

Clinical trials of thrombectomy

TrialResults-center www.trialresultscenter.org

1 acute myocardial infarction

Trial	Treatments	Patients	Trials design and methods
thrombectomy vs conventional PCI			
Ciszewski , 2011 n=67/70 follow-up:	-	high risk patients with STEMI and angiographic evidence of thrombus	
Liistro , 2009 n=NA follow-up:	-	patients with ST-segment elevation myocardial infarction	
INFUSE AMI , 2013 n=NA follow-up:	-	patients with ST-segment-elevation myocardial infarction caused by proximal or mid left anterior descending artery occlusion undergoing primary percutaneous coronary intervention with bivalirudin anticoagulation	
Chao , 2008 n=NA follow-up:	-	STEMI patients within 12 h from onset	
TROPHI n=NA follow-up:	-	-	
thrombectomy vs PCI only			
TASTE (Frbert) , 2013 [NCT01093404] n=NA follow-up:	-	patients with STEMI undergoing PCI	
TOTAL , 2015 [NCT01149044] n=5033/5030 follow-up:	routine upfront manual thrombectomy versus PCI alone	patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary PCI	

More details and results :

- thrombectomy for acute myocardial infarction in all type of patients at <http://www.trialresultscenter.org/go-Q350>

References

Ciszewski, 2011:

Ciszewski M, Peregowski J, Teresinska A, Karcz M, Kalinczuk L, Pracon R, Witkowski A, Ruzyllo W Aspiration coronary thrombectomy for acute myocardial infarction increases myocardial salvage: single center randomized study. *Catheter Cardiovasc Interv* 2011;78:523-31 [[21234920](#)] [10.1002/ccd.22933](#)

Liistro, 2009:

Liistro F, Grotti S, Angioli P, Falsini G, Ducci K, Baldassarre S, Sabini A, Brandini R, Capati E, Bolognese L Impact of thrombus aspiration on myocardial tissue reperfusion and left ventricular functional recovery and remodeling after primary angioplasty. *Circ Cardiovasc Interv* 2009;2:376-83 [[20031746](#)] [10.1161/CIRCINTERVENTIONS.109.852665](#)

INFUSE AMI, 2013:

Stone GW, Witzenbichler B, Godlewski J, Dambrink JH, Ochala A, Chowdhary S, El-Omar M, Neunteufl T, Metzger DC, Dizon JM, Wolff SD, Brener SJ, Mehran R, Maehara A, Gibson CM Intralesional abciximab and thrombus aspiration in patients with large anterior myocardial infarction: one-year results from the INFUSE-AMI trial. *Circ Cardiovasc Interv* 2013;6:527-34 [[24084626](#)] [10.1161/CIRCINTERVENTIONS.113.000644](#)

Chao, 2008:

Chao CL, Hung CS, Lin YH, Lin MS, Lin LC, Ho YL, Liu CP, Chiang CH, Kao HL Time-dependent benefit of initial thrombosuction on myocardial reperfusion in primary percutaneous coronary intervention. *Int J Clin Pract* 2008;62:555-61 [[18067561](#)] [10.1111/j.1742-1241.2007.01542.x](#)

TROPHI, :

Onuma Y, Thuesen L, van Geuns RJ, van der Ent M, Desch S, Fajadet J, Christiansen E, Smits P, Ramsing Holm N, Regar E, van Mieghem N, Borovicain V, Paunovic D, Senshu K, van Es GA, Muramatsu T, Lee IS, Schuler G, Zijlstra F, Garcia-Garcia HM, Serruys PW Randomized study to assess the effect of thrombus aspiration on flow area in patients with ST-elevation myocardial infarction: an optical frequency domain imaging study–TROFI trial. *Eur Heart J* 2013;: [[23396493](#)]

TASTE (Frbert), 2013:

Frbert O, Lagerqvist B, Olivecrona GK, Omerovic E, Gudnason T, Maeng M, Aasa M, Angers O, Calais F, Danielewicz M, Erlinge D, Hellsten L, Jensen U, Johansson AC, Kregren A, Nilsson J, Robertson L, Sandhall L, Sjgren I, Ostlund O, Harnek J, James SK Thrombus Aspiration during ST-Segment Elevation Myocardial Infarction. *N Engl J Med* 2013 Aug 31;: [[23991656](#)] [10.1056/NEJMoa1308789](#)

Lagerqvist B, Frbert O, Olivecrona GK, Gudnason T, Maeng M, Alstrm P, Andersson J, Calais F, Carlsson J, Collste O, Gtberg M, Hrdhammar P, Ioanes D, Kallryd A, Linder R, Lundin A, Odenstedt J, Omerovic E, Puskar V, Tdt T, Zellerroth E, stlund O, Jame Outcomes 1 year after thrombus aspiration for myocardial infarction. *N Engl J Med* 2014 Sep 18;371:1111-20 [[25176395](#)]

TOTAL, 2015:

Jolly SS, Cairns JA, Yusuf S, Meeks B, Pogue J, Rokoss MJ, Kedev S, Thabane L, Stankovic G, Moreno R, Gershlick A, Chowdhary S, Lavi S, Niemel K, Steg PG, Bernat I, Xu Y, Cantor WJ, Overgaard CB, Naber CK, Cheema AN, Welsh RC, Bertrand OF, Avezum A, Bhin Randomized trial of primary PCI with or without routine manual thrombectomy. *N Engl J Med* 2015;372:1389-98 [[25853743](#)]

Jolly SS, Cairns JA, Yusuf S, Rokoss MJ, Gao P, Meeks B, Kedev S, Stankovic G, Moreno R, Gershlick A, Chowdhary S, Lavi S, Niemela K, Bernat I, Cantor WJ, Cheema AN, Steg PG, Welsh RC, Sheth T, Bertrand OF, Avezum A, Bhindi R, Natarajan MK, Horak D, Leung Outcomes after thrombus aspiration for ST elevation myocardial infarction: 1-year follow-up of the prospective randomised TOTAL trial. *Lancet* 2015 Oct 12;: [[26474811](#)] [10.1016/S0140-6736\(15\)00448-1](#)

2 percutaneous coronary intervention

Trial	Treatments	Patients	Trials design and methods
thrombectomy vs conventional PCI			
Ciszewski , 2011 n=67/70 follow-up:	-	high risk patients with STEMI and angiographic evidence of thrombus	
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INFUSE AMI , 2013 n=NA follow-up:	-	patients with ST-segment-elevation myocardial infarction caused by proximal or mid left anterior descending artery occlusion undergoing primary percutaneous coronary intervention with bivalirudin anticoagulation	
Chao , 2008 n=NA follow-up:	-	STEMI patients within 12 h from onset	
MUSTELLA n=NA follow-up:	-	-	
TROPHI n=NA follow-up:	-	-	
thrombectomy vs PCI only			
TASTE (Frbert) , 2013 [NCT01093404] n=NA follow-up:	-	patients with STEMI undergoing PCI	
TOTAL , 2015 [NCT01149044] n=5033/5030 follow-up:	routine upfront manual thrombectomy versus PCI alone	patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary PCI	

More details and results :

- thrombectomy for percutaneous coronary intervention in patients with acute MI at <http://www.trialresultscenter.org/go-Q355>

References

Ciszewski, 2011:

Ciszewski M, Pregowski J, Teresinska A, Karcz M, Kalinczuk L, Pracon R, Witkowski A, Ruzyllo W Aspiration coronary thrombectomy for acute myocardial infarction increases myocardial salvage: single center randomized study. *Catheter Cardiovasc Interv* 2011;78:523-31 [[21234920](#)] [10.1002/ccd.22933](#)

Liistro, 2009:

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MUSTELLA, :

De Carlo M, Aquaro GD, Palmieri C, Guerra E, Misuraca L, Giannini C, Lombardi M, Berti S, Petronio AS A prospective randomized trial of thrombectomy versus no thrombectomy in patients with ST-segment elevation myocardial infarction and thrombus-rich lesions: MUSTELA (MULTidevice Thrombectomy in Acute ST-Segment Elevation Acute Myocardial Infarction) trial. *JACC Cardiovasc Interv* 2012;5:1223-30 [[23257370](#)]

TROPHI, :

Onuma Y, Thuesen L, van Geuns RJ, van der Ent M, Desch S, Fajadet J, Christiansen E, Smits P, Ramsing Holm N, Regar E, van Mieghem N, Borovicinan V, Paunovic D, Senshu K, van Es GA, Muramatsu T, Lee IS, Schuler G, Zijlstra F, Garcia-Garcia HM, Serruys PW Randomized study to assess the effect of thrombus aspiration on flow area in patients with ST-elevation myocardial infarction: an optical frequency domain imaging study—TROFI trial. *Eur Heart J* 2013;: [[23396493](#)]

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Lagerqvist B, Frbert O, Olivecrona GK, Gudnason T, Maeng M, Alstrm P, Andersson J, Calais F, Carlsson J, Collste O, Gtberg M, Hrdhammar P, Ioanes D, Kallryd A, Linder R, Lundin A, Odenstedt J, Omerovic E, Puskar V, Tdt T, Zellerroth E, stlund O, Jame Outcomes 1 year after thrombus aspiration for myocardial infarction. *N Engl J Med* 2014 Sep 18;371:1111-20 [[25176395](#)]

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Jolly SS, Cairns JA, Yusuf S, Rokoss MJ, Gao P, Meeks B, Kedev S, Stankovic G, Moreno R, Gershlick A, Chowdhary S, Lavi S, Niemela K, Bernat I, Cantor WJ, Cheema AN, Steg PG, Welsh RC, Sheth T, Bertrand OF, Avezum A, Bhindi R, Natarajan MK, Horak D, Leung Outcomes after thrombus aspiration for ST elevation myocardial infarction: 1-year follow-up of the prospective randomised TOTAL trial. *Lancet* 2015 Oct 12;: [[26474811](#)] [10.1016/S0140-6736\(15\)00448-1](#)

3 superficial thrombophlebitis

Trial	Treatments	Patients	Trials design and methods
thrombectomy plus ECB vs ECB			
Belcaro , 1989 n=NA follow-up:	Superficial thrombectomy plus ECBp, imag versus ECB alone	Patients with ST without DVT	

More details and results :

- antithrombotics for superficial thrombophlebitis in superficial thrombophlebitis of the leg at <http://www.trialresultscenter.org/go-Q218>

References

Belcaro, 1989:

Belcaro G, Errichi BM, Laurora G, Cesarone MR, Candiani C Treatment of acute superficial thrombosis and follow-up by computerized thermography. *Vasa* 1989;18:227-34 [2678804]