

Background

Current guidelines for reperfusion therapy in patients with acute ST-elevation myocardial infarction (STEMI) undergoing percutaneous coronary intervention (PCI) recommend a door-to-balloon (DTB) time of less than 90 minutes, even for patients transferred from non-PCI hospitals.

Objective

To examine the trends in delay time to intervention during the last 11 years in STEMI patients who underwent PCI in Swiss hospitals.

Methods

AMIS Plus (*Acute Myocardial Infarction in Switzerland*) is a nationwide, prospective, multicenter study of acute coronary syndrome patients hospitalized in Switzerland.

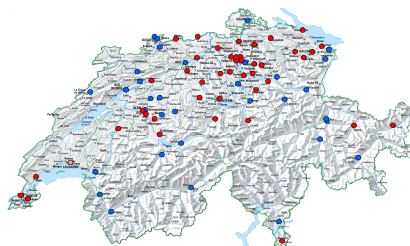
Using the AMIS Plus data, patients admitted between 2000 and 2010 with a definite diagnosis of STEMI (clinical symptoms, ECG and/or elevated troponin levels according to the specific hospital cut-off for MI) who underwent PCI were analyzed.

Pre-hospital delay was defined as the time between symptom onset and admission. DTB time was defined as the time between admission and the first automatic arterial blood pressure measurement in the heart catheter laboratory.

Results

Population

10,408 STEMI patients from 66 Swiss hospitals who underwent PCI.



Changes in baseline characteristics

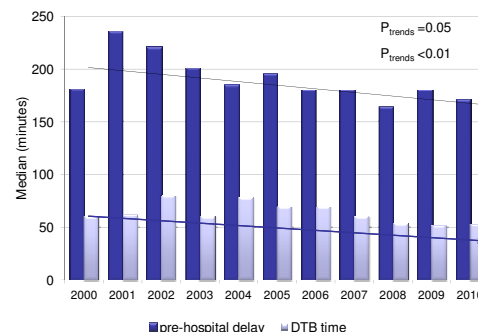
	All patients	2000	2010	P _{trends}
Age, mean yrs (SD)				
male	61.7 (12.5)	59.8 (12.3)	60.6 (11.8)	0.23
female	67.2 (12.3)	65.8 (13.2)	69.2 (12.8)	0.04
Diabetes mellitus	16.1%	16.7%	16.8%	0.47
Hypertension	53.0%	48.2%	55.9%	<0.001
Dyslipidemia	54.0%	57.9%	48.1%	<0.001
Current smokers	46.8%	46.5%	43.5%	0.04
Obesity (BMI>30)	19.6%	15.1%	22.9%	0.05
Charlson Index ≥2	14.5%	23.5%	16.6%	0.03

Delays in STEMI patients undergoing PCI

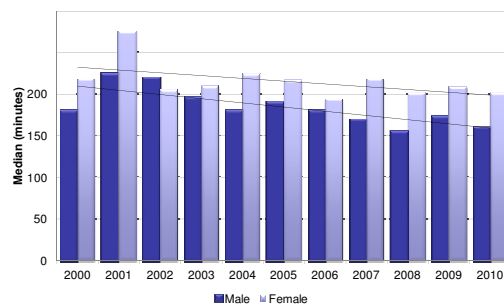
•Pre-hospital delay decreased from **180 min** (IQR 105, 482 min) in 2000 to **170 min** (IQR 100, 392 min) in 2010

•DTB time decreased from **60 min** (IQR 30, 155 min) in 2000 to **53 min** (IQR 20, 90 min) in 2010

•DTB time was **<90 min** for:
65.9% STEMI patients in 2000
75,4% STEMI patients in 2010



Pre-hospital delay according to gender

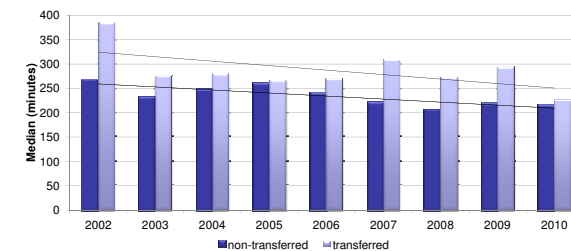


•Pre-hospital delay was 18% longer (95%CI 14%-22%) in female patients than in males and 11% longer (95%CI 8%-16%) after adjusting for age

•Delay in females = delay in males + 15 years

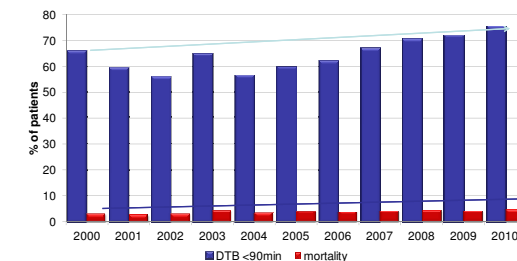
•DTB time decreased from:
51 min (29, 135) to **50 min** (20, 88) in **males**
80 min (26, 237) to **65 min** (23, 99) in **females**

Delay from symptom onset to PCI with or without transfer



2010: transferred patients were treated 14 minutes later

DTB time <90 min and in-hospital mortality



Conclusion

- Pre-hospital delay of STEMI patients is still too long but DTB time is well within the guideline-recommended timeframe in Switzerland.
- Although time to treatment of STEMI patients decreased during the last 11 years, it did not translate into a significant reduction of in-hospital mortality in this patient population.
- Further research is warranted to assess the lack of improvement in survival despite a remarkable improvement in DTB time.
- Efforts to improve outcome should not simply address a single quality measurement but instead embrace the broader spectrum of procedures in acute myocardial infarction care.

There are no conflicts of interest