ST-Elevation Myocardial Infarction and current pain onset to admission delay: what impact on treatment modalities, MACE rate and in hospital mortality?

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Background: In STEMI, a shorter time from symptom onset to reperfusion, is associated with a greater survival benefit. AMIS-Plus is a prospective national registry of ACS in 68 Swiss hospitals; we sought to investigate how initial delays would impact on treatment modalities and outcome.

Methods: From January 1997 to December 2005, 19461 patients with an ACS were included in the data base, of which 11623 (60%) were STEMI (or new LBBB) admitted to Swiss hospitals. Delay was defined as the time from symptom onset to hospital admission and was known for 10214 patients.

Results: Baseline characteristics and in-hospital outcome are presented in the table:

	Total population STEMI N= 11623	Delay < 3h N= 4301 (42.1%)	Delay 3-6h N= 2277 (22.3%)	Delay 6-12h N= 1407 (13.8%)	Delay >12h N= 2229 (21.8%)
Female gender	26.1%	22.7%	26.4%	28.8%	30.6%
Age mean ±sd	64.3 ± 13.2	62.7 ± 13.1	64.8 ± 13.1	65.7 ±13.3	66.1 ± 13.1
median	65y	63y	66y	67y	67y
Killip class					
Killip class I	75.8%	77.6%	76.3%	76.3%	71.6%
Killip class II	17.0%	15.1%	17.4%	16.8%	20.2%
Killip class III	4.3%	3.5%	3.7%	4.9%	6.1%
Killip class IV	2.9%	3.8%	2.5%	1.9%	2.1%
Diabetes	18.2%	15.2%	18.8%	21.4%%	22.8%
Hypertension	50.7%	47.4%	51.7%	51.9%	55.3%
Reperfusion strategies:					
None	31.7%	20.2%	23.5%	38.9%	58.1%
Thrombolysis	31.3%	41.5%	35.5%	23.7%	11.8%
Primary PCI	37.0%	38.3%	41.1%	37.4%	30.1%
Outcome					
MACE rate	10.8%	10.2%	9.3%	12.6%	12.5%
In-hospital mortality	7.8%	7.3%	6.6%	8.7%	9.7%

By multivariate analysis, increasing out of hospital delay was not associated with an increase in either mortality or major adverse clinical events (death reinfarction and stroke: MACE). Patients admitted late are elderly, with a higher proportion of Diabetes and Hypertension (p<0.001).

The proportion of patients admitted within the first 3hours has not changed over time from 1997 to 2005 (mean 42.1%, between 39 and 45%). In this 9 year period door to needle time for thrombolysis

was unchanged in mean 47 min (median 30 min, n=2757). The door to balloon time for primary PCI was accessed from 1999 and was in mean 172 min (median 70 min, n=3709).

Conclusion: To achieve the best outcome, delays must be shortened even more through public information and hospital triage has to improve to shorten door to reperfusion.