**Clinical question.**

In patients with suspected STEMI in the ED and prehospital settings (P), does the use of fibrinolytics and immediate PTCA (I), compared with immediate PTCA (C), improve outcome (e.g. chest pain resolution, infarct size, ekg resolution, survival to discharge, 30/60 d mortality) (O)?

This worksheet addresses in intervention/therapy.

This worksheet is a new worksheet.

### Conflict of interest specific to this question

Do any of the authors listed above have conflict of interest disclosures relevant to this worksheet? Lecture honoraria from Boehringer Ingelheim and Sanofi Aventis

### Search strategy (including electronic databases searched).


### State inclusion and exclusion criteria

Search terms: Thrombolysis and angiography in AMI (193 hits), rescue intervention for failed thrombolysis in acute MI (216 hits), PCI after thrombolysis (89 hits), facilitated PCI for AMI (78 hits), fibrinolysis followed by PCI (18 hits), primary and facilitated PCI (99 hits), pharmacoinvasive treatment of AMI (8 hits).

Exclusion of case reports and reviews (reviews searched for additional papers: none found)

### Number of articles/sources meeting criteria for further review:

Finally 54 papers included into the list for the worksheet
## Summary of evidence

### Evidence Supporting Clinical Question

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#### Level of evidence

- **E1** = 30 days or in-hospital mortality
- **E2** = Strokes
- **E3** = Re-infarction/ischemia
- **E4** = Bleeding
- **E5** = Composite of E1 to E2
- **E6** = Other clinical endpoint

### Evidence Neutral to Clinical Question

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# Evidence Opposing Clinical Question

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REVIEWER’S FINAL COMMENTS AND ASSESSMENT OF BENEFIT / RISK:

To answer the posed question in a straight forward manner proved be very difficult since the strategy of “facilitated PCI” is not clearly defined in the literature which is also true for terms like “rescue PCI” or “pharmaco-invasive” strategy. Moreover the strategy of combining fibrinolysis with PCI has been subject to fundamental developments during the last 20 years as far as pharmacotherapy is concerned i.e. the lytic itself (direct and indirect plasminogen activators) and adjunct treatment e.g. the antithrombin used, the addition of thienopyridines and last but not least the low-dose lytic – Gp IIb/IIIa inhibitor combination. The same is true for PCI which started with balloon angioplasty only performed with less advanced catheter techniques and now is routinely done with stenting (or even use of drug eluting stents) utilizing a wide variety of instruments enabling optimal results with minimal risk. There are several other factors of concern when comparing a facilitated PCI with a primary PCI strategy in STEMI. Obviously results (and consecutive rate of complications) are influenced by important confounders: Low risk patients and high risk patients do have different outcomes with facilitated PCI; time windows i.e. time from symptom onset to start of thrombolysis (out-of-hospital or in-hospital) or PCI (what is immediate with regard to delay for transfer?) is of importance as well as time delay from start of thrombolysis to start of PCI in the combined strategy. Several studies performed in the last year or even recently resulted in a better outcome after thrombolysis when angiography and evtl. PCI is performed not immediately after thrombolysis but with a delay of some e.g. 2-6 hrs e.g. after transfer from a non PCI capable to a PCI capable hospital. But this discussion is beyond the scope of this worksheet. All this points out to the possibility that there may be no “one size fits all” answer to the posed question. Therefore the investigator thinks that it may be necessary to add further publications to the investigations not directly comparing “facilitated PCI” with “primary PCI” in intention to include important not definitively answered questions into the scope pf the worksheet.

Acknowledgements:

Martina Weiland in preparing the worksheet

Citation List


Randomized study terminated early (due to slow recruitment) intending to compare PPCI with a facilitated PCI strategy of the combination of eptifibatide + ½ dose tenecteplase. In the 148 pts treated according to the protocol the bleeding rate was higher in the facilitated PCI group. In addition there was a trend to more MACE in the facilitated PCI group.

LOE 1 opposing poor


Large randomised prematurely terminated study comparing 90 days outcome of the composite of death, congestive heart failure shock of STEMI pts (symptoms < 6 hrs) treated with standard primary PCI (n=838) or PCI (anticipated delay 1-3 hrs) after full dose tenecteplase thrombolysis (n=829). Planned nr. of pts 4000). In hospital mortality was higher in the combo group (compared to PPCI (6 % vs 3 % p =0.0105). The 90 day composite endpoint occurred in 19 % with combo treatment vs 13 % with primary PCI (p=0.0045). Also were significantly more strokes (but not intracranial bleedings) and more cardiac events with the combo treatment compared to PPCI. However lowest mortality was found in the group with prehospital thrombolysis – facilitated PCI group and highest in the facilitated PCI group with initiation of thrombolysis in a PCI hospital.

LOE 1 opposing good


Metaanalysis on 9 trials (3836 pts) comparing thrombolysis with PPCI (7 trials) or reduced dose of thrombolysis + Gp IIb/IIIa inhibitors (2 trials). This metaanalysis reveals an overall higher risk of intracranial hemorrhages and
re-infarctions with a facilitated PCI strategy. The combination of thrombolysis + Gp IIb/IIIa inhibitors reduced the re-infarction rate at the cost of more major bleedings. Patients with fibrinolysis started within 2 hrs after symptom onset and a somewhat (3-24 hrs) delayed PCI showed a trend to lower mortality.

LOE1 opposing  good


Study investigating microvascular perfusion by myocardial contrast echocardiography in pts with STEMI treated within 3 hrs after symptom onset with primary PCI (n=36), tenecteplase followed by PCI within 24 hrs (n=30) or tenecteplase alone. Baseline characteristics were similar in the groups. PTS treated by primary PCI and combo treatment had similar less microvascular damage and similar myocardial salvage if compared to pts with fibrinolysis only (even if treated very early).

LOE2 neutral  fair


Comparison of treatment strategies consisting of TNK lysis (+enox) and usual care (n=100, group A), TNK (+enox) and cath within 24 hrs (n=104, group B) and primary PCI (+ enox + 300 mg clopidogrel). Treatment was partially during prehospital care. Primary outcome of 30 day re-infarction, death severe heart failure, cardiogenic shock, major ventricular arrhythmia and refractory ischemia was observed with identical frequency in all 3 groups however death an re MI was more frequent when groups A and C were compared (13 vs 4 % p=0.02)

LOE1 neutral  good


Early data from a randomised study comparising rt-PA thrombolysis only with rt-PA thrombolysis + immediate PTCA indicating that the rate of re-occlusions or re-infarctions is higher with the combined treatment. On the other hand, ventricular function was better with the combination treatment provided that there was no re-occlusion or re-infarction.

LOE1 neutral  good


Long term data of 1043 hospital survivors of STEMI who had angiography before discharge after rt-PA lysis (n=172), had alteplase only (n=180) or were treated with alteplase only (n=346) or placebo (n=345). It is concluded that low risk patients will not profit from additional invasive procedures.

LOE5 opposing  good


Registry data on 2230 pts with STEMI treated with fibrinolysis only (n=1549) or fibrinolysis with additional PCI (n=690) within a median of 150 Min. After adjustment with a propensity score they was no difference with regard to death and re-Infarction but more bleedings in the +PCI group. In patients with high risk (TIMI risk score >=5, n=494) additional PCI was associated with a significant reduction of hospital mortality.

LOE5 neutral  good


Randomized study comparing prehospital thrombolysis (tPA) with primary PCI (n=421) in 840 pts (1200 planned, early termination due to cessation of finding). In 26 % of the 419 pts randomized to prehospital thrombolysis had additional rescue PCI another 7 % “urgent” additional PCI. The primary outcome (the composte of death, re MI or
disabling stroke) occurred in 8.2% with prehospital lysis and in 6.2% with PPCI (p=0.29). Single endpoints (death 3.8% vs 4.8%, reMI 3.7 vs 1.7 and stroke 1.0% vs 0.0% respectively) also did not differ. Authors conclude that a strategy of PPCI was not better with a strategy of prehospital thrombolysis and transfer to a PCI facility for possible rescue angioplasty.

LOE5 neutral good


Metaanalysis comparing a strategy of immediate or early PCI compared to conservative treatment indicating insufficient data (available at that time) to recommend routine transfer. However transfer for immediate PCI is recommended for pts with shock, hemodynamic instability or persistent ischemic symptoms after thrombolysis according to available data.

LOE5 neutral good


Non randomized comparison of matched pairs of STEMI pts initially treated in community hospitals with a combined thrombolysis/Gp IIb/IIIa receptor antagonist strategy before being transferred in a tertiary care center for PCI. Outcome with respect to MACE was superior with the combination strategy (but not with regard to bleedings) and was cost-saving.

LOE3 supporting fair


Metaanalysis on randomised studies to assess potential benefits of rescue PCI vs no PCI (n=920, 5 trials) systemic early PCI after thrombolysis vs delayed or ischemia (n=1508 6 trials) guided PCI and fibrinolysis facilitated PCI vs primary PCI (n=2679, 4 trials). Rescue PCI for failed fibrinolysis reduced mortality and the composite of death and re-infarction. Systematic and early PCI with stenting led to a not significant reduction inmortality and a significant reduction in the composite of death and re-infarction in contrast to a trend of increased mortality and re-infarction rate with balloon only PTCA. Fibrinolysis facilitated PCI was associated with more re-infarctions but had no significant influence or mortality.

LOE1 neutral good


Data from the French Fast-MI registry on 1714 pts with MI and 1-year follow up. 60% of the pts received reperfusion therapy: 33% primary PCI, 29% thrombolysis (18% prehospital). The pts had similar GRACE risk scores at entry. Symptom duration to start of treatment was 300 Min with primary PCI and 130 Min with thrombolysis. After thrombolysis 96% of pts had angiography and 84% additional PCI (58% of these within 24 hrs). In hospital mortality was similar for thrombolysis and PPCI and was also similar after 30 days and after 1 year mortality (also after propensity score matching) if PCI followed thrombolysis, but was higher (3.9% vs 9.2%, p=0.044) with thrombolysis not followed by PCI, favouring facilitated PCI" over thrombolysis but over with primary PCI.

LOE2 neutral good


Report on outcomes of 664 STEMI pts treated with combo thrombolysis (half dose Alteplase and abciximab) before long distance transfer (>90 Min) for facilitated PCI. Index pts were compared with 1311 pts treated with PPCI (transfer time < 90 Min). 30 days mortality was 3.0% with facilitated PCI and 3.4% with primary PCI, also re-MI rate and the composite of death + re-MI+urgent. Re-intervention/CABG was indetical. However, there was
an increase rate of hemorrhagic strokes (0.9 % with fac. PCI) vs 0.0 % with PPCI and an increased rate of bleeding with the combination treatment (mostly minor bleedings).

LOE5  neutral  good


Registry data on 659 pts with STEMI treated with primary PCI (n=476) or rescue PCI (n=183). Major bleeding complications was 8 % for rescue PCI and 6 % in primary PCI (p=0.35), there were also no differences in MACE or procedural neccess if PPCI is compared with rescue PCI.

LOE5  neutral  good


Review of randomized studies (n=1456 pts) and registries (n=977 pts) on value of rescue (or immediate) angioplasty after failed thrombolysis (documented angiographically by more or less occluded vessels) indicating that older studies from the 1980s (resulting in harm from this strategy) may be not valid any more and that newer studies tend to be in favour for addition of early PCI at least in failed thrombolysis.

LOE2  neutral  good


Large prematurely terminated randomised study comparing outcome of AMI patients treated by combo lysis with ½ dose reteplase+abciximab followed by PCI after 1-4 hrs (n=828), abciximab only facilitated PCI (n=818) or primary CI + abciximab at intervention (n=806). Outcome (death, VF later than 48 hrs, cardiogenic shock and congestive heart failure within 90 days after randmisation) was identical in all 3 groups. Compared to primary PCI rate of TIMI major and minor bleedings as well as number of transfusions was higher with combo lysis + PCI compared to the other groups.

LOE1  neutral  fair


Post hoc analysis of 3845 TIMI trial pts indicating that TIMI perfusion grades are clearly depending on symptom duration until start of thrombolysis (OR 1.14 per hour of delay) even after adjusting for TIMI flow 3 after intervention and clinical variables. This relation persisted also after rescue PCI and was also present for TIMI flow grade 3.

LOE5  neutral  fair


Registry data on 105 consecutive pts who were treated by primary PCI (n=60) or rescue PCI after thrombolysis (n=45). TIMI-3 flow was achieved in 93.3 % of pts with PPCI and 88.8 % with rescue PCI (p=0.08). Also clinical outcome tended to be worse with rescue PCI.

LOE2  opposing  fair


Investigation in the role of early routine PCI (performed on average 63 Min after initiation of a reduced dose of reteplase + abciximab) compared with combo lysis alone without early PCI. Early facilitated PCI proved to be safe and effective in terms of clinical events and bleeding complications.

LOE5  neutral  fair

Registry data on 66 consecutive pts treated by primary PTCA (n=11), PTCA followed by streptokinase (n=15), streptokinase alone (n=11) and streptokinase followed by PTCA. Incidence of re-infarctions was similar n all groups, subsequent revascularisation was less frequent with primary PTCA and the combination groups compared to the other groups.

LOE2 neutral poor


A randomized study with 140 pts with STEMI, comparing monteplase facilitated PCI (n=65) with primary PCI (n=75), followed-up for 2 years. LV function at 6-mo was similar in both groups. Primary endpoint of cardiac death in 2 years was not significantly different; 3.4% vs. 5.3%. However, combination of major cardiac events were less frequent in facilitated PCI; 27.7% vs. 46.7%, p<0.05.

LOE 1 neutral fair


Retrospective analysis of a group of 80 STEMI pts with intracoronary thrombus in the LAD undergoing primary PTCA alone or PTCA after intracoronary thrombolysis indicating a better acute flow grade with the combination treatment.

LOE5 supporting fair


Metaanalysis on 5882 pts treated in 10 randomized studies testing the hypothesis that early coronary intervention after thrombolysis will reduce mortality. Results: no indication that this procedure will reduce mortality, but also no findings for worse outcomes.

LOE1 neutral good


Non randomised study on a small group of pts receiving prehospital thrombolysis followed by angiography and eventual rescue PCI 90 Min after start of thrombolysis. The study resulted in a high rate of TIMI 3 flow within 2 hrs after start of thrombolysis and a low mortality of 3 % in this subgroup. The rate of severe bleedings, however, was high 8 % ! 7 % requiring transfusions), and 2 pts suffered intracranial hemorrhages.

LOE 2 neutral fair


Small randomised study to compare a low dose bolus of tenecteplase (10 mg) before PCI compared to primary PCI (284 pts in total). GP IIb/IIIa antagonists were given to both groups at PCI. The study resulted in a higher rate of IRA patency before PCI and is to small for further conclusions.

LOE1 supporting poor


Quantitative review comparing primary PCI and facilitated (by thrombolysis alone, combo lysis with reduced lytic regimen + Gp IIb/IIIa receptor blockers and Gp IIb/IIIa receptor blockers alone) on TIMI 3 flow before and after PCI, mortality, non fatal re-infarction, strokes, urgent re-intervention rates and major bleedings. Whereas pre-
procedural TIMI 3 flow was two-field higher with pre-treatment, differences after PCI regarding TIMI flow and other outcomes were worse with facilitation, particular in the thrombolytic based regimes compared to primary PCI. Strokes (hemorrhagic and ischemic) were also more frequent in the thrombolytic based regimes compared to primary PCI.

LOE1 opposing good


Analysis of a large MI registry on 34276 pts of whom 10600 were treated with thrombolysis and 487 had additional PCI within 61 min to 24 hrs after thrombolysis. This “early” PCI group was compared with 10113 pts with PCI later than 24 hrs or not at all. Unadjusted mortality was lower with early compared to late PCI. After adjustment for age > 65 years, female gender an anterior MI and prehospital delay > 3 hrs there was no difference in mortality any more. It is concluded that this lack of difference is due to patient selection i.e. that early PCI is more frequently used in low risk patients.

LOE1 neutral fair


A randomized study of 39 pts with STEMI, comparing pts treated by mutant t-PA (monteplase) facilitated PCI (n=19) with pts treated by primary PCI (n=20). There were no differences in peak CK and rates of major complications and no reflow or distal emboli. Observation over an average of 5.5 months revealed a tendency toward lower target lesion revascularization rates in the facilitated PCI group (17.6% vs. 31.6%) but no intergroup difference in rates of major complications.

LOE neutral fair


Registry data on 153 STEMI ts treated with facilitated PCI (1/2 dose reteplase for pts when cath lab not available < 30 Min or necessary transfer, n=80) or primary PTCA (n=73). TIMI 2-3 flow at initial angiography was 42% with facilitated PCI compared to 25 % with primary PCI (p=0.031). Other outcomes were similar within the groups. The authors conclude the facilitated PCI strategy may be of value for those patients with no immediate access to a cath lab.

LOE2 supporting fair


Randomized study comparing outcome in 86 pts with TNK facilitated angioplasty (immediately after TNK) with TNK alone (84 pts). All pts had high risk characteristics (ant. MI, Killip 3, systolic RR < 100 mmHg, involvement of > 8 leads in the ECG). Endpoint was the composite of death re-infarction, recurrent UAP or stroke at 6 months. The endpoint occurred in 21,7 % of the TNK alone group vs 9,3 % in the combo group (p=0.03) at 30 days and in 24.4 vs 11.6 % at 6 months respectively. Death rate was not different between groups but recurrent UAP was significantly higher with TNK alone at 30 days (18,1%) compared to combo therapy (7.0) p=0.04) and at 6 months 20.7 % vs 8,1 % respectively. Study is supporting the combo strategy for high risk pts with STEMI.

LOE5 neutral fair


Post hoc analysis of a subgroup of the CAPTIM data regarding cost-effectiveness and event rates (death non fatal MI and stroke). Event rate was identical in both groups (14% with PCI, 16,4 % with prehospital lysis + eventl. rescue PCI but costs were in favour of primary PCI.

LOE5 opposing fair

Non randomized comparison of 212 pts with AMI receiving a combination of abciximab + a reduced dose of tPA (20 mg) during cath-lab off hours with patients treated with primary PCI during normal working hours. Initial TIMI flow, TIMI frame count and recovery of ventricular function was better in the facilitated PCI group.
LOE2 supporting fair


Substudy in 1090 pts of the ASSENT IV-PCI trial (n=549 facilitated PCI, 541 primary PCI) investigating the meaning of ST-resolution at 90 Min. presence of Q-waves at first ECG registration and time delay from symptom onset to initiation of treatment. Analysis shows that despite equal extent of ST resolution mortality with primary PCI was lower than with facilitated PCI and specifically worse for patients with a symptom duration of > 3 hrs and Q waves at start of facilitated PCI.
LOE2 opposing fair


Retrospective evaluation of registry data comparing 767 STEMI pts with PPCI to outcome of 786 pts who were transferred after initial treatment with a Gp IIb/IIIa inhibitor + thrombolysis. Clinical outcome (mortality, re-infarction, stroke, bleedings minor and major) were comparable in both groups. Mortality tended to be lower with PPCI only if door to balloon time was < 90 Min. With further delay facilitated PCI tended to be better as was the incidence of the composite endpoint. Bleedings were more frequent with Gp IIb/IIIa receptor blockers alone or combo lysis but not with thrombolysis alone compared to PPCI. Bleedings were also not more frequent with PPCI if compared with the whole facilitated PCI group.
LOE3 supporting fair


Non randomized comparison of prehospital pretreatment with tirofiban(n=44) or fibrinolysis (n=35) (PA, TNK, rtPA and SK) followed by angiography (and PCI if suitable) within 24 hrs. Clinical outcome was worse with fibrinolysis (bleedings, necessary transfusions) compared with tirofiban pre-treatment.
LOE5 opposing poor


Investigation of usefulness of lower dose rt-PA thrombolysis ( to avoid bleeding risk) combined with „backup“ angiography (25 pts) compared with 21 pts with PPCI. There was a trend to a smaller endsystolic and enddiastolic volumes of the left ventricle in radionuclide tomography and a higher degree of myocardial salvage in the combo treatment group without more complications.
LOE5 supporting poor


Non randomized study comparing early i.v. bolus thrombolysis with t-PA consecutive PCI (n=112), PCI alone (n=83). Time to TIMI-3 flow was shorter with the combination treatment, CK-MB release and peak CK was lower with the combination. There was no difference in 30 day mortality or other complications.
LOE3 supporting fair

Randomized comparison on 313 AMI pts treated with upstream 50 mg Alteplase (15 mg bolus + 35 mg over 1 h) + tirofiban 10 µg/kg bolus and 0.15 µg/kg/min infusion over 24 hrs (n=151 group 1) or identical tirofiban dosis (n=162, group 2) (control group non randomized pts (n=98) treated by PCI and provisional abciximab). 30 days mortality was 0.7 % (group 1) vs 5.5 % (group 2) and 6.3 % controls (p< 0.02). There were no differences in bleeding, number of stent thrombosis was higher with controls (n=7) compared to group 1 (n=0) and group 2 (n=2).

LOE 5 supporting fair


Registry data on STEMI patient treated with primary PTCA (n=195) or PTCA very early after initial thrombolysis (rescue or immediate rescue PCI). Mortality was 3.2 % with rescue PCI and 0.6 % with primary PCI, the mortality rate in pts with cardio genic shock was 36 % with rescue PCI and 31 % with primary PCI but fell to 18 % and 10 % respectively with successful PTCA. It is concluded that PTCA after thrombolysis is safe and effective.

LOE 2 neutral fair


Investigation on prognosis of patients with failed thrombolysis determined by ST resolution 90 Min after initiation of treatment group 1: ST resolution 10 – 50 % or complete absence of ST resolution was an indepent predictor of elevated in-hospital mortality, irrespective of PCI success and also a predictor of long term cardiac events.

LOE 5 neutral fair


Randomized comparison in 606 pts comparing a strategy of a half dose tPA or placebo followed up immediate angiography and rescue PCI if necessary or a 2nd bolus of tPA or placebo in case of TIMI 3 flow at angiography. Higher TIMI flow rates were significantly more frequent with preceding thrombolysis; EF was improved with TIMI 3 flow at cath lab arrival or early achievement of TIMI 3 flow with thrombolysis or PCI; PCI however, was delayed > 1 hr in 88 % with the consequence of reduced EF in this group.

LOE 1 neutral good


Registry data comparing mortality with i.v. thrombolysis, intracoronary thrombolysis, primary and rescue PCI in 1822 pts and in 875 pts with out reperfusion therapy. The study shows that (after adjustment for co-variates) mortality is lowest with primary PCI and intracoronary thrombolysis and two times higher with i.v. thrombolysis and no reperfusion treatment, and was lying within the extremes with rescue PCI.

LOE 5 neutral fair


Randomized study comparing rescue PCI with stenting (n=90) or balloon angiography (n=91) in STEMI patients transferred for failed thrombolysis (clinical and/or ECG criteria). Study indicated that stenting salvaged more myocardium than balloon angioplasty. Also mortality at 1 year tended to be lower with stenting (8%) vs 12 % with balloon angioplasty (p=0,35).

LOE 5 neutral good

Early key study (1988) on potential benefit of additional angioplasty after tPA thrombolysis (n=183) or conservative treatment (n=180) resulting in no additional benefit for the combination treatment. In contrast outcome was more favourable with conservative treatment regarding 14 days mortality bleeding complications, ventricular fibrillation and mortality (3 % vs 7 %). Facilitated PCI also lead to 7 % sustained re-occlusion and a high rate or recurrent ischemia during the first 24 hrs (17%).

LOE5 opposing good


Metaanalysis on efficacy and safety of a combination Gp IIb/IIIa-thrombolytic therapy (n=424) versus a GP IIb/IIIa inhibitor treatment alone (n=301) for a facilitated PCI strategy in 4 clinical trials. Even if TIMI flow grade 3 was 2 times more frequent with the combination before PCI, it was similar after PCI. More severe bleedings were observed with the combination. Re-infarction and 30 days mortality was similar in both groups.

LOE1 opposing good


Registry results from small groups of patients with pre-hospital thrombolysis or primary PCI brought into a hospital by a specific rescue service compared with pts non eligible for lytic or were bought in by non-participating EMS. Results are in favour of (reduced dose) pre-hospital thrombolysis complied with immediate PCI (study statistically underpowered)

LOE2 supporting fair


Registry data on 362 consecutive patient treated with thrombolysis who had angiography within 90 Min. 60% of pts had TIMI 3 flow and were treated conservatively (in hospital mortality 4 %), 9 % had TIMI 2 and 31 % TIMI 0-1 flow. In these pts rescue PCI was attempted in 85,8 % (mortality 5,5 %, 20 % with failed PCI, 4 % with successful PCI). 8-year survival as well as MACE was identical between groups during follow up (lysis only or rescue PCI).

LOE5 neutral fair


Randomized study comparing outcome of pre-hospital half-dose Reteplase + abciximab thrombolysis with (n=82) or without (n=82) additional immediate PCI. Results (complete ST-segment resolution, event rate composite of death, re-infarction, major bleeding or stroke at 6 months) were in favour of the facilitated PCI strategy compared to combo lysis and standard care.

LOE5 neutral good


Further analyses of the Leipzig prehospital thrombolysis study. In this analysis prehospital combo lysis (1/2 dose reteplase + abciximab) and conventional care (n=82) was compared with a group with prehospital combo lysis + immediate PCI and compared with a control group treated with primary PCI with regard to ST segment resolution at 90 Min and clinical outcome (death, re-MI and stroke) at 6 months. Complete ST-resolution (>70%) was higher (80%) with facilitated PCI compared to 52 % to the other group and was a prognosticator for best outcome (7,7 % event rate compared 8,6 % with primary PCI and 9,8 % with combo lysis only).

LOE2 supporting fair

A non-randomized study of 90 pts with STEMI. Pts were assigned as primary PCI before Mar 1999 (n=37) and as mutant t-PA (monteplase) facilitated PCI after Apr 1999 (n=53). Pts with facilitated PCI acquired earlier reperfusion estimated by STR at 60-min after admission and higher TIMI 2/3 flow rate (75% vs. 35%, p<0.0001), compared to pts with primary PCI. Subacute thrombotic occlusion occurred in 2 pts with facilitated PCI and 3 in primary PCI (NS). One patient in each group died from pump failure (NS). No severe bleeding complication was found in any patient.

LOE 3 neutral fair


Small pilot study on three different reperfusion strategies in elderly pts (75 – 80 years) i.e. PPCI (n=26) facilitated PCI utilizing half dose tPA (n=24) and facilitated PCI with full dose tPA (n=15). Bleeding rates were not different between the groups, TIMI flow at angiography before PCI was superior with one of the facilitated PCI strategies.

LOE 2 neutral poor


This randomized study compares three strategies thrombolysis (SK only (n=)), thrombolysis (with SK) during transport to PCI (n=100, facilitated group) and transport to PCI (n=101). All pts were first seen and randomized in community hospitals. The primary composite endpoint of death re-infarction and stroke was less frequent with primary PCI (8%) compared with the facilitated group (15 %) and the thrombolysis only group (23 %) mainly due to a lower rate of re-infarctions in the primary PCI group. Bleeding rate with facilitated PCI was increased compared to the other groups.

LOE 1 opposing good


Small randomized study comparing reduced dose alteplase + abciximab (n=34) or PPCI with adjunct abciximab (n=36). In the combogroup TIMI-3 was achieved in 65 % compared to 25 % in PPCI group at first angiography. Procedural success was identical in both groups; there was a trend to more MACE in the combo group particularly with regard to re-intervention.

LOE1 opposing fair