Low real-world early stent thrombosis rates in STEMI patients, regardless of bivalirudin, heparin alone or GpIIb/IIIa inhibitor treatment – a nationwide Swedish registry report.

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Potential conflicts of interest

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☑ I do not have any potential conflict of interest

Background and aim

- In recent studies of primary PCI (PPCI), bivalirudin compared to heparin has been associated with increased risk of stent thrombosis (ST).

- Reported rates of ST have varied greatly.

- Our aim was to describe real-life incidence and outcome of definite, angiographically proven ST in a large contemporary population of patients undergoing PPCI, stratified according to different antithrombotic treatments.

Methodology

- Prospective observational cohort study using data from SCAAR (Swedish Coronary Angiography and Angioplasty Register), a part of the nationwide complete SWEDEHEART registry.
- All PPCI patients who received a stent in Sweden from January 2007 to July 2014, in the SWEDEHEART registry were collected.
- Analyses were performed in three subgroups:
  - Patients treated with bivalirudin (n=16860)
  - Patients treated with heparin alone (n=3182)
  - Patients treated with GpIIb/IIIa-inhibitors (n=11216)
- The primary outcome measure was incidence of definite, angiographically proven ST within 30 days of PCI (early ST). Secondary outcomes included all-cause mortality.

Background characteristics

	Bivalirudin treatment n=16860	Heparin only treatment n=3182	Glycoprotein IIb/IIIa inhibitor treatment n=11216
Age (yrs)	68	69	64
Weight (kg)	80	79	81
Diabetes (%)	15	16	13
Prior MI (%)	13	18	11
Prior PCI (%)	9	12	9
Smokers (%)	30	27	34

- Note: age, diabetes, prior MI, prior PCI, differences

Procedure characteristics

	Bivalirudin treatment n=16860	Heparin only treatment n=3182	Glycoprotein IIb/IIIa inhibitor treatment n=11216
Stent length (mm)	29	27	25
Stent diameter (mm)	3.0	3.0	3.1
Symptom-PCI (hours)	3.3	3.7	3.2
Radial access (%)	62	55	35
Number of stents	1.5	1.5	1.4
DES (%)	49	39	23
GpIIb/IIIa-Inh (%)	3.6	0	100
Bivalirudin (%)	100	0	0

- Note: stent length, time delay, radial access %, DES %, concomitant medication differences.

Incidence of stent thrombosis in antithtrombotic Tx subgroups

	Bivalirudin treated n=16860	Heparin only treated n=3182	GpIIb/IIIa-inh treated n=11216
ST day 0-30	0.84% (n=142)	0.94% (n=30)	0.83% (n=93)
ST day 0-1	0.33% (n=55)	0.28% (n=9)	0.21% (n=23)
ST day 2-30	0.53% (n=87)	0.68% (n=21)	0.64% (n=70)

- Incidence of early ST was low, regardless of antithrombotic treatment.
- Note: table shows crude incidence rates. Subgroups are not comparable.

All-cause mortality at one year, patients with early ST

Patient population	All-cause mortality at one year post PCI
ST day 0-30 post PCI (early ST) (n=265)	20,7% (n=51)
No ST (n=31 286)	9,1% (n=2548)
	P<0.001

- Early ST was associated with increased mortality.

Timing of ST and mortality

Patient population	All-cause mortality at one year post PCI
ST day 0-1 post PCI	16.05% (n=13)
ST day 2-30 post PCI	23.03% (n=38)
	P= 0.204

- Numerically higher all-cause mortality at 1 year with ST day 2-30 compared to ST day 0-1 post PCI.

Conclusions

- In this large, contemporary, real-world observational cohort study of PPCI patients the incidence of early ST was low, regardless of antithrombotic treatment.
- Early ST was associated with increased mortality.
- Numerically higher mortality at 1 year was noted with ST day 2-30 compared to day 0-1 post PCI.