Acute myocardial infarction in stationary patients following admission for non-ACS pathologies

Dragana Radovanovic[1], Osmund Bertel[2], Philip Urban[3] , Franz Eberli[4], Giovanni Pedrazzini[5], Paul Erne[6], AMIS Plus Investigators

[1]AMIS Plus Data Center, Institute of Social and Preventive Medicine, University of Zurich, Zurich, Switzerland, [2] Klinik im Park, HerzGefässZentrum, Zurich, Switzerland, [3]Hôpital de la Tour, Meyrin, Geneva, Switzerland, [4]City Hospital Triemli, Zurich, Switzerland, [5] Cardio Centro, Lugano, Switzerland, [6]Luzerner Kantonsspital, Lucerne, Switzerland

AMIS Acute Myocardial Infarction in Switzerland

Objective

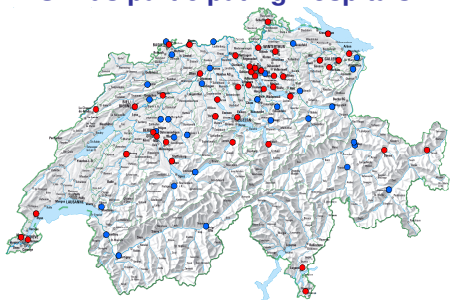
There are few studies on patients suffering acute myocardial infarction (MI) when already in hospital for other reasons. Prospective data are lacking and the magnitude of the problem has been estimated as 0.3-1% for stationary patients and up to 5% for surgical patients.

The aim of this study was to assess baseline characteristics, treatment and outcome of the patients who suffered an MI in hospital and were enrolled in the AMIS Plus Registry

Methods

AMIS Plus (***A**cute **M**yocardial **I**nfarction in **S**witzerland*) is a nationwide, prospective, multicenter study of acute coronary syndrome patients who are hospitalized in Switzerland. Using the AMIS Plus data, patients admitted between 1997 and 2011 with a definite diagnosis of MI (clinical symptoms, ECG and/or elevated troponin levels according to the specific hospital cut-off for MI) were included and analyzed using multivariate logistic regression.

AMIS Plus participating hospitals

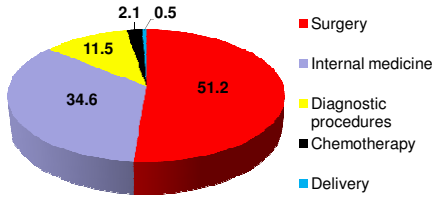


Results and Outcome

Population

Between 1997 and 2011, a total of 35,344 patients with MI from 79 Swiss hospitals were enrolled in the AMIS Plus registry. 21,776 patients had a ST-elevation MI (STEMI) and 13,968 had a non-STEMI. Among all the patients, 316 (0.9%) suffered an MI following admission due to other pathologies.

Reasons for primary hospitalization (%)



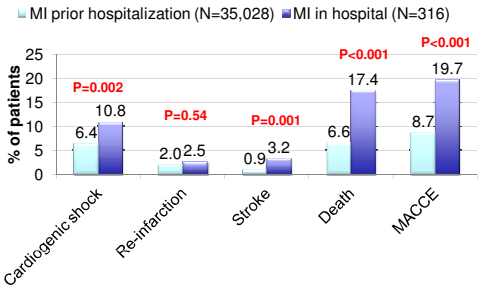
Baseline characteristics

	MI prior Admission N=35,028)	MI in hospital (n=316)	P value
Female gender	27%	39%	<0.001
Age, mean yrs (SD)	66y (13y)	74 (11y)	<0.001
CAD	36%	52%	<0.001
Diabetes mellitus	20%	29%	<0.001
Hypertension	58%	79%	<0.001
Dyslipidemia	56%	61%	=0.08
Current smokers	36%	23%	<0.001
Obesity (BMI >30)	20%	21%	=0.54
Killip class >2	7%	19%	<0.001
Charlson Index ≥2	24%	53%	<0.001

Immediate therapies of MI patients

	MI prior admission N=35,028)	MI in hospital (n=316)	P value
Aspirin	95%	88%	<0.001
Thienopyridine	61%	46%	<0.001
Heparin	89%	81%	<0.001
Beta blocker	68%	58%	<0.001
ACE inhibitor	44%	38%	=0.050
AT-II antagonist	7%	12%	=0.001
Statin	74%	60%	<0.001
PCI (any)	72%	40%	<0.001
Symptom to PCI (median)	449min	410min	=0.11

Outcome in hospital

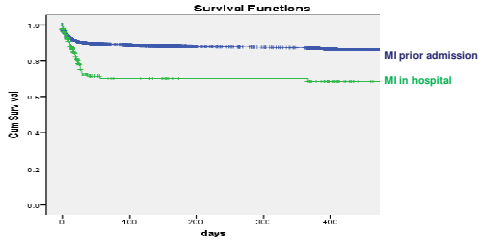


Independent predictors for in-hospital mortality

	OR	95% CI	P value
MI in hospital	**2.48**	**1.71-3.61**	**<0.001**
Female gender	1.04	0.90-1.20	=0.64
Age (per 10 years)	1.93	1.80-2.06	<0.001
Killip class >2	7.01	6.00-8.19	<0.001
Diabetes mellitus	1.24	1.06-1.45	=0.008
Hypertension	0.75	0.65-0.88	<0.001
Dyslipidemia	0.72	0.62-0.82	<0.001
Smoking	1.10	1.51-2.04	<0.001
Charlson Index ≥2	1.75	1.54-2.35	<0.001

Follow-up of discharged patients

2005 – 2011
N= 6870 patients
Mean FU duration 370 days (SD 91 days)



Study limitations:

- Patients who suffered an MI in hospital were not systematically included in AMIS Plus
- There was not a systematic inclusion of the primary diagnosis
- MI diagnosis could be overlooked in these patients and therefore the number of patients who suffered an MI in hospital could possibly be much higher

Conclusions

- Stationary patients who suffer an MI after admission for another diagnosis are at high risk of death, both during their index hospital stay and during the 1-year follow-up period
- These patients were less likely to have established drug and interventional therapies
- A cardiologist should always be involved when patients have a known coronary heart disease
- Further work is needed to identify the hospitalized patients who are at risk of MI in order to improve treatment of associated coronary artery disease

There are no conflicts of interest