Comparison of pre-hospital management of complicated vs uncomplicated acute coronary syndrome with ST-segment elevation.

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Background and objective: Various complications may occur in the prehospital management of an acute coronary syndrome with ST elevation (STEMI) patient. However, these complications may not come in any patients and may interfere with the treatment. The aim of the study was to *compare the characteristics of complicated (Cpk) and uncomplicated (N-Cpk) STEMI*.

Methods: Data came from a *regional prospective registry* (40 mobile intensive care units, MICU) which *includes STEMI < 24 h primarily managed* by 8 out-of-hospital emergency medical services (EMS) *from 2003 to 2013*; characteristics, management and mortality were collected. Complications are defined by Killip class > 1, use of amines, rhythm or conduction disorders and resuscitation.

Results: *18,152 STEMI* were included, of which *3,600 (20%) had secondary complications*.
- The proportion of CPK *increased from 20% in 2003 to 16% in 2013*.
- Patients with complicated STEMI were *older.*
- Patients with complicated STEMI included *more women*.
- When taking care of these patients, the decision of an *unclogging was similar* in both groups but patients with Cpk:
  - → Have *most likely undergone a thrombolysis*,
  - → Whereas patients with N-Cpk have mostly likely benefited from a primary angioplasty.
- Pre-hospital management: *Aspirin was less* used in Cpk,and *low molecular weight heparin (LMWH) was less* used in Cpk compared with unfractionated heparin (UFH).
- The overall *median pain-arrival at the hospital delay was similar* in both groups:
  - → Even if pre-hospital management for Cpk patients was longer.
  - → In fact, patients with Cpk called an ambulance earlier than the N-Cpk patient.
- Mortality: Pre-hospital mortality was *higher in Cpk*, as well as in-hospital mortality.

		Cpk 3600 (20%)	N-Cpk 14552 (80%)		
Median age [Q1;Q3]		64 [53;77]	59 [50;72]	< 0.05	
Man (%)		2682 (75%)	11468 (79%)	< 0.05	
15/112/991 call (SAMU) n (%)	By patient himself	2147 (60%)	8733 (61%)	< 0.05	
	By rescuer	765 (21%)	2589 (18%)	< 0.05	
	By practitioner	520 (15%)	2557 (17%)	< 0.05	
MCIU immediatly engaged n (%)		2856 (81%)	11978 (85%)	< 0.05	
Decision of an inclogging (%)		3290 (92%)	13476 (93%)	< 0.05	
pre-hospital Management n (%)	Thrombolysis	851 (24%)	2487 (17%)	< 0.05	p (Khi2)
	Primary angioplasty	2443 (68%)	10993 (76%)	< 0.05	
	Aspirine	3206 (89%)	13606 (94%)	< 0.05	
	Analgesia	1701 (47%)	7673 (53%)	< 0.05	
	UFH	2406 (67%)	9820 (68%)	0.47	
	LMWH	644 (18%)	3534 (24%)	< 0.05	
	AntiGP2B3A	297 (8%)	1578 (11%)	< 0.05	
Mortality n (%)	Pre-hospital	105 (3%)	11 (0.1%)	< 0.05	
	Hospital	562 (17%)	350 (3%)	< 0.05	
Median delay minutes [Q1;Q3]	Pain to call 15/112/991	51 [20;135]	63 [26;175]	< 0.05	p (Wilcoxon)
	Call 15 to MCIU first contact	20 [14;29]	20 [14;28]	0.45	
	MCIU first contact to hospital arrival	65 [51;81]	55 [44;69]	< 0.05	
	Pain to hospital arrival	151 [107;260]	150 [110;240]	0.3	

The presence of a complication in prehospital management of STEMI alters the behavior of the patient and the emergency physician.