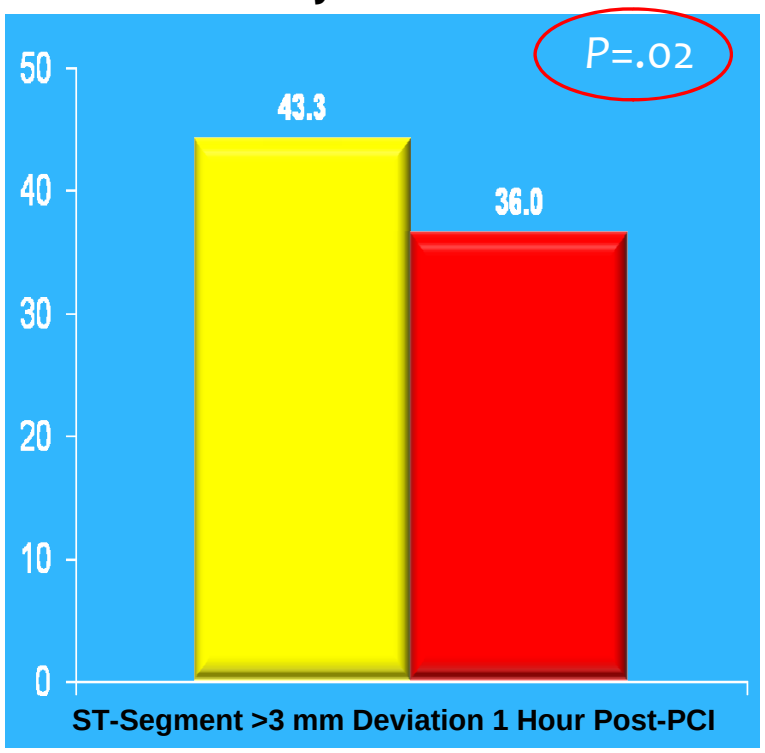


Median time from symptoms onset to admission – 75 minutes

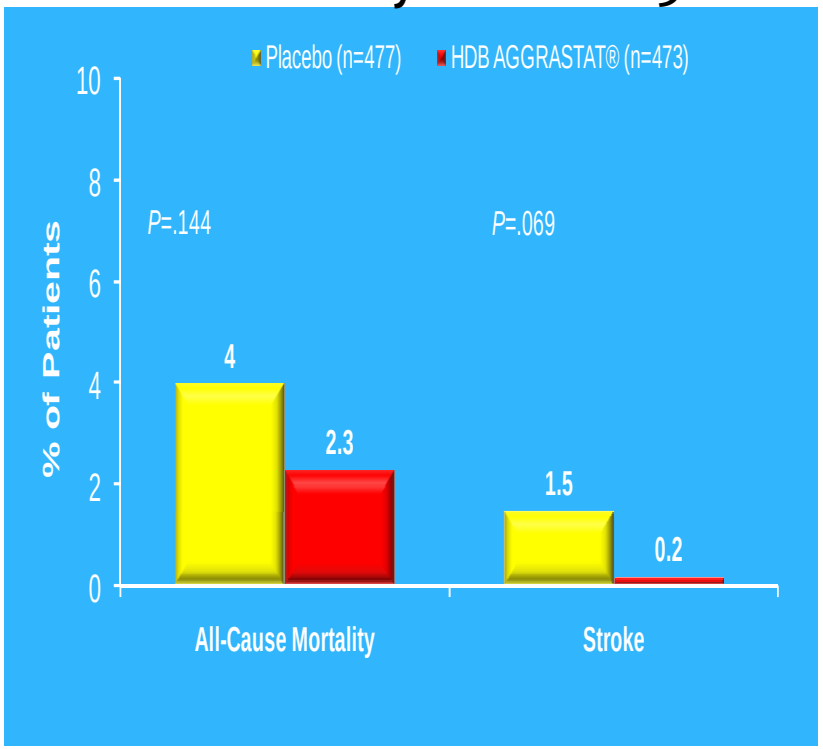
van 't Hof AWJ, et al. *Lancet* 2008;16;372(9638):537-46

On-TIME 2

Primary outcome

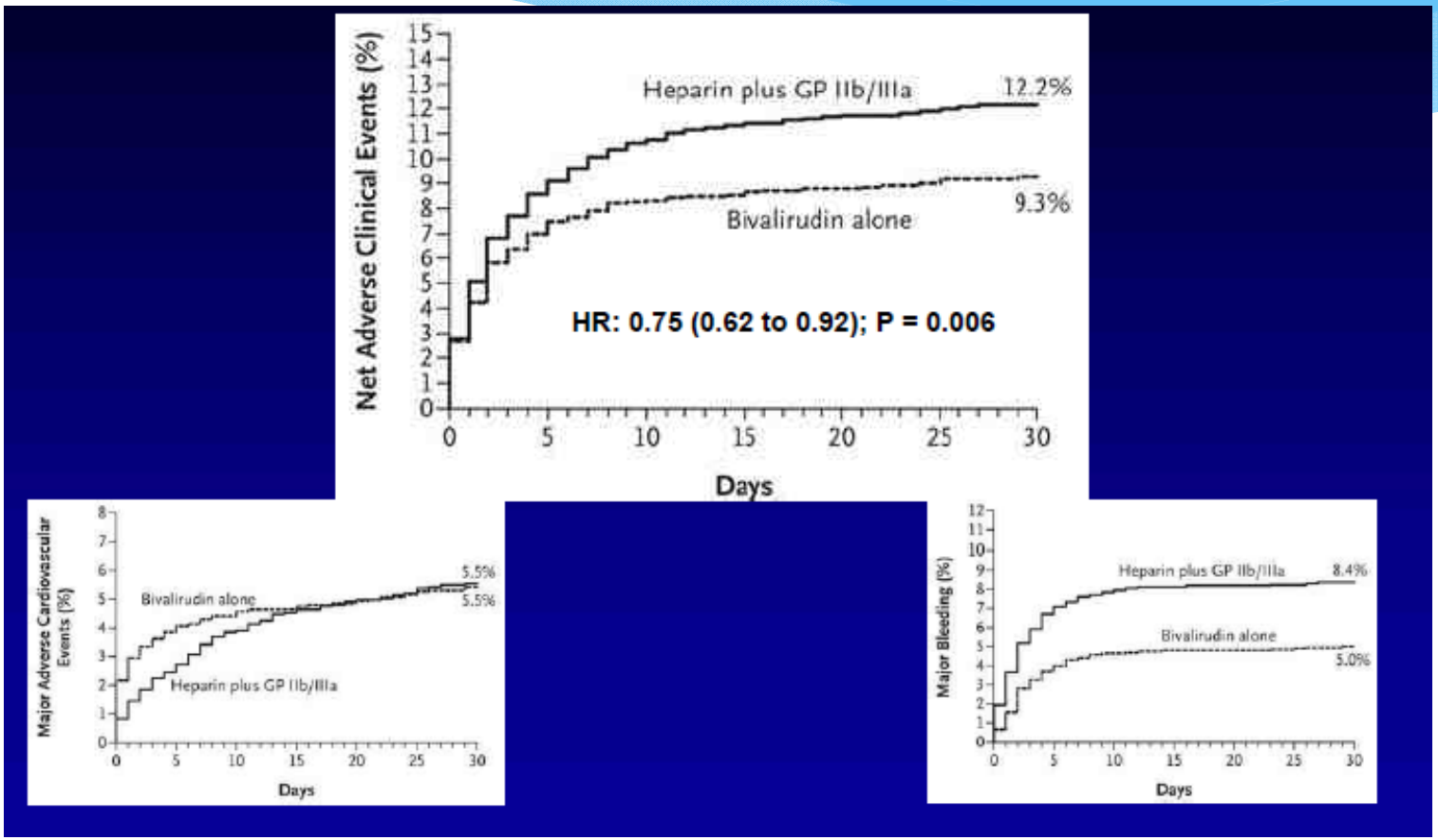


Mortality and Stroke 30d



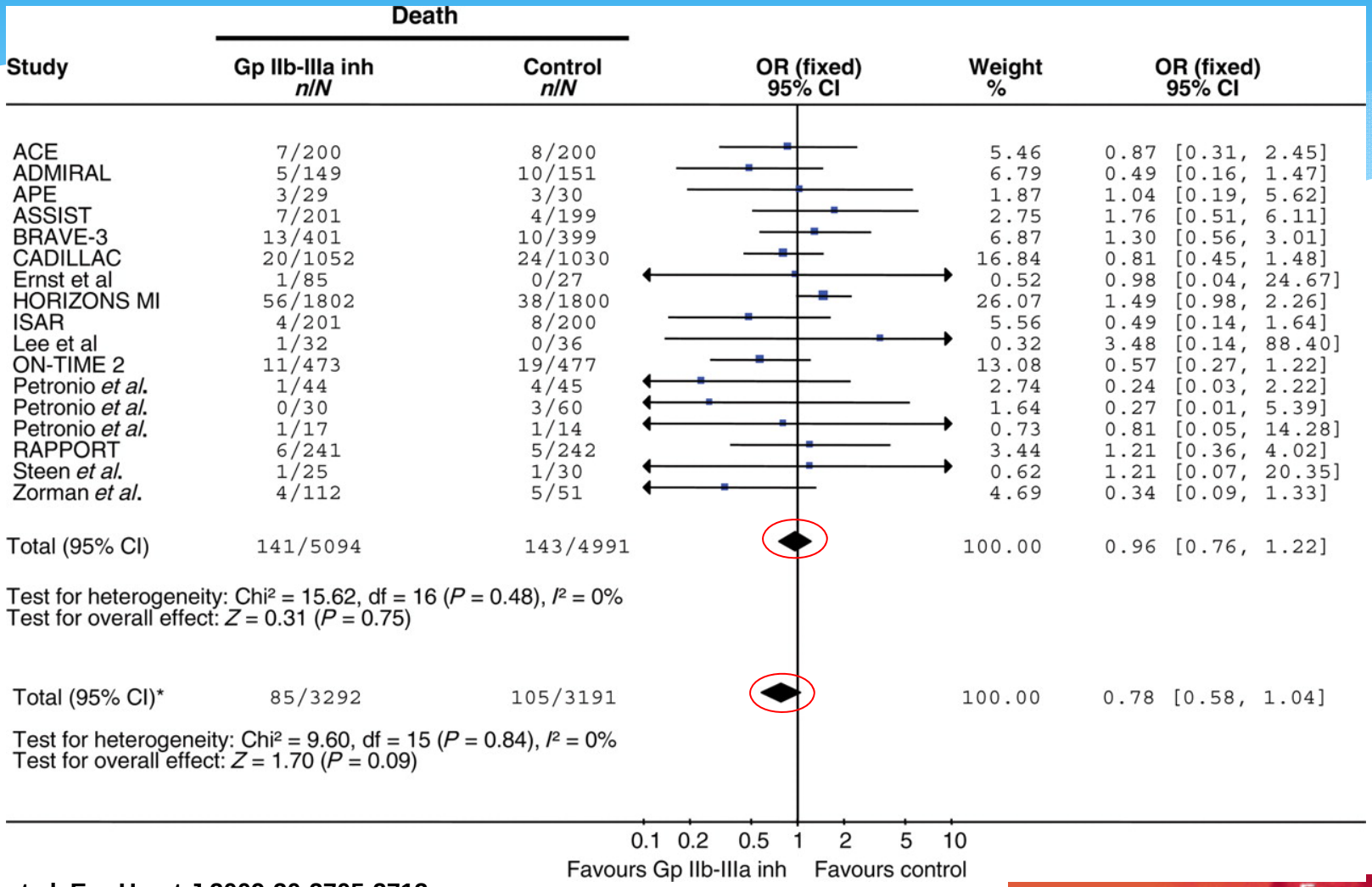
van 't Hof AWJ, et al. *Lancet* 2008

HORIZONS AMI



Stone et al, NEJM, 2008

GP IIb-IIIa inhibitors and mortality benefits at 30 days with OR and 95% CI



De Luca G et al. Eur Heart J 2009;30:2705-2713

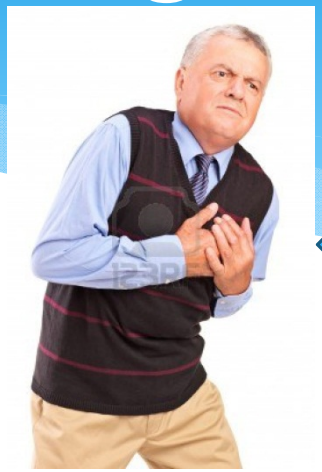
European Heart Journal

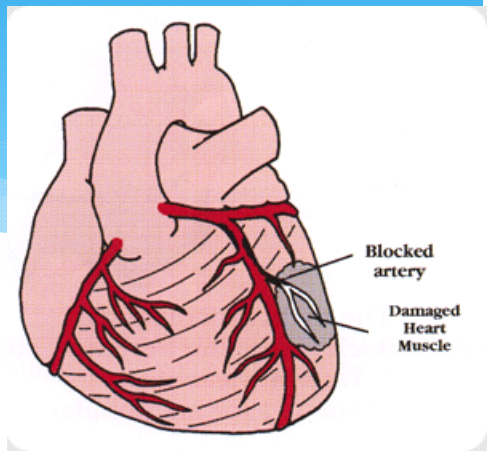
2012 ESC Guidelines for the Management of Acute MI in Patients Presenting with ST-Segment Elevation

Table 12 Periprocedural antithrombotic medication in primary percutaneous coronary intervention

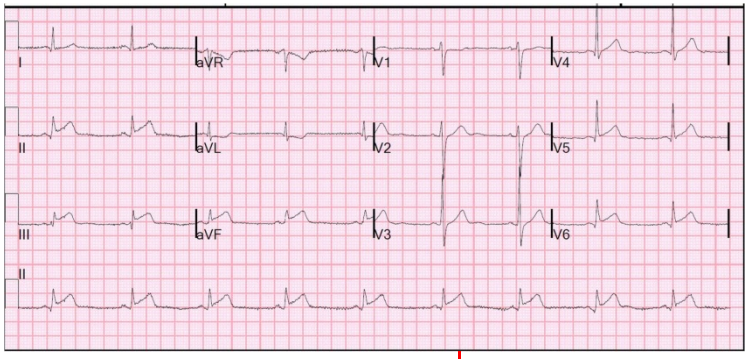
Recommendations	Class[a]	Level[b]	Ref[c]
Antiplatelet therapy			
Aspirin oral or i.v. (if unable to swallow) is recommended	I	B	133, 134
An ADP-receptor blocker is recommended in addition to aspirin. Options are:	I	A	135, 136
• Prasugrel in clopidogrel-naive patients, if no history of prior stroke/TIA, age <75 years.	I	B	109
• Ticagrelor.	I	B	110
• Clopidogrel, preferably when prasugrel or ticagrelor are either not available or contraindicated.	I	C	-
GP IIb/IIIa inhibitors should be considered for bailout therapy if there is angiographic evidence of massive thrombus, slow or no-reflow or a thrombotic complication.	IIa	C	-
Routine use of a GP IIb/IIIa inhibitor as an adjunct to primary PCI performed with unfractionated heparin may be considered in patients without contraindications.	IIb	B	137–141
Upstream use of a GP IIb/IIIa inhibitor (vs. in-lab use) may be considered in high-risk patients undergoing transfer for primary PCI.	IIb	B	127, 128, 137, 142
Options for GP IIb/IIIa inhibitors are (with LoE for each agent):			
• Abciximab		A	137
• Eptifibatide (with double bolus)		B	138, 139
• Tirofiban (with a high bolus dose)		B	140, 141
Anticoagulants			
An injectable anticoagulant must be used in primary PCI.	I	C	-
Bivalirudin (with use of GP IIb/IIIa blocker restricted to bailout) is recommended over unfractionated heparin and a GP IIb/IIIa blocker.	I	B	124
Enoxaparin (with or without routine GP IIb/IIIa blocker) may be preferred over unfractionated heparin.	IIb	B	122
Unfractionated heparin with or without routine GP IIb/IIIa blocker must be used in patients not receiving bivalirudin or enoxaparin.	I	C	1
Fondaparinux is not recommended for primary PCI.	III	B	118
The use of fibrinolysis before planned primary PCI is not recommended.	III	A	127, 143

Setting

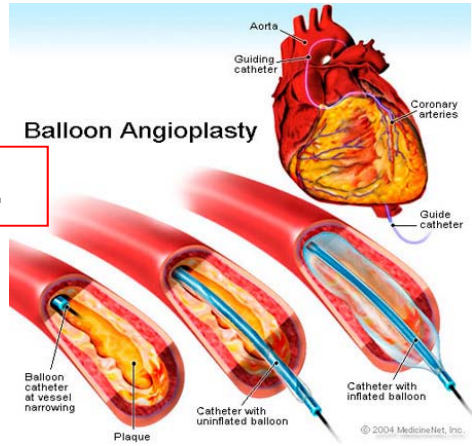




PTD ~ 2 hrs.



Setting – Contd.



DTB ~ 2 hrs.

Study Design

* Retrospective cohort study comparing patients with STEMI who arrived at Mt. Scopus from 2008 until 2012
* All patients included in the study were transferred to Hadassah Ein-Kerem for Primary PCI
* All patients received loading doses of Aspirin + P2Y12 inhibitors (Clopidogrel at first and Prasugrel later in the research)
* Until 2012, all patients received GP-2b/3a Inhibitors (Integrilin)
* During 2012, the patients were not treated with GP-2b/3a, rather they received UFH
* Some of these patients got also Bivalirudin (Angiomax)
* The patients (115) were divided into 2 groups: Transfer with or without GP 2b/3a inhibitors

Endpoint

* TIMI flow at the culprit vessel before PCI

* TIMI flow was determined retrospectively by a Cardiologist who was blind to patient's clinical data

Baseline Characteristics

	IIb/IIIa (N=81)	No IIb/IIIa (N=34)	P- value
Age - mean ± std.	55 ± 9.2	54.9 ±12.6	0.4
Gender - male N (%)	68 (84)	30 (88)	0.3
Risk factors: IHD – N (%)	17 (21)	11 (32)	0.18
HTN -N (%)	31 (37)	13 (38)	0.6
DM –N (%)	18 (22)	10 (29)	0.17
Dyslipidemia - N (%)	37 (45)	12 (35)	0.13
Smoker - N (%)	68 (83)	27 (79)	0.5

Clinical factors

	IIb/IIIa 81	No IIb/IIIa 34	P- value
MI type– N (%): Ant. Inf./post.	 46 (57) 35 (43)	 20 (59) 14 (41)	0.7
Killip score – Mean ± std.	1.17 ± 0.63	1.12 ± 0.48	0.5
Vessel – N (%): LAD LCX RCA	 46 (57) 11 (14) 24 (29)	 20 (59) 3 (9) 11 (32)	0.8
Pain To Door, Hrs. Mean ±std.	1.8 ±1.1	1.9 ± 1.4	0.3
Door To Balloon, Hrs. Mean ±std.	1.7 ±0.8	1.8 ± 1.1	0.5

Results

	IIb/IIIa (N=81)	No IIb/IIIa (N=34)	P- Value
TIMI Flow:			
0-1 – N (%)	28 (35)	29 (85)	< 0.001
2-3 – N (%)	53 (65)	5 (15)	

Results – Contd.

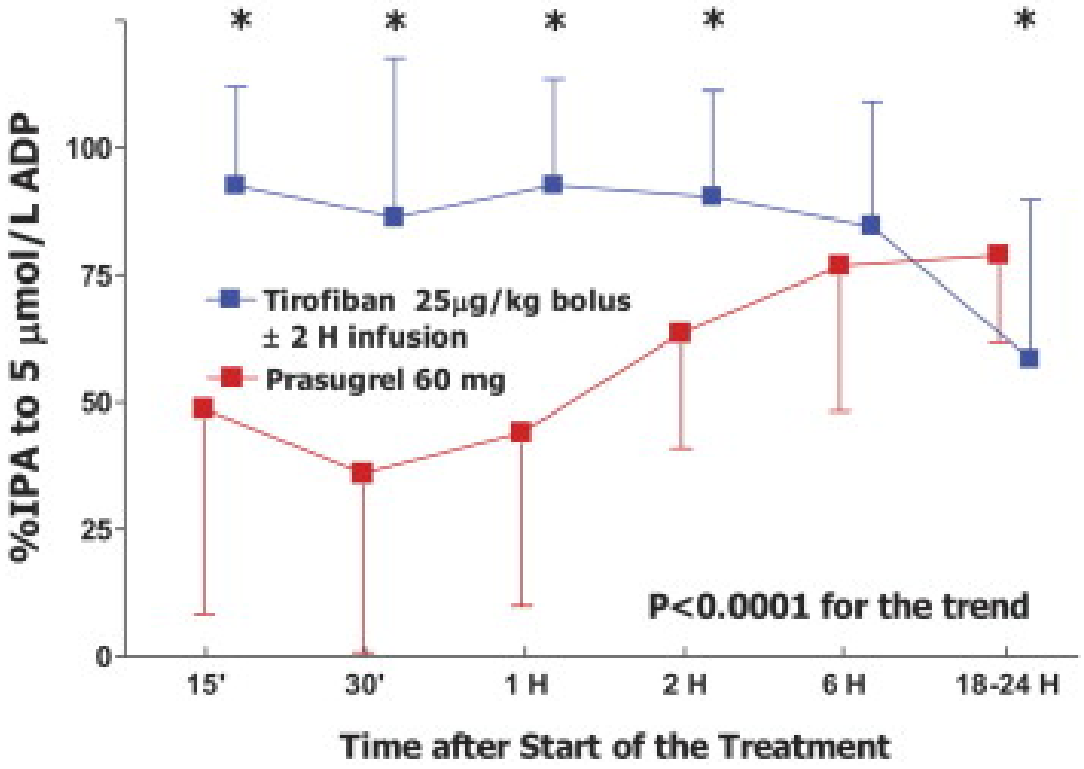
		IIb/IIIa 81	No IIb/IIIa 34	P- Value
Pain to Door: < 2 hours: 81 (70%)	**TIMI Flow:** 0-1 , N (%) 2-3 , N (%)	16 (27) 44 (73)	17 (81) 4 (19)	< 0.001
≥ 2 hours: 34 (30%)	**TIMI Flow:** 0-1 , N (%) 2-3 , N (%)	11 (52) 10 (48)	11 (85) 2 (15)	0.1

Conclusion

* The use of GP-2b/3a in STEMI has declined in the past few years, mainly due to bleeding complications (HORIZONS study)
* Nonetheless, it seems that in certain circumstances the use of GP-2b/3a may be beneficial such as:
  * Expected long door to balloon time (when transfer to a PCI center is needed)
  * Early comers - time to admission <2 hours
  * Smokers?
  * Young patients?

Thank you!

Prasugrel Vs. Tirofiban Bolus in STEMI The FABOLUS trial



JACC Cardiovasc Interv. 2012 Mar;5(3):268-77