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Early Platelet Response to Thienopyridine Loading in ST-Elevation Acute Myocardial Infarction at the Time of Primary Angioplasty: Predictors and Effect on Myocardial Reperfusion

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Disclosures:

No disclosures

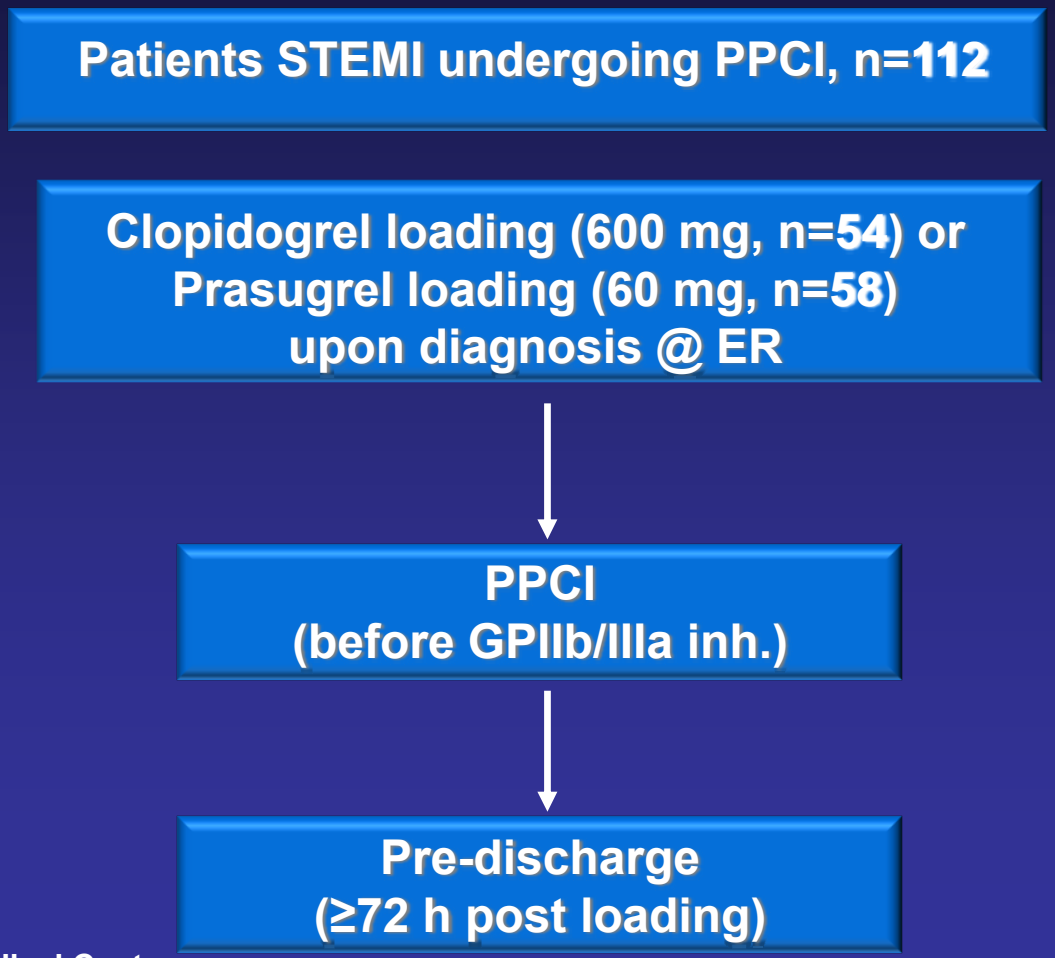
Background

Data regarding the immediate effect of thienopyridine pre-treatment in STEMI patients undergoing primary percutaneous coronary intervention (PPCI) are scarce

Aims

- Evaluate the immediate anti-platelet effect of thienopyridine pre-treatment in STEMI patients undergoing PPCI, and its predictors
- Assess the impact of early thienopyridine anti-platelet effect (@ PPCI) on markers of reperfusion.

Platelet Aggregation in Response to Thienopyridine in Patients Undergoing PPCI for STEMI



Door to Balloon Time :

48 ± 22 min

Methods (cont.)

ADP and AA induced platelet aggregation (PA) was studied by light transmitted aggregometry (LTA) in 3 time points:

- Presentation
- PPCI
- After 72 hours

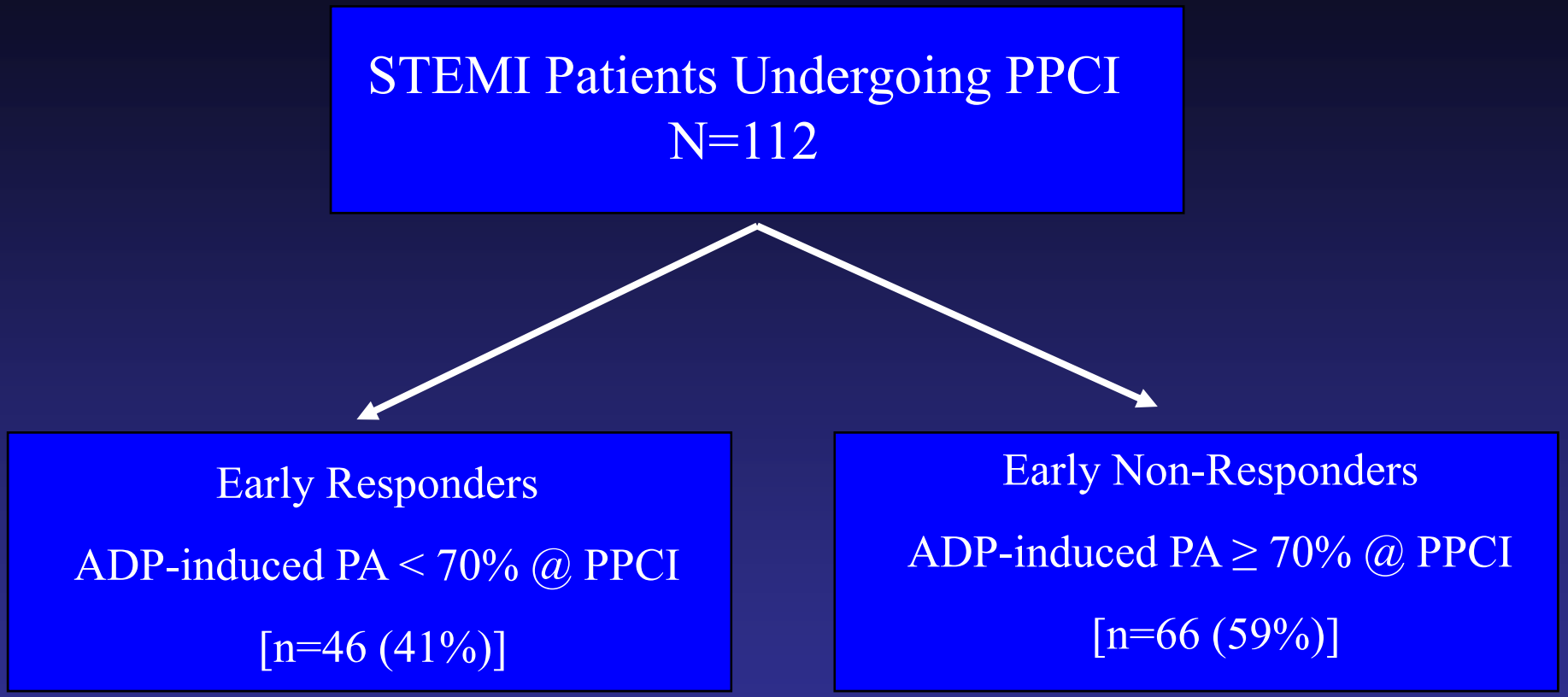
Early Platelet Response to Thienopyridine was defined as ADP – induced PA < 70% @ PPCI

Methods (cont.)

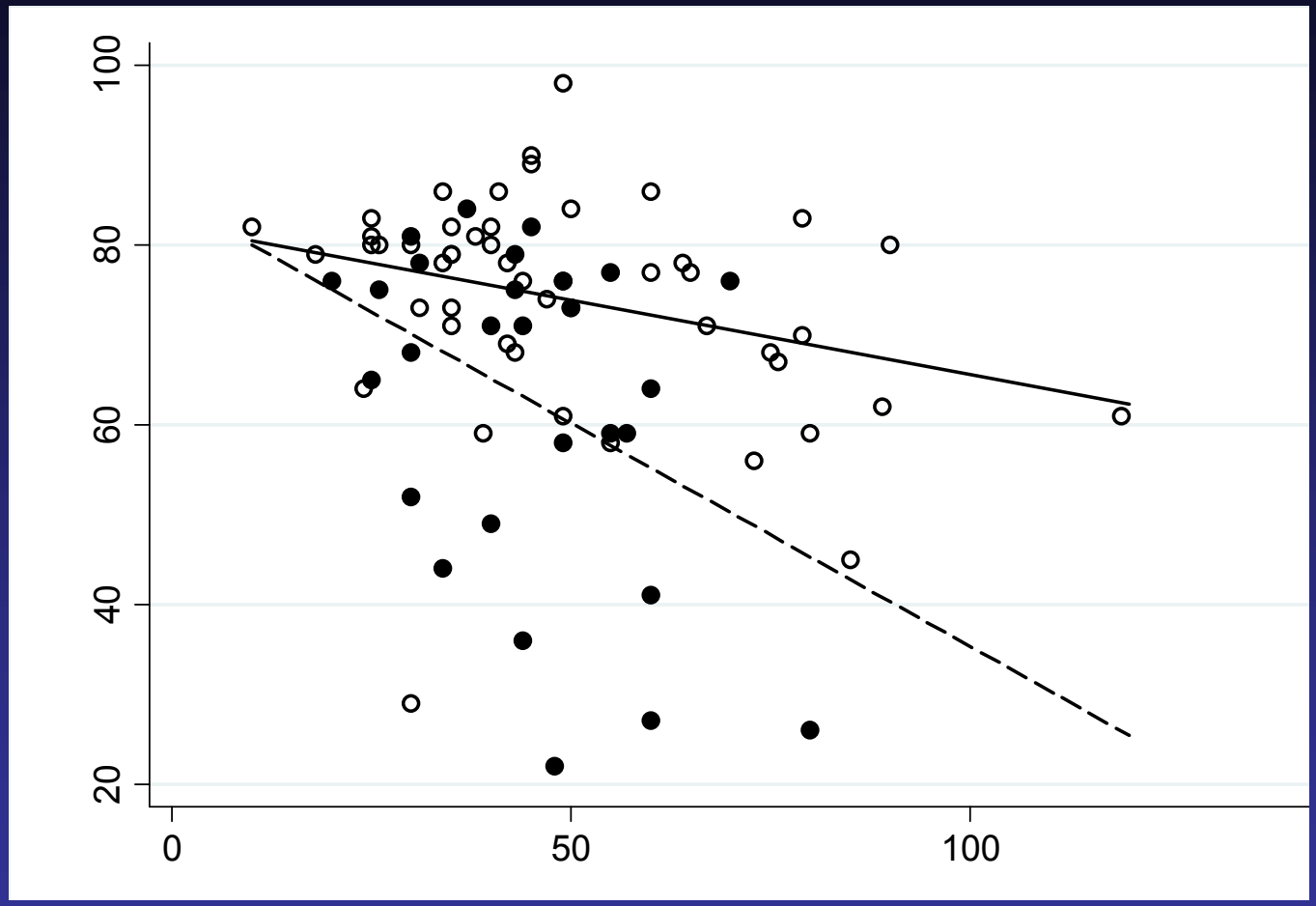
Markers of reperfusion and myocardial damage were evaluated:

- TIMI myocardial perfusion (TMPG)
- ST segment resolution (STR)

Results


STEMI Patients Undergoing PPCI
N=112
Early Responders
ADP-induced PA < 70% @ PPCI
[n=46 (41%)]
Early Non-Responders
ADP-induced PA ≥ 70% @ PPCI
[n=66 (59%)]

Platelet Reactivity by Time from Loading



Patient Characteristics

	Non-Responders (n=66)	Responders (n=46)	P-Value
Age (years ± SD)	62 ±10	57 ±13	0.04
Male (%)	89	80	0.19
Smoking (%)	39	48	0.38
Hypertension (%)	45	24	0.02
Hyperlipidemia (%)	50	39	0.26
Diabetes mellitus (%)	23	22	0.90
BMI	27 ± 4	27 ± 4	0.87
Prior ischemic heart disease (%)	15	17	0.75
Clopidogrel (%)	56	37	0.05
Time from symptom onset to admission (minutes± SD)	212 ± 191	177 ± 122	0.3

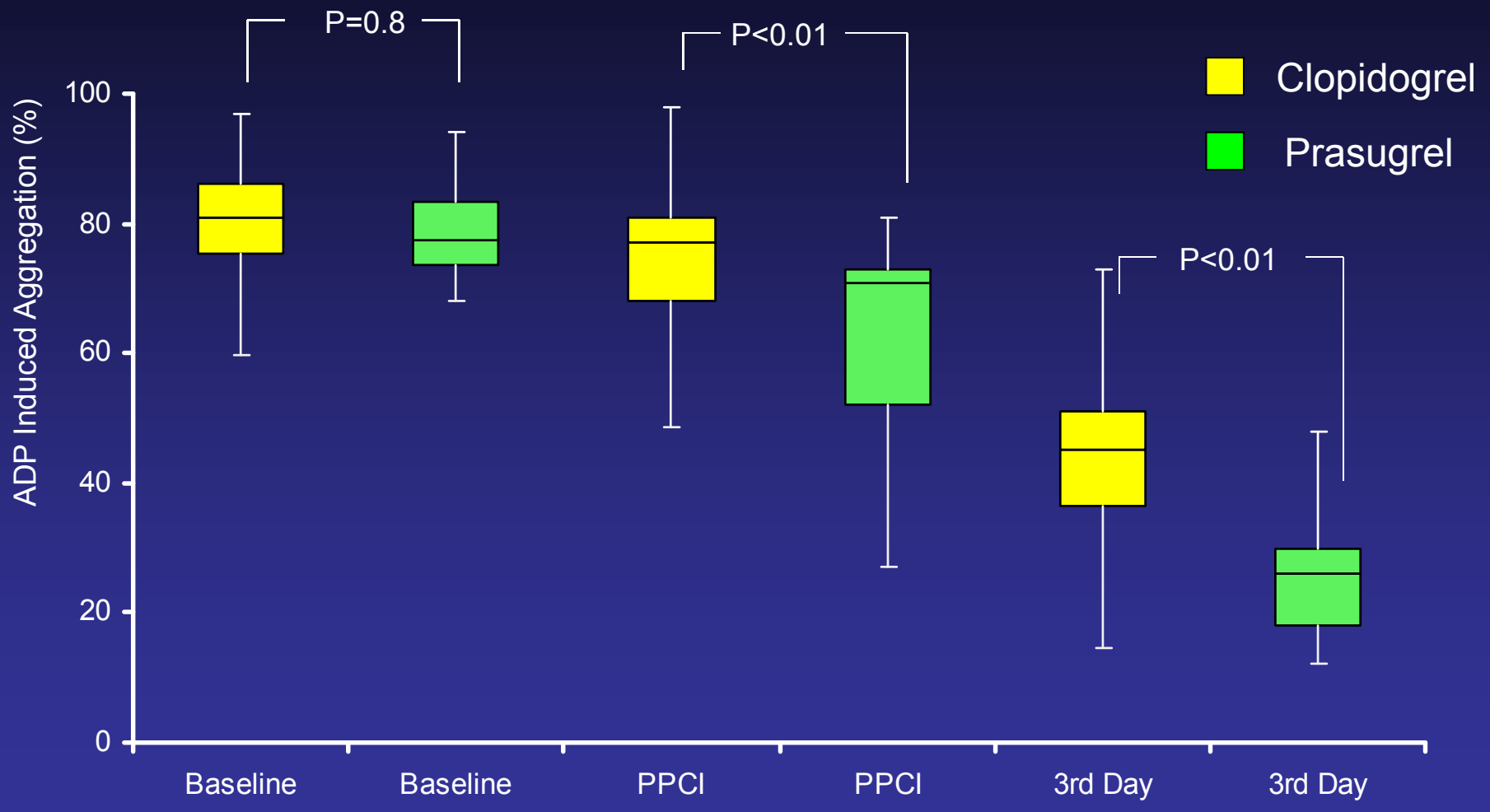
Characteristics of Clopidogrel Patients

	Non-Responders (n=37)	Responders (n=17)	P-Value
Age (years ± SD)	63 ±11	57 ±16	0.14
Male (%)	86	76	0.37
Smoking (%)	30	47	0.22
Hypertension (%)	46	29	0.26
Hyperlipidemia (%)	46	35	0.47
Diabetes mellitus (%)	22	12	0.40
BMI	26 ± 4	26 ± 4	0.89
Prior ischemic heart disease (%)	14	18	0.70
Time from symptom onset to admission (minutes ± SD)	236 ± 206	158 ± 99	0.17

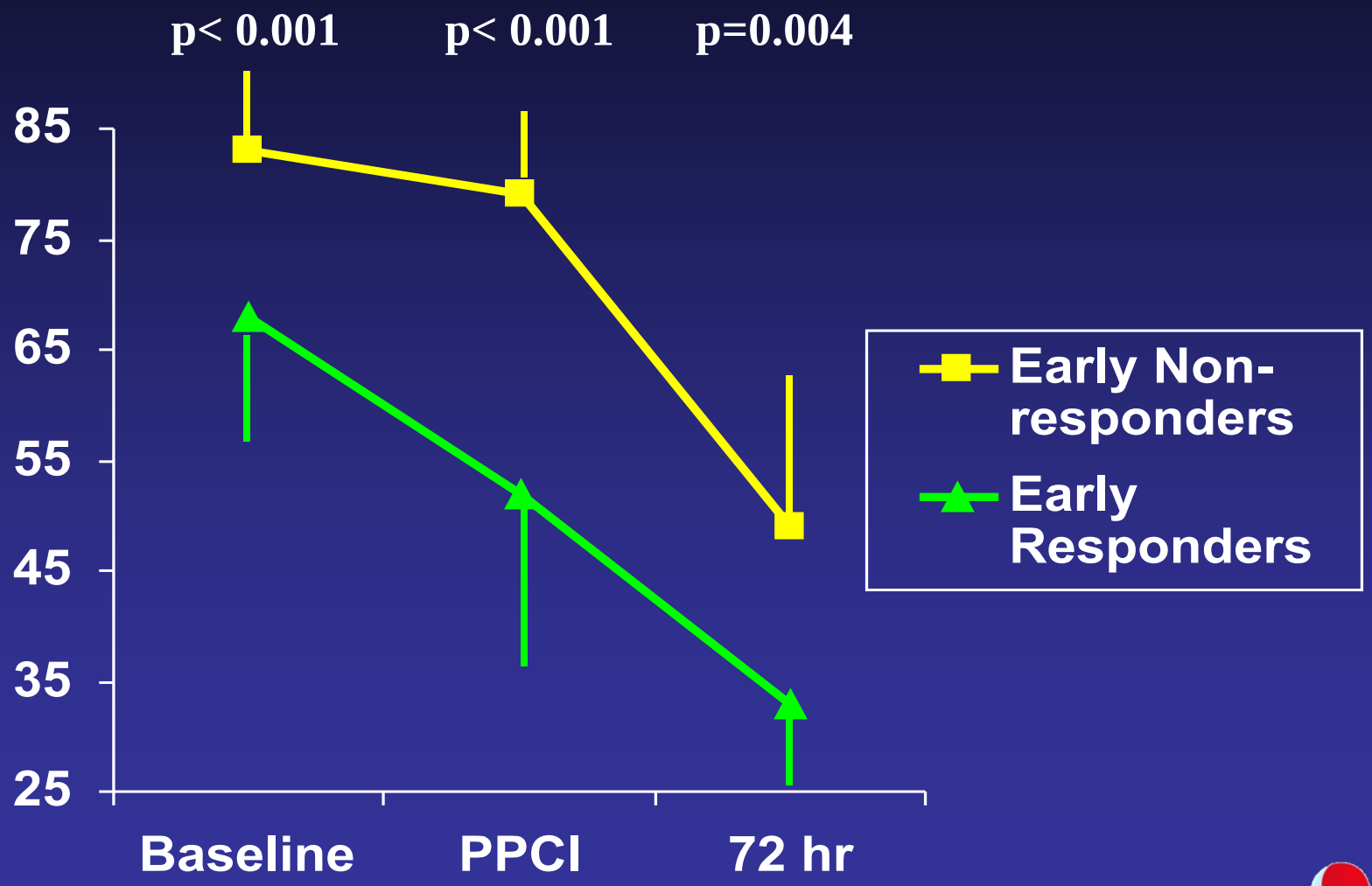
Characteristics of Prasugrel Patients

	Non-Responders (n=29)	Responders (n=29)	P-Value
Age (years ± SD)	60 ± 8	57 ± 11	0.29
Male (%)	93	83	0.23
Smoking (%)	52	48	0.80
Hypertension (%)	45	21	0.05
Hyperlipidemia (%)	55	41	0.30
Diabetes mellitus (%)	24	28	0.28
BMI	28 ± 4	28 ± 5	0.60
Prior ischemic heart disease (%)	17	17	1.00
Time from symptom onset to admission (minutes ± SD)	183 ± 170	189 ± 136	0.90

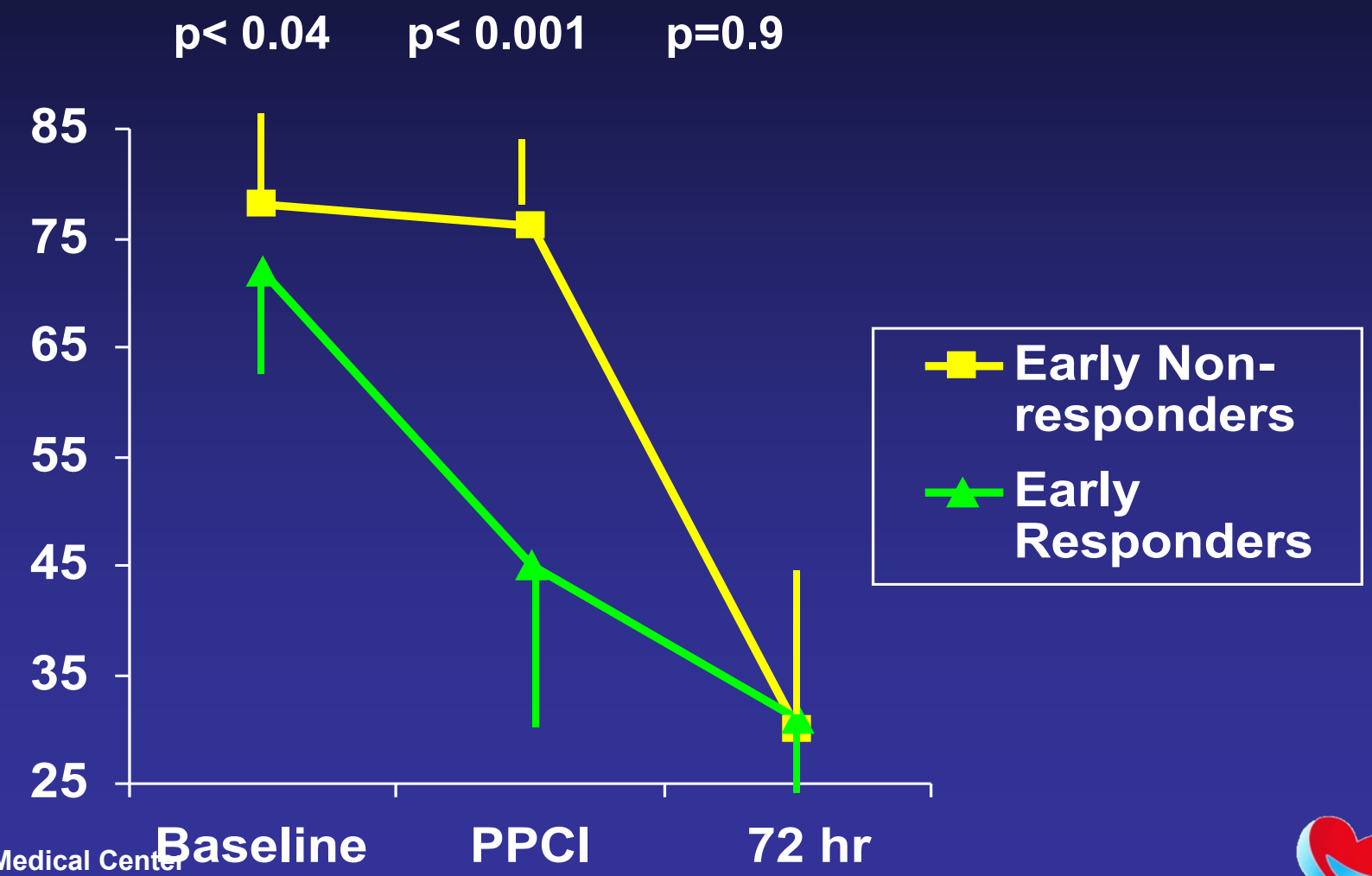
Platelet Aggregation: Clopidogrel vs. Prasugrel



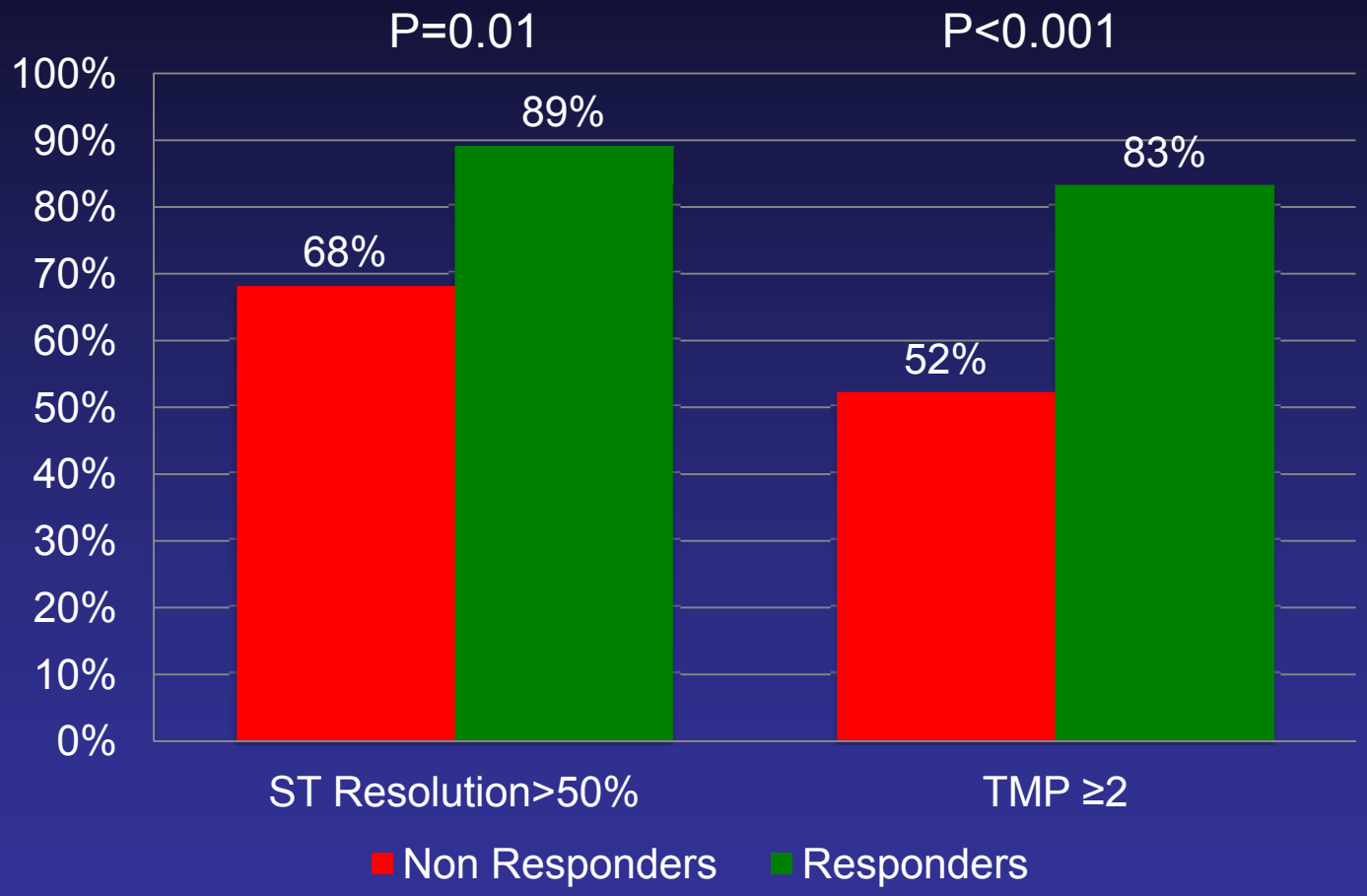
Clopidogrel Group Platelet Aggregation : Early Responders vs. Non-Responders



Prasugrel Group Platelet Aggregation : Early Responders vs. Non-Responders



Markers of Myocardial Reperfusion



Limitations

- Single center, non randomized study
- Small group of patients to discuss clinical outcomes – hypothesis generating study

Conclusions

- Thienopyridine pre-treatment in STEMI patients is associated with a significant reduction in platelet aggregation at the time of PPCI
- Early response to thienopyridine is associated with improved tissue perfusion and ST resolution
- Predictors of early response to thienopyridine include lower age and low baseline platelet reactivity
- Longer loading to balloon time is associated with lower platelet reactivity
- Further research needed to establish thienopyridine pre-treatment clinical impact on STEMI patients

Thank You