

# Clinical trials of myocardial revascularization for acute myocardial infarction in all type of patients

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## 1 deferred angioplasty (>3 days) after thrombolysis

Trial	Treatments	Patients	Trials design and methods
<b>systematic ballon angioplasty vs no systematic angioplasty</b>			
<b>SWIFT , 1991</b> n=397/403 follow-up: 1 y	CA 72h with a view to PTCA or CABG versus elective angioplasty (only if required by clinical indication)	patients presenting with clinical and electrocardiographic features of acute myocardial infarction up to three hours after the onset of major symptoms	Parallel groups Open UK
<b>SIAM , 1992</b> n=158/166 follow-up: <3 years	CA with CABG/PTCA 14-48 hours versus no CA within the first 21days unless evidence of ischemia	patients treated by thrombolysis for AMI	Parallel groups Open Europe
<b>TAMI 6 , 1992</b> n=34/37	PTCA 6-24h after rtPA versus no PTCA planned	-	
<b>Barbash , 1990</b> n=97/104	PTCA>72h after rtPA if stenosis>70% versus PTCA>72h after rtPA if stenosis>50% and ischemia	-	
<b>Guerci , 1987</b> n=42/43 follow-up: 10 days	PTCA at 4 day versus no PTCA during the 10 days study period	patients candidate to PTCA determined at the 1st day CA	Factorial plan United states
<b>TIMI 2 , 1989</b> n=1636/1626 follow-up: 6 we	CA 18 to 48 hrs versus no CA unless spontaneous or exercise induced ischemia	patients treated with intravenous recombinant tissue plasminogen activator (rt-PA) within four hours of the onset of chest pain thought to be caused by myocardial infarction	Factorial plan Open United states
<b>TIMI II-A (deferred)</b> n=194/197 follow-up:	delayed invasive strategy, deferred angiography and PTCA for 18-48 hours versus conservative approach	-	
<b>TOPS , 1992</b> n=42/45 follow-up: 12 months	PTCA to be performed 4-14 days after MI versus conservative management, no PTCA	patients with residual stenoses after thrombolytic treatment of myocardial infarction	Parallel groups
<b>Van den Brand , 1991</b> n=113/104 follow-up: 3 mo	CA at 2-5 days, PTCA if suitable lesion versus CA at 2-5 days but no PTCA	suitable lesion	Parallel groups NA Europe

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Trial	Treatments	Patients	Trials design and methods
Vermeer , 1999 n=NA follow-up: 42 days	alteplase followed by transfer to the PTCA centre and (if indicated) rescue PTCA versus thrombolytic treatment with alteplase	patients with acute myocardial infarction initially admitted to a hospital without PTCA facilities	Parallel groups

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## 2 drug-eluting stents

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>drug-eluting stents vs bare-metal stent</b>			
<b>DEDICATION , 2008</b> [NCT00192868] n=313/313 follow-up: 8 mo (15 mo, 3y)	DES currently used with or without distal protection versus BMS with or without distal protection	patients referred within 12 hours from symptom onset of an ST-elevation myocardial infarction	Factorial plan open Denmark.
<b>PASEO , 2009</b> n=180/90 follow-up: 4.3 years	paclitaxel-eluting stents and sirolimus-eluting stents versus bare metal stent	patients with ST-elevation myocardial infarction within 12 hours from symptom onset	Parallel groups open
<b>paclitaxel eluting stent vs bare-metal stent</b>			
<b>HAAMU-STENT , 2006</b> <i>unpublished</i> n=70/75 follow-up: 12 months	Taxus Express versus Bare-metal-stent	AMI - STEMI patients undergoing PCI	Parallel groups open Finland
<b>HORIZONS-AMI Stent , 2008</b> n=2257/749 follow-up: 1 year	paclitaxel-eluting stents (Taxus) versus BMS (Express)	ST-elevation myocardial infarction	Factorial plan open
<b>PASSION , 2006</b> [ISRCTN65027270] n=310/309 follow-up: 12 months (5y)	Taxus Express2 versus Express2 or Libert	Myocardial Infarction with ST-Segment Elevation	Parallel groups open The Netherlands
<b>sirolimus eluting stent vs bare-metal stent</b>			
<b>Daz de la Llera , 2007</b> n=60/54 follow-up: 1y	sirolimus-eluting stents versus uncoated stents	primary percutaneous coronary intervention for acute myocardial infarction with ST-segment elevation	Parallel groups open Spain
<b>MISSION , 2008</b> [ISRCTN62825862] n=158/152 follow-up: 12 months	Cypher versus Vision	primary percutaneous coronary intervention for ST-segment elevation myocardial infarction (<9h)	Parallel groups single-blind the Netherlands
<b>SESAMI , 2007</b> [NCT00288210] n=160/160 follow-up: 12 months	Cypher versus BX stent, Cordis	AMI	Parallel groups open Italy
<b>TYPHOON , 2006</b> [NCT00232830] n=356/359 follow-up: 12 months	Cypher or CypherSelect versus any commerciallyavailable uncoated stent	AMI	Parallel groups open Worldwide (15 countries)
<b>sirolimus eluting stent vs paclitaxel eluting stent</b>			
<b>Di Lorenzo et al. , 2005</b> <i>unpublished</i> n=90/90 follow-up:	sirolimus versus paclitaxel	ST-segment elevation myocardial infarction	Parallel groups open

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>Juwana , 2009</b> [ISRCTN90526229] n=196/201 follow-up: 9 months (12 months)	sirolimus coated Cypher stent versus paclitaxel coated Taxus stent	patients with STEMI undergoing primary PCI	Parallel groups open The Netherlands
<b>PROSIT , 2006</b> n=154/154 follow-up: 1 year	SES Cordis versus PES Boston Scientific	AMI or persistent ischaemia 12-24h	Parallel groups open Korea
<b>zotarolimus eluting stent vs paclitaxel eluting stent</b>			
<b>ZEST AMI (vs PES) , 2009</b> [NCT00422565] n=108/110 follow-up: 1 year (mean)	zotarolimus-eluting stent (Endeavor) versus paclitaxel-eluting stent (Taxus Libert)	Acute Myocardial Infarction Patients (STEMI)requiring primary angioplasty with symptom onset <= 12 hours	open Korea
<b>zotarolimus eluting stent vs sirolimus eluting stent</b>			
<b>ZEST AMI (vs SES) , 2009</b> [NCT00422565] n=108/110 follow-up: 1 year (mean)	zotarolimus-eluting stent (Endeavor) versus sirolimus-eluting stents (Cypher)	Acute Myocardial Infarction Patients (STEMI)requiring primary angioplasty with symptom onset <= 12 hours	Parallel groups open Korea

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### 3 early angioplasty (<3 days) after thrombolysis

Trial	Treatments	Patients	Trials design and methods
<b>systematic ballon angioplasty vs no systematic angioplasty</b>			
<b>SWIFT , 1991</b> n=397/403 follow-up: 1 y	CA 72h with a view to PTCA or CABG versus elective angioplasty (only if required by clinical indication)	patients presenting with clinical and electrocardiographic features of acute myocardial infarction up to three hours after the onset of major symptoms	Parallel groups Open UK
<b>SIAM , 1992</b> n=158/166 follow-up: <3 years	CA with CABG/PTCA 14-48 hours versus no CA within the first 21days unless evidence of ischemia	patients treated by thrombolysis for AMI	Parallel groups Open Europe
<b>TAMI 6 , 1992</b> n=34/37	PTCA 6-24h after rtPA versus no PTCA planned	-	
<b>Barbash , 1990</b> n=97/104	PTCA>72h after rtPA if stenosis>70% versus PTCA>72h after rtPA if stenosis>50% and ischemia	-	
<b>Guerci , 1987</b> n=42/43 follow-up: 10 days	PTCA at 4 day versus no PTCA during the 10 days study period	patients candidate to PTCA determined at the 1st day CA	Factorial plan United states
<b>TIMI 2 , 1989</b> n=1636/1626 follow-up: 6 we	CA 18 to 48 hrs versus no CA unless spontaneous or exercise induced ischemia	patients treated with intravenous recombinant tissue plasminogen activator (rt-PA) within four hours of the onset of chest pain thought to be caused by myocardial infarction	Factorial plan Open United states

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>TIMI II-A (deferred)</b> n=194/197 follow-up:	delayed invasive strategy, deferred angiography and PTCA for 18-48 hours versus conservative approach	-	
<b>TOPS , 1992</b> n=42/45 follow-up: 12 months	PTCA to be performed 4-14 days after MI versus conservative management, no PTCA	patients with residual stenoses after thrombolytic treatment of myocardial infarction	Parallel groups
<b>Van den Brand , 1991</b> n=113/104 follow-up: 3 mo	CA at 2-5 days, PTCA if suitable lesion versus CA at 2-5 days but no PTCA	suitable lesion	Parallel groups NA Europe
<b>Vermeer , 1999</b> n=NA follow-up: 42 days	alteplase followed by transfer to the PTCA centre and (if indicated) rescue PTCA versus thrombolytic treatment with alteplase	patients with acute myocardial infarction initially admitted to a hospital without PTCA facilities	Parallel groups

## References

**SWIFT, 1991:**

**SIAM, 1992:**

**TAMI 6, 1992:**

**Barbash, 1990:**

**Guerci, 1987:**

**TIMI 2, 1989:**

**TIMI II-A (deferred), 0:**

**TOPS, 1992:**

**Van den Brand, 1991:**

**Vermeer, 1999:**

## 4 fibrinolysis

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>APSAC vs control</b>			
<b>APSIM , 1989</b> n=112/119 follow-up: 3 weeks	APSAC 30 U over 5 min versus control (conventional heparin therapy, 5,000 IU in a bolus injection)	patients with a first acute myocardial infarction within 5 h after the onset of symptoms	Parallel groups open France
<b>urokinase vs control</b>			
<b>USIM , 1991</b> n=1128/1073 follow-up: in hospital	urokinase bolus dose of 1 million U repeated after 60 minutes plus heparin versus control (heparin alone)	patients with acute myocardial infarction within 4 hours of the onset of pain	Parallel groups open Italy

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>APSAC vs placebo</b>			
<b>AIMS , 1988</b> n=624/634 follow-up: 1 y	APSAC 30U IV in 5 min versus Placebo	Hommes et femmes, <70 ans	Parallel groups double blind
<b>German Multicenter Trial , 1988</b> n=162/151 follow-up: 28 jours	APSAC 30 units en IV en 5 min, puis hparine en IV (17 U/kg/h) 4 h aprs l'injection d'APSAC versus Hparine 5000 U en bolus en IV, puis 17 U/kg/h	Hommes et femmes, <70 ans	Parallel groups
<b>streptokinase vs placebo</b>			
<b>EMERAS (7-12h) , 1993</b> n=2257/2277 follow-up:	intravenous streptokinase 1.5 MU versus placebo	patients presenting 7-12 h from symptom onset	Parallel groups double blind
<b>EMERAS (all delay) , 1993</b> n=2257/2277 follow-up:	streptokinase 1.5 MU versus placebo	patients entering hospital up to 24 h after the onset of suspected acute myocardial infarction	Parallel groups double blind south america
<b>GISSI I , 1986</b> n=5860/5852 follow-up: 1 y	Streptokinase 1.5 MU en perfusion IV en 1 heure versus usual care	patients within 12 h after the onset of symptoms and with no contraindications to SK	Parallel groups open
<b>ISAM , 1986</b> n=859/882 follow-up: 21 days	1.5 million IU of streptokinase over 1h versus Placebo	patients within six hours after the onset of symptoms of myocardial infarction	Parallel groups double blind
<b>ISIS 2 pilot , 1987</b> n=NA follow-up:	streptokinase 1.5 MU versus placebo	patients with suspected acute myocardial infarction	Parallel groups double blind
<b>ISIS-2 (SK) , 1988</b> n=8592/8595 follow-up: 15 mo	1-hour intravenous infusion of 1.5 MU of streptokinase versus Placebo	patients within 24h of the onset of suspected acute myocardial infarction	plan factoriel 2*2 double blind
<b>Western Washington Intravenous Trial , 1988</b> [NCT00000507] n=191/177 follow-up: 1.4 y	Streptokinase en IV, 1.5 M UI en 60 min aprs injection de benadryl 50 mg en IV et hydrocortisone 100 mg en IV; hparine en IV 1000 UI/h 2h aprs la streptokinase puis warfarine pendant au moins 3 mois versus Traitement standard, avec ou sans anticoagulant (dcid par le mdecin)	Hommes et femmes, <ou = 75 ans	Parallel groups
<b>t-PA vs placebo</b>			
<b>ASSET , 1988</b> n=2516/2495 follow-up: 6 months	rt-PA 100 mg versus Placebo	patient with suspected acute myocardial infarction	Parallel groups double blind

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>LATE , 1993</b> n=2836/2875 follow-up: 6 mo	intravenous alteplase (100 mg over 3 h) versus placebo	patients with symptoms and electrocardiographic criteria consistent with AMI between 6 and 24 h from symptom onset	Parallel groups double blind
<b>TAMI 6 , 1992</b> n=96/101 follow-up: 6 months	tissue-type plasminogen activator 100 mg over 2 hours versus placebo	patients with 6 to 24 hours of symptoms and ECG ST elevation	Parallel groups double blind USA
<b>bolus t-PA vs accelerated t-PA</b>			
<b>COBALT , 1997</b> n=3585/3584 follow-up: 30 days	of 50 mg of alteplase over a period of 1 to 3 minutes followed 30 minutes later by a second bolus of 50 mg (or 40 mg for patients who weighed less than 60 kg). versus weight-adjusted, accelerated infusion of 100 mg of alteplase	patients with acute myocardial infarction	Parallel groups double blind
<b>lanoteplase vs accelerated t-PA</b>			
<b>InTIME-II , 2000</b> n=10038/5022 follow-up: 30 days	lanoteplase 120 KU. kg(-1) as a single intravenous bolus versus up to 100 mg accelerated alteplase given over 90 min	patients presenting within 6 h of onset of ST elevation acute myocardial infarction	Parallel groups double blind worldwide
<b>reteplase vs accelerated t-PA</b>			
<b>GUSTO III , 1997</b> n=10138/4921 follow-up: 30 days	reteplase, in two bolus doses or 10 MU each given 30 minutes apart versus alteplase, up to 100 mg infused over a period of 90 minutes	patients within 6 hours after the onset of symptoms with ST-segment elevation or bundle-branch block	Parallel groups open 20 countries
<b>RAPID-2 , 1996</b> n=169/155 follow-up: 35 days	10 plus 10 megaunits double bolus of reteplase versus front-loaded alteplase	patients with acute myocardial infarction within 12h from onset of ischemic chest pain	Parallel groups open USA, Germany
<b>tenecteplase vs accelerated t-PA</b>			
<b>ASSENT-2 , 1999</b> n=8461/8488 follow-up: 30d	Tenecteplase en IV bolus (dose en fonction du poids: 30 mg si <60 kg; 35 mg si poids entre 60 et 69.9 kg; 40 mg pour les 80-89.9 kg; 50 mg si >ou = 90 kg) versus Alteplase en IV, bolus de 15 mg, puis 0.75 mg/kg (sans dpasser 50 mg) en 30 min puis 0.50 mg/kg (sans dpasser 35 mg) en 60 min	patients with acute myocardial infarction of less than 6 h duration	Parallel groups double blind 29 countries
<b>accelerated t-PA vs APSAC</b>			
<b>TAPS , 1992</b> n=199/202 follow-up:	front-loaded administration of rt-PA versus APSAC	patients with acute myocardial infarction.	Parallel groups open

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>TIMI 4 , 1994</b> n=NA follow-up: hospital stay	front-loaded rt-PA versus APSAC	patients with acute myocardial infarction	double blind
<b>accelerated t-PA vs streptokinase</b>			
<b>GUSTO tPA Hiv , 1993</b> n=10396/20251 follow-up: 30 d	tPA acclr (15 mg en bolus, puis 0.75 mg/kg en 30 min sans dpasser 50 mg puis 0.5 mg/kg en 60 min sans dpasser 35 mg) + hparine en IV (5000 U en bolus, 1000 U/h (de prfrence 1200 U/h si >80 kg), poursuivi au moins 48 h) versus Streptokinase 1.5 MU en 60 min + hparine SC (12500 U 2 fois/j commence 4h aprs thrombolytique) combin streptokinase (1.5 MU en 60 min) + hparine en IV (5000 U en bolus, puis 1000 U/h (1200 U/h si >80 kg) poursuivi au moins 48 h)	Hommes et femmes	Parallel groups International 15 countries
<b>anistreplase vs streptokinase</b>			
<b>TEAM 2 , 1991</b> n=183/176 follow-up:	anistreplase (30 units/2-5 min) versus streptokinase (1.5 million units/60 min)	less than 76 years of age with electrocardiographic ST segment elevation who could be treated within 4 hours of symptom onset	double blind
<b>APSAC vs streptokinase</b>			
<b>ISIS III (SK/APSAC) , 1992</b> n=13780/13773 follow-up: 6 mo	Streptokinase 1.5 MU infused over about 1 h versus anisoylated plasminogen-streptokinase activator complex (APSAC), anistreplase: 30 U over about 3 min	patients within 24 h of the onset of suspected acute myocardial infarction	Plan factoriel 3 (ou 4) *2 double blind International 17 countries
<b>reteplase vs streptokinase</b>			
<b>INJECT , 1995</b> n=3004/3006 follow-up: 6 mo	Reteplase 2 bolus de 10 MU 30 min d'intervalle versus Streptokinase 1.5 MU en IV en 60 min	patients with symptoms and electrocardiographic criteria consistent with acute myocardial infarction within 12 h from onset of symptoms	Parallel groups double blind Europe
<b>saruplase vs streptokinase</b>			
<b>COMPASS , 1998</b> n=1542/1547 follow-up: 1 y	saruplase 20-mg bolus and 60-mg infusion over 60 min versus streptokinase 1.5-MU infusion over 60 min	patients with symptoms compatible with those of acute myocardial infarction for <6 h	Parallel groups double blind
<b>PRIMI (vs SK) , 1989</b> n=198/203 follow-up: ND	saruplase 20 mg bolus followed by 60 mg infusion for 60 min versus 1.5 million IU streptokinase infused over 60 min	patients with acute myocardial infarction were within 4 h of onset of symptoms	Parallel groups double blind
<b>t-PA vs streptokinase</b>			

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>International Study Group , 1990</b> n=10372/10396 follow-up: 6 mo	tPA 100 mg en IV en 3 h (10 mg en bolus, puis 50 mg en 1 h, puis 20 mg/h pendant 2 h) versus Streptokinase 1.5 MU en IV de 30 60 min	patients with suspected acute myocardial infarction of less than 6 h duration	Plan factoriel 2*2 double blind
<b>Centre Illinois , 1993</b> n=123/130 follow-up:	t-PA 10 mg bolus, followed by 50 mg in the first hour, and 20 mg/hour for the next 2 hours versus SK 375 000 IU bolus, followed by 1 125 000 IU/1 hage/pj	patients with AMI within 3h from onset of chest pain	Parallel groups single blind USA
<b>Cherng , 1992</b> n=59/63 follow-up: hospital stay	100 mg of rTPA over 3 hours (with early heparinization) versus 1,500,000 units of streptokinase over 1 hour	patients with acute myocardial infarction	Parallel groups open Taiwan
<b>ECSCG , 1985</b> n=64/65 follow-up:	0.75 mg rt-PA/kg over 90 min versus 1 500 000 IU streptokinase over 60 min	patients with acute myocardial infarction of less than 6 h duration	Parallel groups single-blind Europe
<b>GISSI II , 1990</b> n=6182/6199 follow-up: 6 mo	alteplase 100 mg infused intravenously over 3 h versus streptokinase 1.5 MU infused intravenously over 30-60 min	patients with acute myocardial infarction within 6 h from onset of symptoms	Plan factoriel 2*2 open International 14 countries
<b>ISIS III (SK/tPA) , 1992</b> n=13780/13746 follow-up: 6 mo	Streptokinase 1.5 MU en IV d'une heure versus tPA 0.04 MU/kg en IV en bolus d'1 min, puis 0.36 MU/kg en 1 h, puis 0.067 MU/kg/h pendant 3 h	Hommes et femmes	Plan factoriel 3 (ou 4) *2 double blind International 17 countries
<b>PAIMS , 1989</b> n=86/85 follow-up:	intravenous cumulative dose of 100 mg rt-PA versus .5 million units streptokinase	patients with acute myocardial infarction less than 3 h old	Parallel groups open Italy
<b>TIMI-1 , 1987</b> [NCT00000505] n=157/159 follow-up:	rt-PA, 40, 20, and 20 mg in successive hours versus SK 1.5 million units over 1 hr	patients with evolving acute myocardial infarction within 7 hr of the onset of symptoms	Parallel groups double blind USA
<b>White , 1989</b> n=135/135 follow-up:	rt-PA 100 mg over three hours versus streptokinase 1.5 million units over 30 minutes	patients with AMI	Parallel groups double blind New Zealand
<b>t-PA + streptokinase vs streptokinase</b>			

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>GUSTO tPA-SK Hiv , 1993</b> n=10374/20251 follow-up: 30 d	tPA en IV 1 mg/kg, sans dpasser 90 mg, dont 10 % en bolus + streptokinase 1 MU en 60 min + hparine en IV (5000 U en bolus, 1000 U/h (de prfrence 1200 U/h si >80 kg), poursuivi au moins 48 h) versus Streptokinase 1.5 MU en 60 min + hparine SC (12500 U 2 fois/j commence 4h aprs thrombolytique) combin streptokinase (1.5 MU en 60 min) + hparine en IV (5000 U en bolus, puis 1000 U/h (1200 U/h si >80 kg) poursuivi au moins 48 h)	Hommes et femmes	Parallel groups International 15 countries
<b>accelerated t-PA vs t-PA</b>			
<b>RAAMI , 1992</b> n=143/138 follow-up: hospital stay	100 mg of rt-PA accelerated 90-min regimen (15-mg bolus followed by 50 mg over 30 min, then 35 mg over 60 min) versus 100 mg of rt-PA standard 3-h infusion regimen (an initial 10-mg bolus followed by 50 mg for the 1st h, then 20 mg/h for 2 h)	patients with acute myocardial infarction within 6h from onset of chest pain	Parallel groups open US
<b>APSAC vs t-PA</b>			
<b>TEAM 3 , 1992</b> n=325 follow-up: 1 months	APSAC, 30 U/2 to 5 min versus rt-PA, 100 mg/3 h,	patient with ST elevation within 4h of the onset of symptoms	double blind
<b>recombinant staphylokinase vs t-PA</b>			
<b>STAR , 1995</b> n=48/52 follow-up: 90 min	recombinant staphylokinase (10 or 20 mg given intravenously over 30 minutes) versus weight-adjusted rt-PA over 90 minutes	patients with evolving myocardial infarction of <6 hours' duration and with ST-segment elevation	Parallel groups open Belgium
<b>saruplase vs t-PA</b>			
<b>SESAM , 1997</b> n=236/237 follow-up: hospital stay	saruplase 80 mg/hour versus alteplase 100 mg every 3 hours	patients with acute myocardial infarction	Parallel groups open Europe
<b>t-PA + urokinase vs t-PA</b>			
<b>TAMI 5 (t-PA+uroK vs tPA) , 1991</b> n=194/191 follow-up:	t-PA + urokinase versus t-PA	patient with acute myocardial infarction	open
<b>t-PA half dose vs t-PA</b>			
<b>KAMIT , 1991</b> n=109/107 follow-up: hospital stay	half-dose (50 mg) t-PA with streptokinase (1.5 MU) during 1 hour versus t-PA (100 mg) during 3 hours	patients within 6 hours of myocardial infarction	Parallel groups open USA
<b>saruplase vs urokinase</b>			

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>PRIMI (vs UK) , 1989</b> n=198 follow-up:	20 mg bolus followed by 60 mg infusion for 60 min versus 80 mg recombinant pro-urokinase	with a first acute myocardial infarction within 4 h of onset of symptoms	Parallel groups double blind
<b>t-PA vs urokinase</b>			
<b>TAMI 5 (t-PA vs uroK) , 1991</b> n=191/190 follow-up:	accelerated t-PA 100mg over 3h versus urokinase IV bolus 1.5 MU followed by 1.5 MU over 90min	patient with acute myocardial infarction	open

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 PRIMI (vs UK), 1989:  
 TAMI 5 (t-PA vs uroK), 1991:

## 5 immediate PCI after thrombolysis

Trial	Treatments	Patients	Trials design and methods
<b>immediate systematic balloon angioplasty vs no immediate angioplasty</b>			
<b>Belenkie , 1991</b> n=50/39 follow-up: 4 months	immediate PTCA versus delayed PTCA (18-38h)	patients with a patent infarct-related artery after thrombolytic therapy suitable for angioplasty	parallel group open Canada
<b>ECSG , 1988</b> n=183/184 follow-up: 1 y	angioplasty as soon as possible (after rtPA) versus non-invasive strategy without immediate CA and PTCA	patients with acute myocardial infarction within 5 h after onset of symptoms	parallel group open Europe
<b>Ellis , 1994</b> n=78/73 follow-up:	balloon angioplasty supplemented by further thrombolytic therapy as needed versus conservative therapy	patients with first anterior wall infarction treated with any accepted intravenous thrombolytic regimen and angiographically demonstrated to have an occluded infarct vessel within 8 hours of chest pain onset	
<b>Erbel , 1989</b> n=103/103 follow-up: 3 years	combined intravenous and intracoronary streptokinase with immediate coronary angioplasty versus combined intravenous and intracoronary streptokinase without immediate coronary angioplasty	patients with acute transmural myocardial infarction	Parallel groups

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>MERLIN (Sutton) , 2004</b> n=NA follow-up: 30 days	emergency coronary angiography with rescue PCI versus conservative treatment	patients with STEMI and failed fibrinolysis	Parallel groups
<b>SHOCK (Hochman) , 1999</b> [NCT00000552] n=152/150 follow-up: 30 days (6y)	emergency revascularization versus initial medical stabilization	patients with cardiogenic shock complicating acute MI	Parallel groups open US
<b>SWISS-SMASH , 1999</b> n=32/23 follow-up: 30 days (1y)	emergency angiography, followed immediately by revascularization when indicated versus initial medical management	Patients with acute myocardial infarction and early shock	Parallel groups open Europe
<b>TAMI 1 pilot , 1987</b> n=99/98 follow-up: in hospital	Angioplasty within 120 min (after rtPA) versus deferred CA (7-10 days) and angioplasty if indicated	patients with acute myocardial infarction.	parallel group open USA
<b>TAMI-5 (Califf) , 1991</b> n=287/288 follow-up:	immediate catheterization with angioplasty for failed thrombolysis (90min after rtPA/urokinase) versus deferred predischage catheterization on days 5-10, no PTCA planned	patient with acute myocardial infarction	Factorial plan
<b>TIMI 2A , 1988</b> n=195/194 follow-up: 21 days	CA within 120 min of the start of the rtPA infusion. PTCA whether the artery is open or closed versus CA within 18-48hrs. PTCA only if artery open (TIMI 2 or 3)	patient thrombolized for a AMI	parallel group open USA
<b>Topol , 1987</b> n=15/13 follow-up: in hospital	immediate PTCA versus no PTCA	patients with evolving transmural myocardial infarction	parallel group open USA
<b>systematic PCI (+stent) vs no systematic PCI</b>			
<b>CAPITAL AMI , 2005</b> n=86/84 follow-up: 6 months	TNK-facilitated angioplasty versus TNK alone	patients with high-risk ST-segment elevation myocardial infarction	Parallel groups
<b>GRACIA-1 , 2004</b> n=248/251 follow-up: 12 months	angiography and intervention if indicated within 24 h of thrombolysis versus ischaemia-guided conservative approach	patients with thrombolysed STEMI (with recombinant tissue plasminogen activator)	Parallel groups
<b>PRAGUE , 2000</b> n=100/99 follow-up: 12 months	thrombolysis during immediate transportation for coronary angioplasty versus thrombolysis in a community hospital	patients with acute ST elevation myocardial infarction presenting to community hospitals	

continued...

Trial	Treatments	Patients	Trials design and methods
<b>SIAM III , 2002</b> n=82/81 follow-up: 6 months	immediate stenting after thrombolysis versus conservative treatment	patients receiving thrombolysis in AMI (<12 h)	Parallel groups Germany
<b>WEST , 2006</b> n=104/100 follow-up: 30 days	TNK and mandatory invasive study <= 24 h, including rescue PCI for reperfusion failure versus tenecteplase (TNK) and usual care	STEMI patients (>4 mm ST-elevation/deviation) within 6 h of symptom onset	Parallel groups Canada

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**Ellis, 1994:**  
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**TAMI-5 (Califf), 1991:**  
**TIMI 2A, 1988:**  
**Topol, 1987:**  
**CAPITAL AMI, 2005:**  
**GRACIA-1, 2004:**  
**PRAGUE, 2000:**  
**SIAM III, 2002:**  
**WEST, 2006:**

## 6 Prehospital thrombolysis

Trial	Treatments	Patients	Trials design and methods
<b>Prehospital thrombolysis vs at hospital thrombolysis</b>			
<b>EMIP , 1993</b> n=2750/2719 follow-up: ND	-	-	ND
<b>GREAT , 1994</b> n=163/148 follow-up: ND	-	-	ND
<b>MITI , 1993</b> [NCT00000468] n=175/175 follow-up: ND	-	-	ND

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Trial	Treatments	Patients	Trials design and methods
Roth , 1990 n=72/44	-	-	
Barbash , 1990 n=NA	-	-	
Castaigne , 1987 n=NA	-	-	
Mcneill , 1989 n=NA	-	-	
Schofer , 1990 n=40/38	-	-	
Castaigne , 1989 n=57/43	-	-	
TEAHAT , 1990 n=NA follow-up: ND	-	-	ND

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EMIP, 1993:

GREAT, 1994:

MITI, 1993:

Roth, 1990:

Barbash, 1990:

Castaigne, 1987:

Mcneill, 1989:

Schofer, 1990:

Castaigne , 1989:

TEAHAT, 1990:

## 7 primary PCI

Trial	Treatments	Patients	Trials design and methods
<b>primary ballon angioplasty vs accelerated t-PA</b>			
Ribichini , 1996 n=24/26 follow-up: discharge	primary PTCA versus accelerated alteplase 90 min (15 mg IV bolus followed by an infusion of 0.75 mg/kg over 30min not to exceed 50mg, and then 0.5 mg/kg over the next 60min not to exceed 35mg for a total maximun of 100mg)	-	Parallel groups open Italy

continued...



<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
Garcia , 1997 n=95/94 follow-up: 30 d	primary PTCA versus accelerated t-PA 90 min (15 mg IV bolus followed by an infusion of 0.75 mg/kg over 30min not to exceed 50mg, and then 0.5 mg/kg over the next 60min not to exceed 35mg for a total maximum of 100mg)	patients with anterior AMI	Parallel groups open Spain
GUSTO 2B , 1997 n=573/565 follow-up: 30 d	primary PTCA versus accelerated t-PA 90 min (15 mg IV bolus followed by an infusion of 0.75 mg/kg over 30min not to exceed 50mg, and then 0.5 mg/kg over the next 60min not to exceed 35mg for a total maximum of 100mg)	patients within 12 hours of acute myocardial infarction (with ST-segment elevation on the electrocardiogram)	factorial design open USA, Europe, Australia
DANAMI-2 , 1997 n=NA follow-up: 2.4y	angioplasty versus accelerated treatment with intravenous alteplase	patients who received thrombolytic treatment for a first acute myocardial infarction and with inducible myocardial ischemia (either symptomatic angina pectoris presenting spontaneously >36 hours after admission or during a predischage exercise test or ST changes during exercise compatible with ischemia)	Parallel groups open
<b>primary PCI vs accelerated t-PA</b>			
C-PORT , 2002 n=225/226 follow-up: 6 months	primary PCI without on-site cardiac surgery versus accelerated tissue plasminogen activator	thrombolytic-eligible patients with acute MI of less than 12 hours' duration associated with ST-segment elevation	Parallel groups open USA
<b>primary stenting vs accelerated t-PA</b>			
STAT , 2001 n=62/61 follow-up: 6 months	primary stenting versus accelerated t-PA	patients with acute ST-elevation myocardial infarction	Parallel groups open
<b>facilitated stenting vs alteplase</b>			
STOPAMI 1 , 2000 n=71/69 follow-up: 6 months	stent plus abciximab versus intravenous alteplase	patients with acute myocardial infarction	Parallel groups open
<b>primary stenting vs balloon angioplasty</b>			
Zwolle 5 (Suryapranata) , 1998 n=112/115 follow-up: 12 months	Stent Palmaz-Schatz versus balloon angioplasty	Patients with acute myocardial infarction	Parallel groups open
FRESCO , 1998 n=75/75 follow-up: 12 months	elective stenting after successful primary PTCA versus no further intervention after successful primary PTCA	patient with successful primary PTCA	Parallel groups open

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>GRAMI (Rodriguez) , 1998</b> n=52/52 follow-up: 12 months	balloon angioplasty followed electively with Gianturco Roubin II stents versus conventional balloon angioplasty	patients with acute myocardial infarction within 24 hours after onset	Parallel groups open
<b>PASTA (Saito) , 1999</b> n=67/70 follow-up: 12 months	Stent Palmaz-Schatz versus primary balloon angioplasty	patients with AMI within 12 hr from onset	Parallel groups open
<b>stent-PAMI (Grines) , 1999</b> n=452/448 follow-up: 12 months	angioplasty with Stent Heparin-coated versus angioplasty alone	patients with acute myocardial infarction and with vessels suitable for stenting	Parallel groups open
<b>STENTIM-2 (Maillard) , 2000</b>  n=101/110 follow-up: 12 months	systematic stenting with Stent Wiktor versus conventional balloon angioplasty	patients with AMI <12 h from symptom onset, with an occluded native coronary artery	Parallel groups open
<b>PSSAAMI (Scheller) , 2001</b> n=44/44 follow-up: 24 months	Stent Wiktor GX versus primary angioplasty	patients within 24 hours after the onset of acute myocardial infarction	Parallel groups open
<b>Jaksch , 1998</b> n=231/231 follow-up: 65279;6 months	-	-	Parallel groups open
<b>PRISAM (Kawashima) , 1999</b> n=110/112 follow-up: 65279;6 months	-	-	Parallel groups open
<b>CADILLAC (no abciximab) , 2002</b> n=512/518 follow-up: 12 months	stenting alone with the MultiLink stent versus PTCA alone	patients with acute myocardial infarction	Parallel groups open
<b>CADILLAC abciximab. , 2002</b> n=524/528 follow-up: 12 months	stenting plus abciximab therapy versus PTCA plus abciximab therapy	patients with acute myocardial infarction	Parallel groups open
<b>ZWOLLE 6 , 2005</b> n=785/763 follow-up: 12 months	stenting versus balloon angioplasty	unselected patients with STEMI	Parallel groups open
<b>STOPAMI 3 , 2004</b> n=305/306 follow-up: 6 months	coronary artery stenting versus PTCA	patients with AMI ineligible for thrombolysis (lack of ST-segment elevation on the electrocardiogram, late presentation >12 h after symptom onset, and contraindications to thrombolysis)	Parallel groups open
<b>primary ballon angioplasty vs duteplase</b>			
<b>DeWood , 1989</b> n=46/44 follow-up: 30 d	primary PTCA versus duteplase 0.5 MU/kg for 1 h then 0.7 MU/kg/h for 3h	-	Parallel groups open USA

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>Gibbons , 1993</b> n=47/56 follow-up: discharge	primary PTCA versus alteplase 0.6 MU/kg over 5h	patients with acute myocardial infarction	Parallel groups open USA
<b>primary stenting vs immediate thrombolysis</b>			
<b>STOPAMI 2 , 2002</b> n=81/81 follow-up:	stenting combined with abciximab versus fibrinolysis by alteplase combined with abciximab	patients with acute myocardial infarction within 12 h of onset of symptoms	Parallel groups open
<b>transfer for primary angioplasty vs immediate thrombolysis</b>			
<b>AIR-PAMI , 2002</b> n=71/66 follow-up:	Transfer for Primary Angioplasty versus immediate thrombolysis (various thrombolytic)	Patients with high-risk AMI (age >70 years, anterior MI, Killip class II/III, heart rate >100 beats/min or systolic BP <100 mm Hg), eligible for thrombolytic therapy	Parallel groups open
<b>DANAMI-2 , 2003</b> n=567/562 follow-up: 30 days	Transfer for Primary Angioplasty versus immediate thrombolysis with tPA (accelerated infusion)	patients with myocardial infarction with ST-segment elevation	Parallel groups open
<b>PRAGUE-2 , 2003</b> n=429/421 follow-up: 30 days	immediate transport for primary percutaneous coronary intervention versus immediate thrombolysis with streptokinase	patients with acute ST elevation myocardial infarction presenting within <12 h to the nearest community hospital without a catheter laboratory	Parallel groups open
<b>primary ballon angioplasty vs intracoronary streptokinase</b>			
<b>O'Neill , 1986</b> n=NA follow-up:	coronary angioplasty versus intracoronary streptokinase	patients within 12 hours of their first symptoms of acute myocardial infarction	Parallel groups open
<b>primary ballon angioplasty vs streptokinase</b>			
<b>Zwolle , 1994</b> n=152/149 follow-up: discharge	primary PTCA versus streptokinase 1.5 M IU over 1h	patients with acute myocardial infarction	Parallel groups open The Netherland
<b>Ribeiro , 1993</b> n=50/50 follow-up: discharge	primary PTCA versus streptokinase 1.2 M IU over 1h	patients with ST segment elevation within 6 h of the onset of chest pain	Parallel groups open Brazil
<b>Grinfeld , 1996</b> n=54/58 follow-up: 30 d	primary PTCA versus streptokinase 1.5 M IU over 1h	-	Parallel groups open Argentina
<b>Zijlstra , 1997</b> n=45/50 follow-up: 6 months	primary PTCA versus streptokinase 1.5 M IU over 1h	patients with acute myocardial infarction	Parallel groups open The Netherland

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
Zijlstra , 1993 n=70/72 follow-up:	immediate coronary angioplasty (without previous thrombolytic therapy) versus intravenous streptokinase	patients with acute myocardial infarction	Parallel groups open
Akhras , 1997 n=42/45 follow-up:	primary angioplasty versus streptokinase	patient within 12hr from onset of AMI	Parallel groups open Saudi Arabia
<b>primary ballon angioplasty vs t-PA</b>			
PAMI , 1993 n=195/200 follow-up: discharge	primary PTCA versus t-PA 100mg (or 1.25mg/kg for patients weighting less than 65kg) over 3 h	patients who presented within 12 hours of the onset of myocardial infarction	Parallel groups open USA,Europe
<b>primary ballon angioplasty vs tenecteplase</b>			
TRIANA , 2009 [NCT00257309] n=132/134 follow-up: 30 days (12 months)	Tenecteplase + UFH (+/- clopidogrel) versus Primary angioplasty	>=75 years old with ST-segment elevation or LBBB AMI <6 hours of evolution without contraindications for thrombolytic therapy	Parallel groups open
<b>primary PCI vs Thrombolysis</b>			
senior PAMI , 2005 [NCT00136929] n=252/229 follow-up: 30 days	primary percutaneous coronary intervention versus intravenous thrombolytic therapy	elderly (age >= 70 years) patients with acute myocardial infarction	Parallel groups Open

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 Akhras, 1997:  
 PAMI, 1993:  
 TRIANA, 2009:  
 senior PAMI, 2005:

## 8 transfer for primary angioplasty

Trial	Treatments	Patients	Trials design and methods
<b>primary angioplasty vs immediate thrombolysis</b>			
<b>MAASTRICHT (Vermeer) , 1999</b> n=75/75 follow-up:	Transfer for primary PTCA versus immediate thrombolysis with tPA	patients with acute myocardial infarction initially admitted to a hospital without PTCA facilities	open
<b>PRAGUE-1 , 2000</b> n=101/99 follow-up: 30 days	immediate transportation for primary angioplasty without pre-treatment with thrombolysis versus immediate thrombolysis with streptokinase	patients with acute myocardial infarction, presenting within 6 h of symptom onset at community hospitals without a catheterization laboratory	open
<b>AIR-PAMI , 2002</b> n=71/66 follow-up:	Transfer for Primary Angioplasty versus immediate thrombolysis (various thrombolytic)	Patients with high-risk AMI (age >70 years, anterior MI, Killip class II/III, heart rate >100 beats/min or systolic BP <100 mm Hg), eligible for thrombolytic therapy	open
<b>CAPTIM , 2002</b> n=421/419 follow-up:	Transfer for Primary Angioplasty versus prehospital fibrinolysis with accelerated alteplase	patients within 6 h of acute myocardial infarction with ST-segment elevation, initially managed by mobile emergency-care units	open

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>DANAMI-2 , 2003</b> n=567/562 follow-up: 30 days	Transfer for Primary Angioplasty versus immediate thrombolysis with tPA (accelerated infusion)	patients with myocardial infarction with ST-segment elevation	Parallel groups open
<b>PRAGUE-2 , 2003</b> n=429/421 follow-up: 30 days	immediate transport for primary percutaneous coronary intervention versus immediate thrombolysis with streptokinase	patients with acute ST elevation myocardial infarction presenting within <12 h to the nearest community hospital without a catheter laboratory	open
<b>thrombolysis + angioplasty vs immediate thrombolysis</b>			
<b>NORDISTEMI , 2009</b> [NCT00161005] n=134/132 follow-up: 1y	transfer for immediate coronary angiography and intervention versus conservative strategy	patients with STEMI of less than 6 hours of duration and more than 90 minutes expected time delay to PCI	Parallel groups open Norway
<b>PRAGUE-1 (thrombolysis+PTCA) , 2000</b> n=100/99 follow-up: 30 days	thrombolytic therapy during transportation to angioplasty versus immediate thrombolysis with streptokinase	patients with acute myocardial infarction, presenting within 6 h of symptom onset at community hospitals without a catheterization laboratory	Parallel groups open Czech Republic
<b>CARESS , 2008</b> n=NA follow-up: 30 days	immediate transfer for PCI after half-dose reteplase, abciximab, heparin, and aspirin versus half-dose reteplase, abciximab, heparin, and aspirin, transfer for PCI only if they had persistent ST elevation at 90 minutes (rescue PCI)	STEMI patients under 75 years old within 12 hours of symptom onset who had been admitted to hospitals without PCI facilities	open France, Italy, and Poland
<b>CAPITAL AMI , 2005</b> n=86/84 follow-up: 6 months	full-dose tenecteplase (TNK) plus PCI versus thrombolysis alone	high-risk MI patients within six hours of symptom onset	Parallel groups open US
<b>TRANSFER-AMI , 2008</b> <i>ongoing</i> [NCT00164190] n=NA follow-up: 30 days	pharmacoinvasive strategy (transfer for PCI within six hours of fibrinolysis) versus standard treatment after fibrinolysis (rescue PCI for failed reperfusion, with elective PCI encouraged for successfully reperfused patients after 24 hours)	patients with high-risk STEMI	Parallel groups open

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**PRAGUE-1 (thrombolysis+PTCA), 2000:**  
**CARESS, 2008:**  
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