

PHARMACO-INVASIVE STRATEGY IN STEMI: THE FRENCH EXPERIENCE

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on behalf of the FAST-MI investigators

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Disclosures

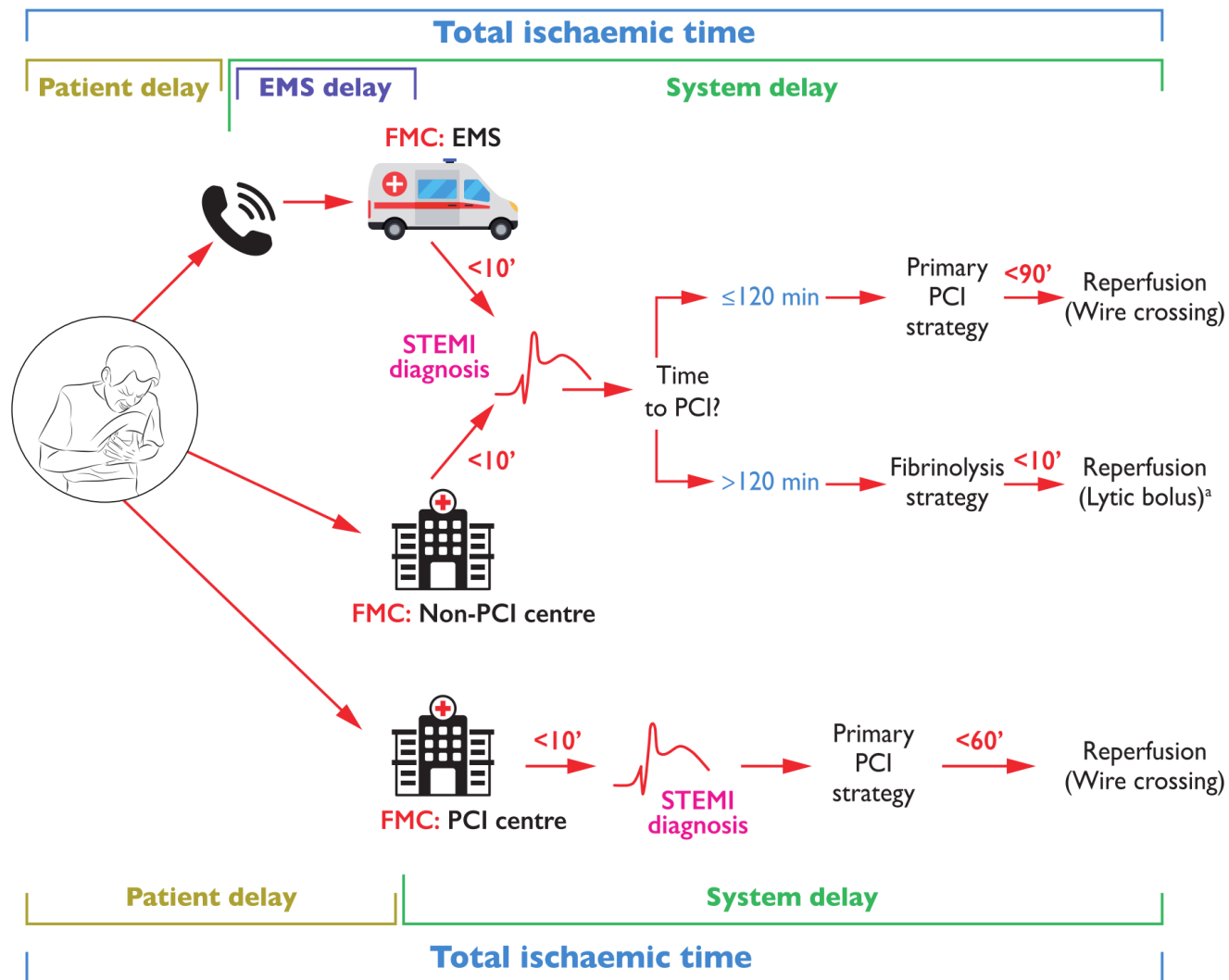
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Background

The 2017 ESC guidelines recommend primary PCI as the default reperfusion strategy for STEMI patients, if performed within recommended timeframes.

A pharmaco-invasive strategy is indicated in the absence of contra-indications, if the expected time from diagnostic ECG to PPCI is ≥ 120 minutes.



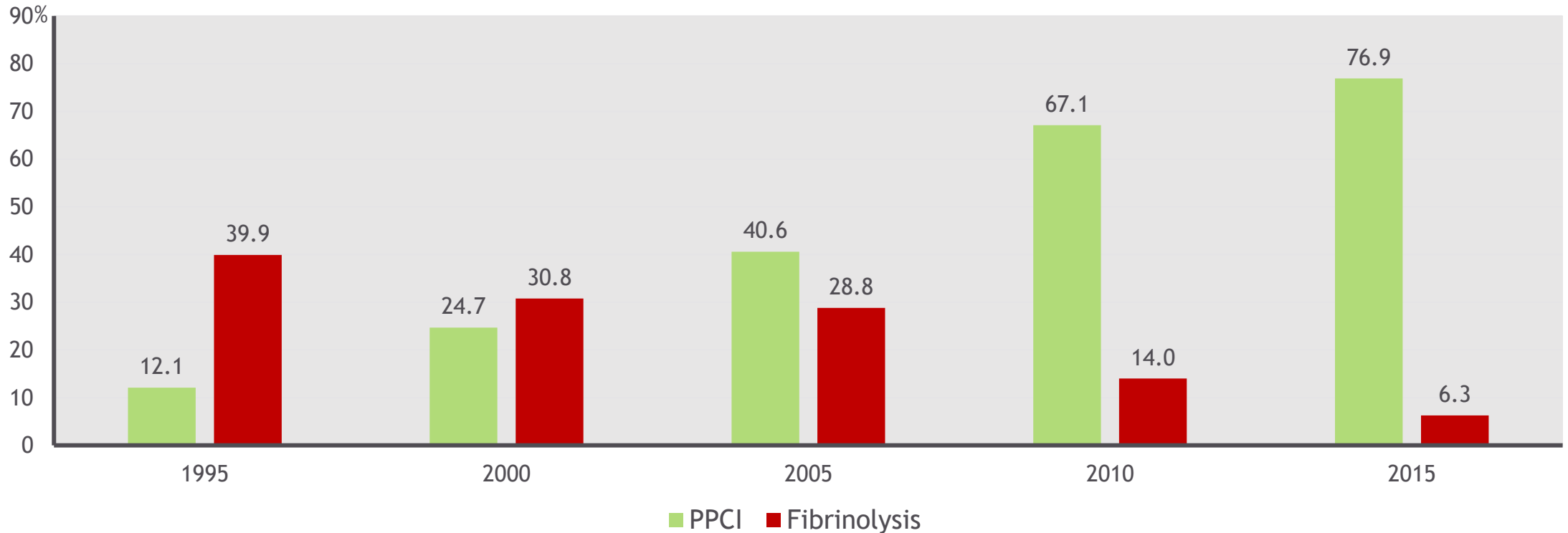


The FAST-MI programme

- Nationwide French registries conducted 5 years apart since 2005, including consecutive adult patients with acute STEMI or NSTEMI, with symptom onset \leq 48 hours, admitted alive to a coronary care unit (CCU) or an intensive care unit (ICU), over a 1-month period (possible extension for up to one additional month).
- AMI criteria: 1) cardiac markers elevation with 2) compatible symptoms, or ST-T changes.
- Exclusion of iatrogenic AMIs and MI diagnosis which have been subsequently disproved.
- All type of institutions: academic teaching hospitals, community and regional hospitals, private clinics (for-profit and not-for-profit), army hospitals.
- Compliance with GCP, patient consent and compliance with French law, including the law on data protection.



FAST-MI: changes in reperfusion treatment in STEMI



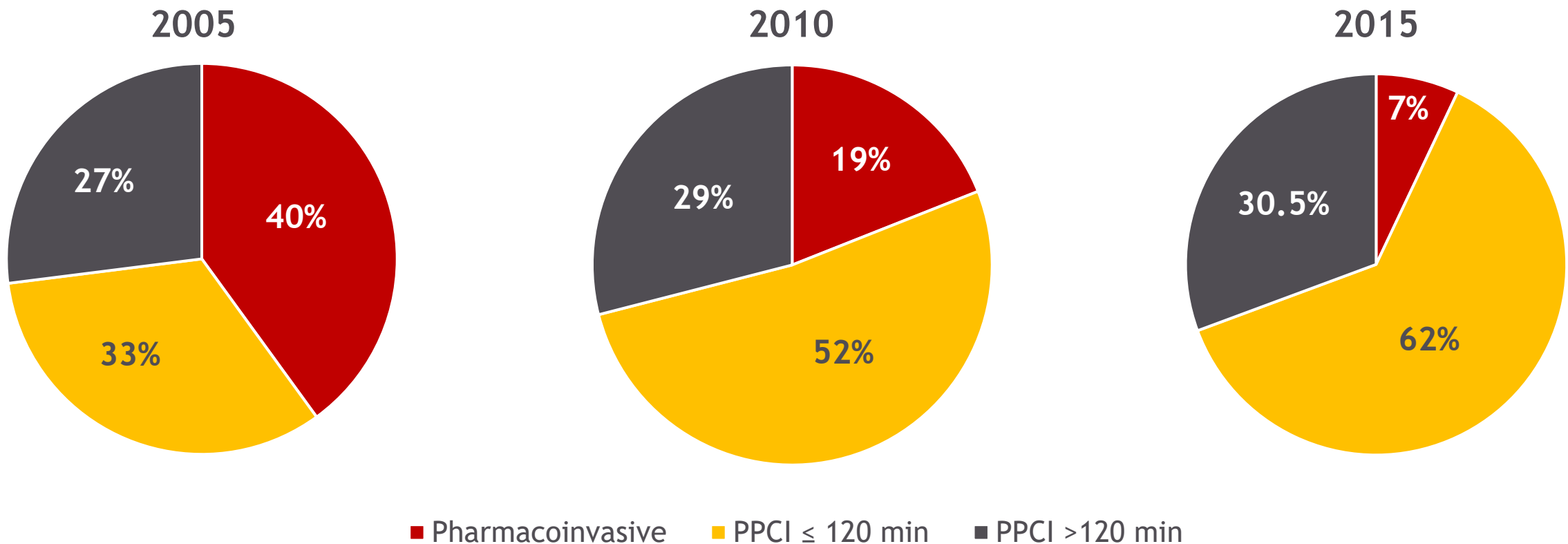
PCI after lysis: **15%** **60%** **84%** **87%** **87%**

Age reperfusion Rx	61.6 ± 12.6	60.9 ± 13.7	61.2 ± 13.7	61.9 ± 14.0	62.7 ± 13.5	<i>P=0.014</i>
Age no reperfusion Rx	70.8 ± 13.8	68.6 ± 14.5	70.3 ± 14.9	69.0 ± 15.3	66.7 ± 15.0	<i>P<0.001</i>

Primary PCI is often performed too late FAST-MI 2005–2015



STEMI with FMC <12 hours from onset



FMC, first medical contact
Personal data on file.

FAST-MI 2005 n=3670
FAST-MI 2010 n=4169
N=7839



4250 STEMI patients





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535 (13%) time
from onset > 12
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3715 with onset \leq 12 hours

763 (21%) without
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2942 with reperfusion
therapy and all timelines
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824 (28%)
pharmaco-invasive
strategy

1288 (44%)
timely PPCI

830 (28%)
PPCI >120 minutes



Population

	Primary PCI <120 min (n=1288)	Late primary PCI >120 min (n=830)	Pharmaco-invasive (n=824)	P value
Demography, risk factors and medical history				
Age, mean ± SD (years)	61 ± 13	64 ± 15	60 ± 13	<0.001
Women	282 (21.9)	250 (30.1)	173 (21.0)	<0.001
Diabetes	213 (16.5)	195 (23.5)	142 (17.2)	<0.001
Hypertension	552 (42.9)	423 (51.0)	347 (42.7)	<0.001
Current smoking	582 (45.2)	324 (39.0)	391 (47.5)	0.001
Hypercholesterolemia	524 (40.7)	348 (41.9)	337 (40.9)	0.843
Family history of CAD	346 (26.9)	210 (25.3)	259 (31.4)	0.014
Prior AMI	136 (10.6)	89 (10.7)	64 (7.8)	0.065
Prior stroke/TIA	53 (4.1)	40 (4.8)	12 (1.5)	<0.001
Peripheral artery disease	47 (3.7)	51 (6.1)	32 (3.9)	0.017
History of heart failure	16 (1.2)	25 (3.0)	3 (0.4)	<0.001
Chronic kidney disease	30 (2.3)	16 (1.9)	12 (1.5)	0.368



STEMI characteristics and early management

Initial presentation	PPCI <120 min	PPCI >120 min	Pharmaco-invasive	P value
Anterior infarction	527 (40.9)	350 (42.2)	297 (36.0)	0.024
GRACE risk score,	141 ± 32 (n=1241)	147 ± 35 (n=778)	141 ± 31 (n=770)	<0.001
Out-of-hospital cardiac arrest	29 (2.3)	16 (1.9)	23 (2.8)	0.496
Initial management				
Time from onset to first call (minutes)	60 (30, 150)	70 (30, 210)	50 (20, 105)	<0.001
EMS as first contact	784 (60.9)	329 (39.6)	497 (60.3)	<0.001
Transfer to catheterisation laboratory	99 (7.7)	272 (32.2)	267 (32.4)	<0.001
Rescue PCI	--	--	256 (34.4)	--
Pre-hospital lysis	--	--	522 (63)	--
Aspirin	1263 (98.1)	813 (98.0)	806 (97.8)	0.928
Clopidogrel /prasugrel	1056 (82)/422 (33)	748 (90)/169 (20)	761 (92)/107 (13)	<0.001
Glycoprotein IIb/IIIa inhibitors	477 (53.8)	232 (46.8)	38 (11.5)	<0.001
LMWH, fondaparinux or bivalirudin	945 (73.4)	601 (72.4)	575 (69.8)	0.195
ACE-inhibitor or ARB	843 (65.5)	513 (61.8)	463 (56.2)	<0.001
Beta-blocker	1056 (82.0)	664 (80.0)	671 (81.4)	0.514
Statin	1156 (89.8)	739 (89.0)	720 (87.4)	0.236
Diuretic	264 (20.5)	230 (27.7)	144 (17.5)	<0.001

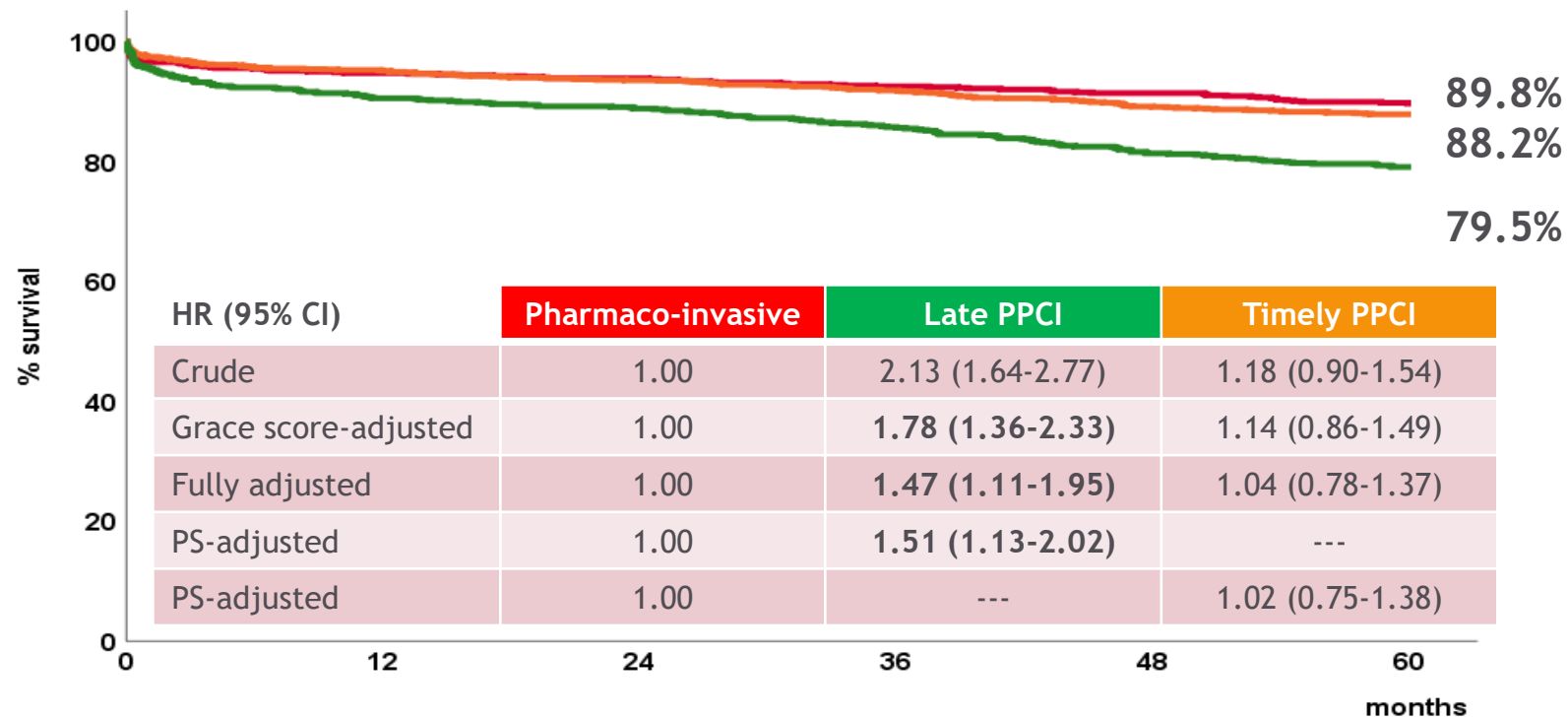


Early outcomes

In-hospital complications	PPCI <120 min	PPCI >120 min	Pharmaco-invasive	P value
Recurrent AMI	10 (0.8)	9 (1.1)	19 (2.3)	0.08
Stroke	5 (0.4)	5 (0.6)	9 (1.1)	0.141
Intracranial bleeding	1 (0.1)	1 (0.1)	4 (0.5)	0.105
TIMI major bleeding	17 (1.3)	23 (2.8)	16 (1.9)	0.058
TIMI minor bleeding	34 (2.6)	17 (2.0)	20 (2.4)	0.687
Blood transfusion	41 (3.2)	32 (3.9)	27 (3.3)	0.688
High-degree A-V block	19 (1.5)	27 (3.3)	12 (1.5)	0.007
Atrial fibrillation	97 (7.5)	97 (11.7)	73 (8.9)	0.005
Secondary cardiogenic shock	24 (1.9)	28 (3.4)	19 (2.3)	0.084
Discharge LVEF (%)	51.6 ± 10.4 (n=889)	50.7 ± 11.1 (n=527)	52.9 ± 11.2 (n=495)	0.003
In-hospital death	27 (2.1)	36 (4.3)	25 (3.0)	0.013
30-day death	32 (2.5)	36 (4.3)	27 (3.3)	0.062



Five-year survival

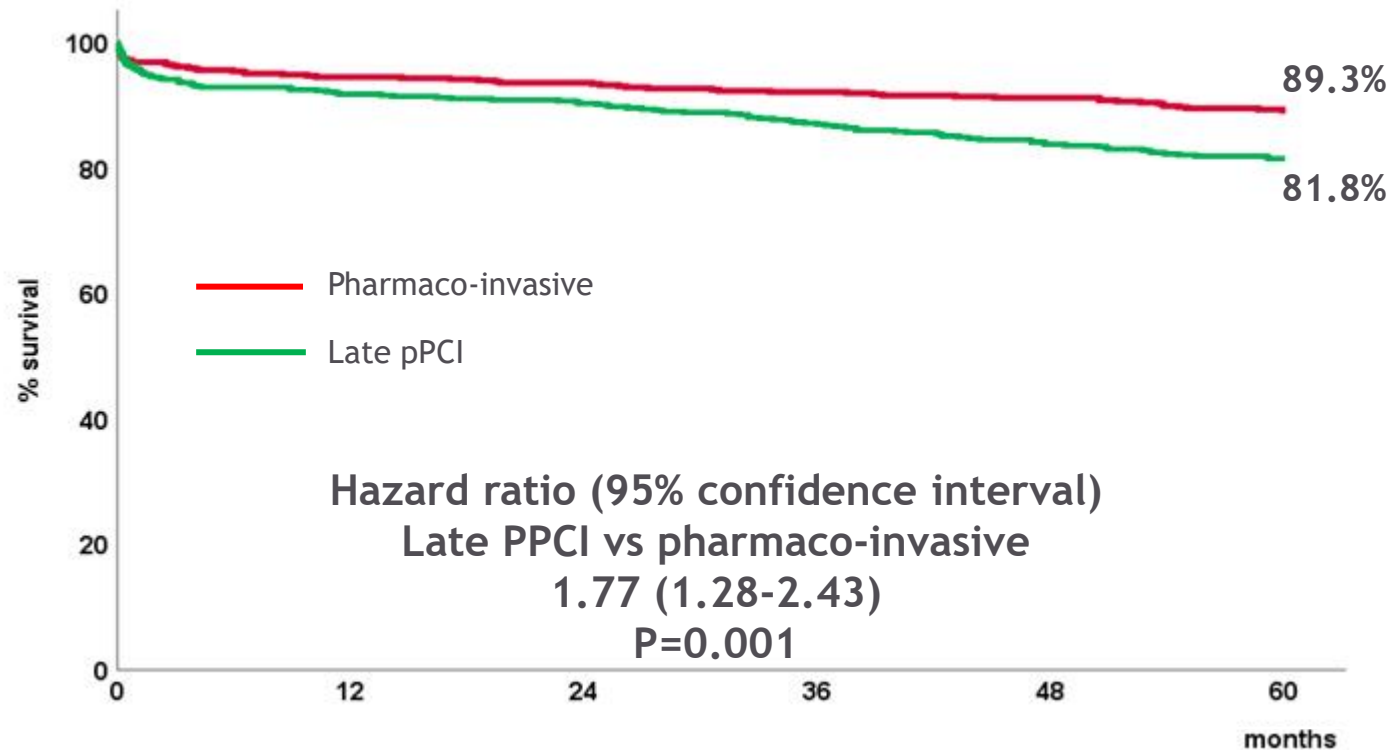


Number at risk

	0	12	24	36	48	60
Pharmaco-invasive	824	779	766	751	737	720
Timely PPCI	1288	1212	1174	1140	1096	1066
Late PPCI	830	749	724	689	648	626

Five-year survival: PS-matched cohorts

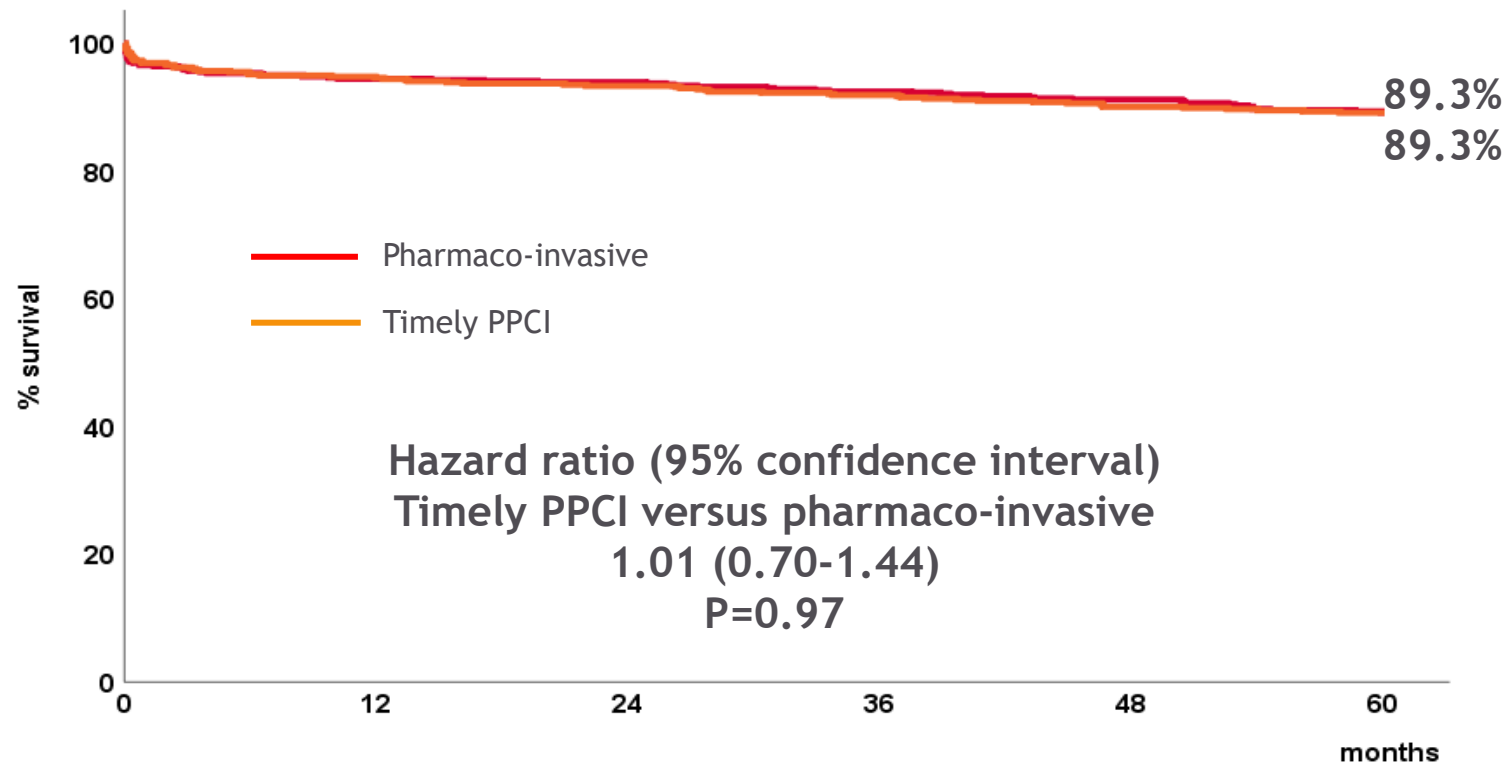
Pharmaco-invasive vs late PPCI



Number at risk

	0	12	24	36	48	60
Pharmaco-invasive	549	519	509	499	491	478
Late PPCI	549	504	490	466	445	429

Five-year survival: PS-matched cohorts Pharmaco-invasive vs timely PPCI

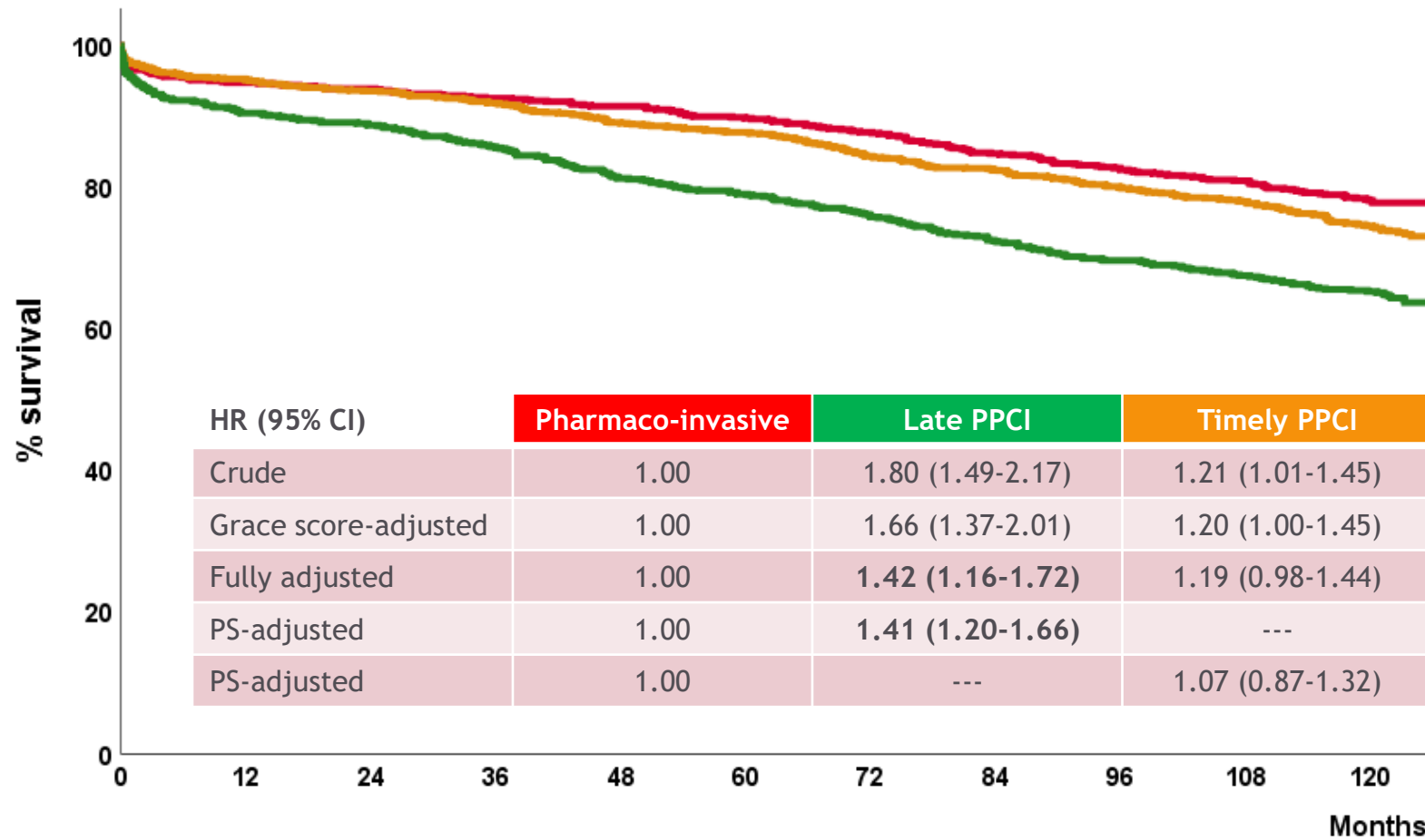


Number at risk

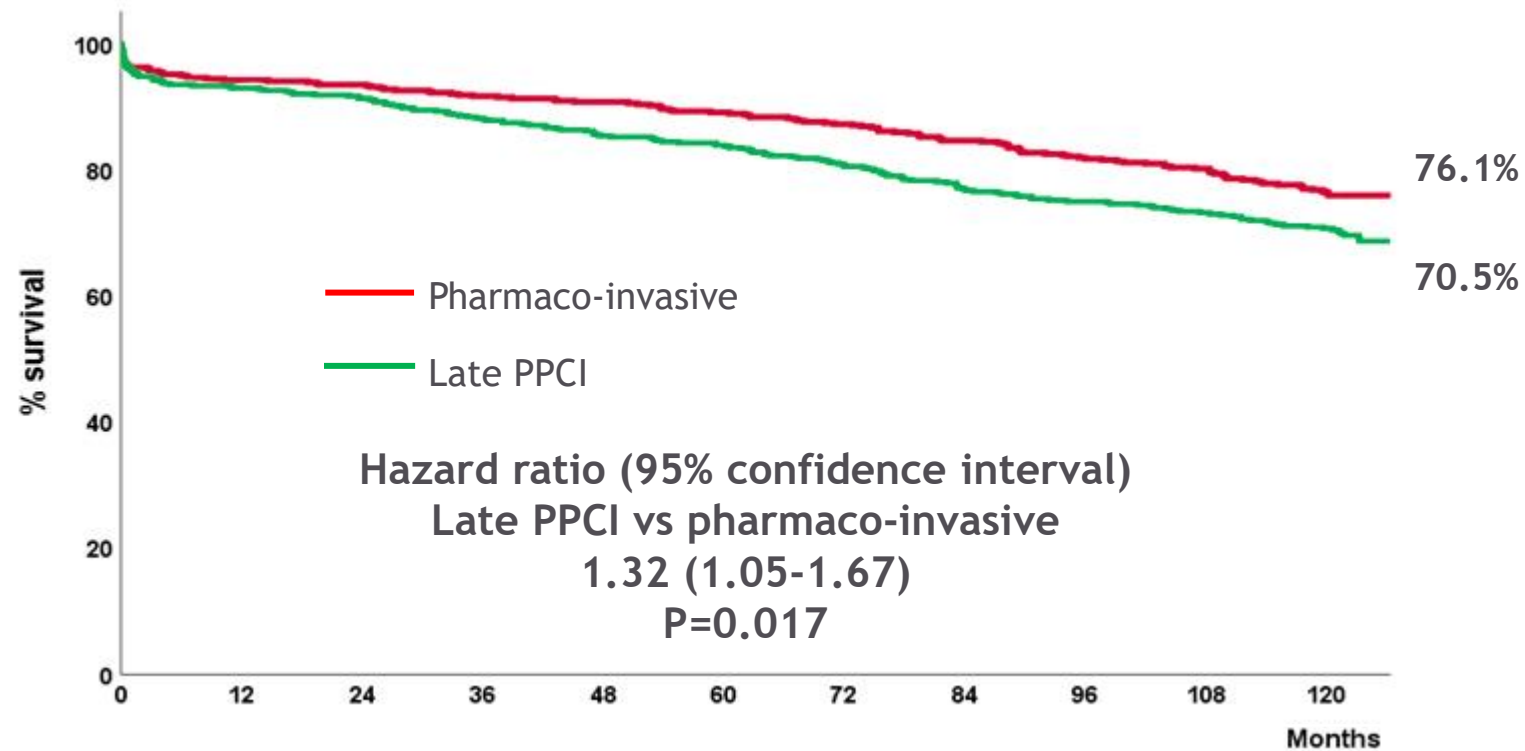
	0	12	24	36	48	60
Pharmaco-invasive	562	531	522	511	500	486
Timely PPCI	562	528	516	505	490	478



Ten-year survival: FAST-MI 2005 and 2010



Ten-year survival PS-matched pharmaco-invasive vs late PPCI

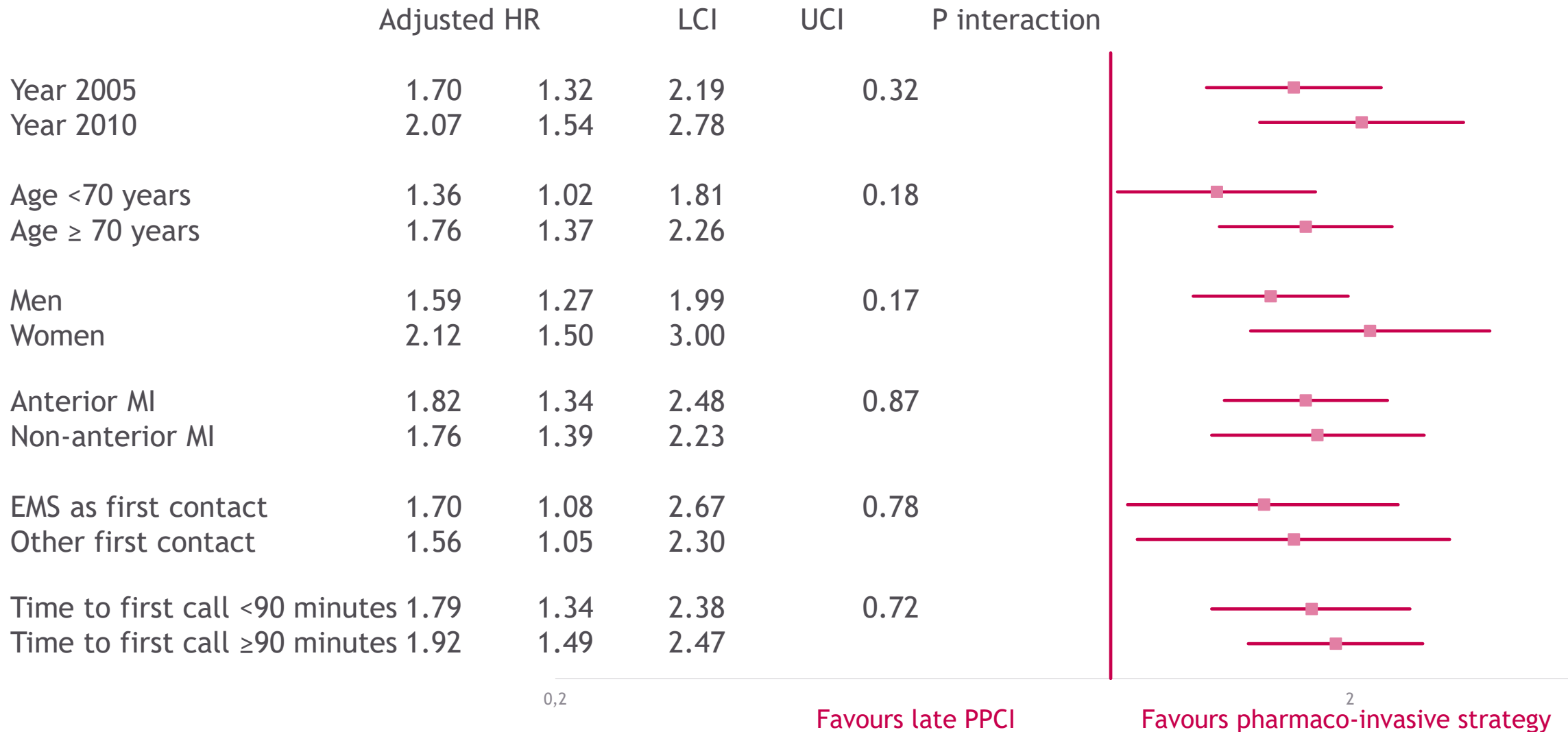


Number at risk

Pharmaco-invasive	549	517	513	501	494	483	472	446	424	409	351
Late PPCI	549	510	498	477	460	450	432	401	383	359	296

Subgroup analysis: pharmaco-invasive vs late PPCI

Ten-year death





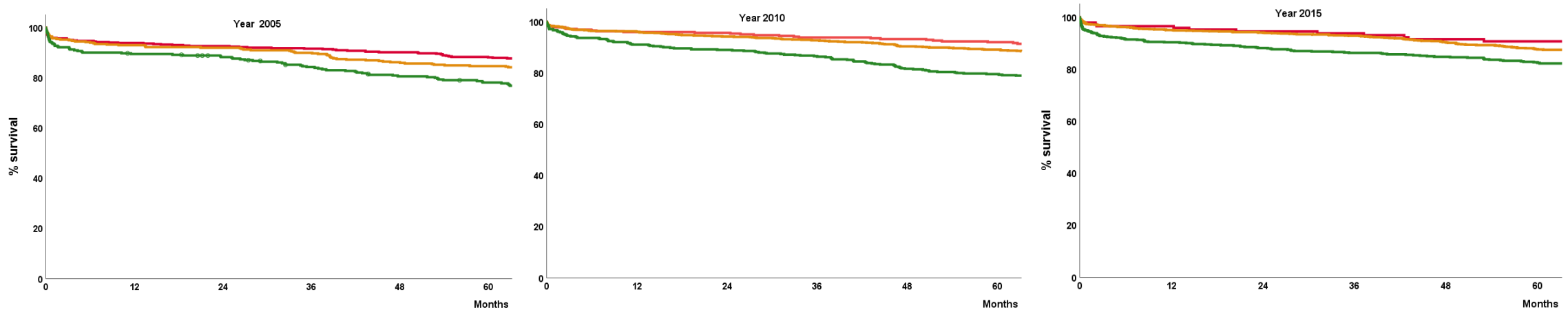
Five-year survival by period: FAST-MI 2005-2015

FAST-MI 2015 n=5291 Total FAST
N=13130

2277 STEMI with onset \leq 12 hours
N=5992

2054 with reperfusion Rx and
timelines available
N=4996

Fully adjusted HR (95% CI)	
Pharmaco-invasive	1.00
Timely PPCI	1.15 (0.90-1.48)
Late PPCI	1.55 (1.20-1.99)



Conclusion

- In this nationwide observational cohort of STEMI patients:



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 - 29% of the patients with primary PCI were treated beyond the recommended timeframes, with no improvement between 2005 (27%), 2010 (29%), and 2015 (30.5%).



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 - 29% of the patients with primary PCI were treated beyond the recommended timeframes, with no improvement between 2005 (27%), 2010 (29%), and 2015 (30.5%).
 - A pharmaco-invasive strategy (2/3 pre-hospital) yielded superior survival at 5 years than primary PCI delivered > 120 minutes from diagnostic ECG, and similar survival, compared with timely primary PCI.



Conclusion

- In this nationwide observational cohort of STEMI patients:
 - 29% of the patients with primary PCI were treated beyond the recommended timeframes, with no improvement between 2005 (27%), 2010 (29%), and 2015 (30.5%).
 - A pharmaco-invasive strategy (2/3 pre-hospital) yielded superior survival at 5 years than primary PCI delivered > 120 minutes from diagnostic ECG, and similar survival, compared with timely primary PCI.
 - The benefits of the pharmaco-invasive strategy vs late primary PCI persisted up to 10 years

Acknowledgements



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