1960 BENESTENT-II trial: final results of visit II & III: a 7-month fol

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The BENESTENT-II Trial is a randomized trial comparing the outcome after balloon angioplasty, with the effect of Heparin-coated Palmaz-Schatz stent (10, 15 and 20 mm long) on the long-term effect of Major Adverse Cardiac Events (MACE: Death, MI, Target Lesion Revascularisation [TLR]), in pts with stable or stabilized unstable angina pectoris with one or more de novo lesions. The secondary objectives are to assess the Cost-effectiveness and the restenosis rate. To that purpose a 1:1 sub-randomization to either clinical or angiographic follow-up was carried out. Concomitant medications consist of Aspirin (≥100 mg) and Ticlopidin (250 mg, 30 days) in the stent group. Between August 28th '95 and March 7th '96, 827 patients were randomized to either treatment with stent (414) or balloon (413). Forty three percent of the patients had unstable angina, 51% stable and 6% silent ischemia. 6% underwent multiple lesion treatment. 54% of the lesions were B2 lesions (AHA/ACC). In the balloon group 13.4% of the patients received a bail-out stent according to preset stringent criteria: procedural success was 97% in the stent group and 86% in the balloon group according to the actual allocation protocol.

	Stent (208)	Balloon (215)	
MLD F/U (mm)	1.88	1.66	p = 0.0003
Restenosis rate	17%	31%	p = 0.001
	Stent (414)	Balloon (413)	
Death	1 (0.2%)	2 (0.5%)	
MI (Q/nonQ)	14 (3.4%)	14 (3.4%)	
CABG	5 (1.2%)	7 (1.7%)	
TLR	39 (9.4%)	57 (13.8%)	RR: 0.68 (0.46–1.0)
Any Event	59 (14.3%)	80 (19.4%)	RR: 0.74 (0.54–1.0)

It remains to be demonstrated whether elective stenting will be at long-term more cost-effective than balloon.

EARLY TRIAGE IN ACUTE MYOCARDIAL INFARCTION

1961 Study of time intervals in myocardial ischaemic syndromes (STIMIS)

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Early reperfusion in acute myocardial infarction improves long term prognosis. Treatment within the "Golden Hour" saves up to 7 lives per 100 treated patients. Prehospital thrombolysis has been practiced in Nijmegen since 1987. STIMIS was designed to assess the actual time intervals from onset of chest pain to treatment.

Methods: since Oct. 1995 all patients first seen by a general practitioner (GP), and presenting with typical chest pain, were eligible for STIMIS, whether or not a transtelephonic EKG (TT-EKG) had been transmitted by the ambulance staff and whether or not a myocardial infarction was diagnosed. Any EKG's received were immediately interpreted. The time of all relevant events from onset of pain to treatment were registered on specially designed charts

Results (n = 500): 292 TT-EKG's were received; 73 (25%) fulfilled the criteria of acute myocardial infarction (AMI). 63 Patients received thrombolytic therapy at home, 36 were treated in hospital. Within one hour 24% (n = 15) of the home treated patients and none of the hospital treated patients received thrombolysis (p = 0.0034). Within two hours these data are 70% (n = 44) and 17% (n = 6) respectively (p = 0.0002).

Prehospital time intervals		In-hospital time intervals	
Chest pain – GP arrival	1:15	Chest pain – Hospital door	2:17
GP arrival – Ambulance arrival	0:20	Hospital door – EKG	0:08
Ambulance arrival – TT-EKG	0:10	EKG – Doctor at bedside	0:08
TT-EKG – Diagnosis	0:03	Doctor – Diagnosis	0:05
Diagnosis-Thrombolysis	0:05	Diagnosis-Thrombolysis	0:15
Diagnosis – Departure	0:10		
Departure – Hospital door	0:12	(All median values in hrs:min)	
Time to treatment	1:30	Time to treatment	2:42

Conclusions: In the current setting in Nijmegen, with 12 ambulances equipped with TT-EKG transmitters and EKG confirmation by cardiology residents, a time gain of 72 minutes is obtained when thrombolysis is administered at home. Moreover 70% of home treated patients receive thrombolysis within 2 hours, in comparison with only 17% of the in-hospital treated patients.

1962 Factors of importance for time to start of thrombolysis in acute myocardial infarction

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Time to start of thrombolysis is of utmost importance for outcome in acute myocardial infarction (MI). We investigated clinical factors influencing time to treatment in routine care.

Method: The Swedish national registry for coronary care includes every patient admitted to participatinge CCUs. Clinical background, treatment, complications and key time points were recorded in 1604 patients with acute MI treated with thrombolysis within 12 hours after start of pain in 19 hospitals in 1995.

Results:

Time intervals (n = 1604)	25%	Median	75%
Beginning of pain – start of treatment	2.15 hours	3.30 hours	5.40 hours
Start of pain – arrival hospital	1.15 hours	2.10 hours	3.75 hours
Arrival hospital – start of treatment	0.65 hours	0.92 hours	1.50 hours

Significance of univariate (uni) and multivariate (multi) regression analysis:

Time intervals	Pain-start		Pain-arrival		Arrival-start	
Regression analysis	Uni	Multi	Uni	Multi	Uni	Multi
Increasing age (+)	<0.001	0.001	0.001	0.001	0.035	ns
Female gender (+)	0.003	ns	0.013	ns	0.005	ns
Diabetes mellitus (+)	<0.001	0.01	0.02	ns	0.003	ns
Q-wave or LBBB (+)	<0.003	0.007	0.001	ns	ns	ns
ST-elevation (–)	<0.001	0.001	ns	ns	0.001	0.001
Max CKMB level (–)	ns	ns	ns	ns	0.001	0.001
Hospitals significantly (+)	1	1	1	1	5	5
Hospitals significantly (–)	3	0	2	0	3	2

(+) increased delay (–) reduced delay. Nonsignificant p > 0.01.

Conclusions: Delay to thrombolysis is above 3.3 hours in half of patients and is prolonged in older age, diabetes mellitus, Q-waves or LBBB and shortened at ST-elevation. Of the delay 2/3 occurs before arrival to hospital which mainly is influenced by age. Hospital organisation and disease related factors have the largest impact on delay in hospital. Reduced times to treatment will necessitate measures both before and after arrival to hospital.

1963 Indication for thrombolysis in acute myocardial infarction: determinants for decision making in daily clinical practice

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Recent trials demonstrated that thrombolytic therapy is beneficial in a much wider range of patients with acute myocardial infarction (AMI), e.g. patients with late presentation (6–12 h) and the elderly. However, it remains unclear how these guidelines are implemented in clinical practice.

Methods: "The 60-Minutes Myocardial Infarction Project" is a prospective multicenter registry in Germany, which enrolled *all* patients with proven Q-wave MI in 136 hospitals (27 months, n = 14,980). 50.5% of patients received thrombolysis. Indication for thrombolytic therapy was analyzed with respect to 15 relevant factors by a multivariate logistic regression expressed as odds ratios (OR) and 95%-confidence intervals (CI).

Results:

	Rate (%)	OR	95%-CI
Diagnostic ECG or LBBB on admission	71.6	4.79	3.67–6.25
Systolic blood pressure <90 mm Hg	11.1	1.30	1.11–1.52
Previous infarction	19.3	0.86	0.77–0.96
Female gender	31.7	0.80	0.70–0.90
Relative contraindications	22.5	0.28	0.23–0.35
Age >70 y	35.7	0.27	0.24–0.31
Prehospital delay 6–12 h	12.5	0.23	0.17–0.31

An OR > 1 refers to a higher chance to be treated with thrombolysis.

Conclusions: A diagnostic ECG on admission is the most important determinant in the decision making to administer thrombolytic agents in AMI. Pts. with hemodynamic impairment are more likely to be treated with thrombolysis. Female gender is an independent risk factor *not* to receive thrombolytic therapy. Physicians tend to be restrictive, if relative contraindications are present. Despite documented benefit, fibrinolytic therapy is withheld in pts. with previous infarction, higher age and late presentation.