

# Clinical trials of PCI

TrialResults-center [www.trialresultscenter.org](http://www.trialresultscenter.org)

## 1 acute myocardial infarction

Trial	Treatments	Patients	Trials design and methods
<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	
<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
<b>primary PCI vs accelerated t-PA</b>			
<b>C-PORT , 2002</b> 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 PCI vs Thrombolysis</b>			
<b>senior PAMI , 2005</b> [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

More details and results :

- myocardial revascularization for acute myocardial infarction in all type of patients at <http://www.trialresultscenter.org/go-Q129>
- PCI for acute myocardial infarction in all type of patients at <http://www.trialresultscenter.org/go-Q246>
- PCI for acute myocardial infarction in Elderly patients at <http://www.trialresultscenter.org/go-Q316>
- myocardial revascularization for acute myocardial infarction in Elderly patients at <http://www.trialresultscenter.org/go-Q317>

## References

### **CAPITAL AMI, 2005:**

Le May MR, Wells GA, Labinaz M, Davies RF, Turek M, Leddy D, Maloney J, McKibbin T, Quinn B, Beanlands RS, Glover C, Marquis JF, O'Brien ER, Williams WL, Higginson LA Combined angioplasty and pharmacological intervention versus thrombolysis alone in acute myocardial infarction (CAPITAL AMI study). *J Am Coll Cardiol* 2005;46:417-24 [[16053952](#)]

### **GRACIA-1, 2004:**

Fernandez-Aviles F, Alonso JJ, Castro-Beiras A, Vazquez N, Blanco J, Alonso-Briales J, Lopez-Mesa J, Fernandez-Vazquez F, Calvo I, Martinez-Elbal L, San Romn JA, Ramos B Routine invasive strategy within 24 hours of thrombolysis versus ischaemia-guided conservative approach for acute myocardial infarction with ST-segment elevation (GRACIA-1): a randomised controlled trial. *Lancet* 2004;364:1045-53 [[15380963](#)]

### **PRAGUE, 2000:**

Widimsk P, Groch L, Zelzko M, Aschermann M, Bednr F, Suryapranata H Multicentre randomized trial comparing transport to primary angioplasty vs immediate thrombolysis vs combined strategy for patients with acute myocardial infarction presenting to a community hospital without a catheterization laboratory. The PRAGUE study. *Eur Heart J* 2000;21:823-31 [[10781354](#)]

Bednr F, Widimsk P, Krupicka J, Groch L, Aschermann M, Zelzko M Interhospital transport for primary angioplasty improves the long-term outcome of acute myocardial infarction compared with immediate thrombolysis in the nearest hospital (one-year follow-up of the PRAGUE-1 study). *Can J Cardiol* 2003;19:1133-7 [[14532938](#)]

### **SIAM III, 2002:**

Scheller B, Hennen B, Hammer B, Walle J, Hofer C, Hilpert V, Winter H, Nickenig G, Bhm M Beneficial effects of immediate stenting after thrombolysis in acute myocardial infarction. *J Am Coll Cardiol* 2003;42:634-41 [[12932593](#)]

### **WEST, 2006:**

Armstrong PW A comparison of pharmacologic therapy with/without timely coronary intervention vs. primary percutaneous intervention early after ST-elevation myocardial infarction: the WEST (Which Early ST-elevation myocardial infarction Therapy) study. *Eur Heart J* 2006;27:1530-8 [[16757491](#)]

### **C-PORT, 2002:**

Aversano T, Aversano LT, Passamani E, Knatterud GL, Terrin ML, Williams DO, Forman SA Thrombolytic therapy vs primary percutaneous coronary intervention for myocardial infarction in patients presenting to hospitals without on-site cardiac surgery: a randomized controlled trial. *JAMA* 2002;287:1943-51 [[11960536](#)]

### **senior PAMI, 2005:**

## 2 stable angina

Trial	Treatments	Patients	Trials design and methods
<b>PCI with or without stent vs medical treatment</b>			
<b>TIME , 2001</b> n=NA follow-up:	coronary angiography and revascularisation versus optimised medical therapy	patients aged 75 years or older with chronic angina of at least Canadian Cardiac Society class II despite at least two antianginal drugs	Parallel groups open
<b>AVERT , 1995</b> n=177/164 follow-up: 1.5y	angioplasty versus atorvastatin at 80 mg per day	Angina or asymptomatic, MI or unstable angina but not within 14 days, no triple vessel disease	Parallel groups open
<b>Dakik , 1998</b> n=19/22 follow-up: 1y	PTCA versus intensive medical therapy	stable survivors of AMI	Parallel groups open
<b>MASS II , 2007</b> n=205/203 follow-up: 5y	PCI versus medical therapy	patients with multivessel coronary artery disease with stable angina and preserved ventricular function	Parallel groups open
<b>COURAGE , 2007</b> [NCT00007657] n=1149/1138 follow-up: median 4.6 y	PCI coupled with optimal medical therapy versus optimal medical therapy alone	patients with stable coronary artery disease	Parallel groups open Canada, US
<b>ALKK , 2003</b> n=149/151 follow-up: 4.7y	angioplasty versus medical therapy	patients with single vessel disease of the infarct vessel and no or minor angina pectoris in the subacute phase (1 to 6 weeks) after an acute myocardial infarction	Parallel groups open Germany
<b>Hambrecht , 2004</b> n=50/51 follow-up: 1y	PCI versus 12 months of exercise training (20 minutes of bicycle ergometry per day)	male patients aged 70 years	Parallel groups open
<b>Bech , 2001</b> n=90/91 follow-up: 2y	PTCA versus deferral of PTCA	patients with planned PTCA and no documented ischemia and with coronary pressure-derived fractional flow reserve >0.75	Parallel groups open
<b>ISCHEMIA ongoing</b> n=NA follow-up:	invasive strategy, consisting of early routine cardiac catheterization followed by revascularization plus optimal medical therapy (OMT) and lifestyle changes versus conservative strategy of optimal medical therapy and lifestyle changes in which invasive procedures will be performed only after failure of OMT	patients with stable ischemic heart disease and moderate to severe ischemia	Parallel groups open-label

continued...

Trial	Treatments	Patients	Trials design and methods
<b>FFR-guided PCI vs no PCI</b>			
<b>FAME II , 2012</b> [NCT01132495] n=447/441 follow-up:	fractional-flow-reserve (FFR)-guided stenting versus optimal medical therapy alone	patients with stable CAD found on FFR to have hemodynamically relevant disease	Parallel groups Europe, US, and Canada
<b>FAME , 2008</b> [NCT00267774] n=509/496 follow-up: 1 year	FFR-guided PCI (PCI with implantation of drug-eluting stents guided by FFR measurements in addition to angiography) versus angiography-PCI (PCI with implantation of drug-eluting stents guided by angiography alone)	patients with multivessel coronary artery disease	Parallel groups open USA, Europe
<b>DEFER , 2001</b> n=90/91 follow-up: 24 months	PCI versus deferral (no PCI)	patients for whom PTCA was planned and who did not have documented ischemia and with fractional flow reserve >0.75	Parallel groups open
<b>PCI vs CABG</b>			
<b>AWESOME , 2001</b> n=222/232 follow-up: 5 years	percutaneous coronary intervention versus coronary artery bypass graft	high-risk patients with medically refractory ischemia	Parallel groups open US (Veterans Affairs Medical Centers)
<b>PCI with drug-eluting stents vs CABG</b>			
<b>SYNTAX (diabetic) , 2010</b> [NCT00114972] n=NA follow-up: 1 year	paclitaxel-eluting stents versus surgical revascularization	sub group of diabetic patients with left main and/or 3-vessel disease	Parallel groups
<b>FREEDOM , 2012</b> [NCT00086450] n=953/947 follow-up: 3.8 yrs (median)	percutaneous coronary stenting versus CABG	patients with diabetes and multivessel coronary artery disease	Parallel groups open international
<b>PCI with drug-eluting stents vs CABG</b>			
<b>Hong , 2005</b> n=119/70 follow-up: 9 months	drug-eluting stents versus invasive direct coronary artery bypass (MIDCAB) surgery	proximal left anterior descending (LAD) coronary artery stenosis	Parallel groups open
<b>VA CARDS ongoing</b> [NCT00326196] n=NA follow-up:	percutaneous coronary stenting with drug eluting stents versus CABG	angiographically significant coronary artery disease in diabetes	Parallel groups open

continued...

Trial	Treatments	Patients	Trials design and methods
<b>CABG or PCI vs medical treatment</b>			
<b>BARI 2D , 2009</b> [NCT00006305] n=1176/1192 follow-up: 5.3 y	prompt revascularization with intensive medical therapy versus intensive medical therapy alone	patients with type 2 diabetes and heart disease	Parallel groups open US, Canada, Brazil, Mexico, Czech Republic, Austria
<b>PCI withsirolimus ES vs MIDCAB</b>			
<b>Thiele , 2009</b> [NCT00299429] n=65/65 follow-up: 12 months	sirolimus-eluting stent versus MIDCAB surgery	isolated LAD disease	Parallel groups open Germany

More details and results :

- myocardial revascularization for stable angina in all type of patient at <http://www.trialresultscenter.org/go-Q25>
- myocardial revascularization for stable angina in single vessel disease at <http://www.trialresultscenter.org/go-Q27>
- myocardial revascularization for stable angina in multivessels disease at <http://www.trialresultscenter.org/go-Q28>
- myocardial revascularization for stable angina in diabetic patients at <http://www.trialresultscenter.org/go-Q29>

## References

### TIME, 2001:

Trial of invasive versus medical therapy in elderly patients with chronic symptomatic coronary-artery disease (TIME): a randomised trial. Lancet 2001;358:951-7 [11583747]

Masson C, Pruvo JP, Meder JF, Cordonnier C, Touz E, De La Sayette V, Giroud M, Mas JL, Leys D Spinal cord infarction: clinical and magnetic resonance imaging findings and short term outcome. J Neurol Neurosurg Psychiatry 2004;75:1431-5 [15377691]

Pfisterer M, Buser P, Osswald S, Allemann U, Amann W, Angehrn W, Eeckhout E, Erne P, Estlinbaum W, Kuster G, Moccetti T, Naegeli B, Rickenbacher P Outcome of elderly patients with chronic symptomatic coronary artery disease with an invasive vs optimized medical treatment strategy: one-year results of the randomized TIME trial. JAMA 2003;289:1117-23 [12622581]

### AVERT, 1995:

Pitt B, Waters D, Brown WV, van Boven AJ, Schwartz L, Title LM, Eisenberg D, Shurzinske L, McCormick LS Aggressive lipid-lowering therapy compared with angioplasty in stable coronary artery disease. Atorvastatin versus Revascularization Treatment Investigators N Engl J Med 1999;341:70-6 [10395630]

### Dakik, 1998:

Dakik HA, Kleiman NS, Farmer JA, He ZX, Wendt JA, Pratt CM, Verani MS, Mahmarian JJ Intensive medical therapy versus coronary angioplasty for suppression of myocardial ischemia in survivors of acute myocardial infarction: a prospective, randomized pilot study Circulation 1998;98:2017-23 [9808599]

### MASS II, 2007:

Hueb W, Lopes NH, Gersh BJ, Soares P, Machado LA, Jatene FB, Oliveira SA, Ramires JA Five-year follow-up of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease *Circulation* 2007;115:1082-9 [[17339566](#)] [10.1161/CIRCULATIONAHA.106.625475](#)

Hueb W, Soares PR, Gersh BJ, Csar LA, Luz PL, Puig LB, Martinez EM, Oliveira SA, Ramires JA The medicine, angioplasty, or surgery study (MASS-II): a randomized, controlled clinical trial of three therapeutic strategies for multivessel coronary artery disease: one-year results. *J Am Coll Cardiol* 2004;43:1743-51 [[15145093](#)]

Hueb W, Lopes N, Gersh BJ, Soares PR, Ribeiro EE, Pereira AC, Favarato D, Rocha AS, Hueb AC, Ramires JA Ten-year follow-up survival of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease. *Circulation* 2010;122:949-57 [[20733102](#)] [10.1161/CIRCULATIONAHA.109.911669](#)

#### **COURAGE, 2007:**

Boden WE, O'Rourke RA, Teo KK, Hartigan PM, Maron DJ, Kostuk WJ, Knudtson M, Dada M, Casperson P, Harris CL, Chaitman BR, Shaw L, Gosselin G, Nawaz S, Title LM, Gau G, Blaustein AS, Booth DC, Bates ER, Spertus JA, Berman DS, Mancini GB, Weintraub WS Optimal medical therapy with or without PCI for stable coronary disease. *N Engl J Med* 2007 Apr 12;356:1503-16 [[17387127](#)]

#### **ALKK, 2003:**

Zeymer U, Uebis R, Vogt A, Glunz HG, Vhringer HF, Harmjan D, Neuhaus KL Randomized comparison of percutaneous transluminal coronary angioplasty and medical therapy in stable survivors of acute myocardial infarction with single vessel disease: a study of the Arbeitsgemeinschaft Leitende Kardiologische Krankenhausärzte *Circulation* 2003;108:1324-8 [[12939210](#)] [10.1161/01.CIR.0000087605.09362.0E](#)

#### **Hambrecht, 2004:**

Hambrecht R, Walther C, Mbius-Winkler S, Gielen S, Linke A, Conradi K, Erbs S, Kluge R, Kendziorra K, Sabri O, Sick P, Schuler G Percutaneous coronary angioplasty compared with exercise training in patients with stable coronary artery disease: a randomized trial *Circulation* 2004;109:1371-8 [[15007010](#)] [10.1161/01.CIR.0000121360.31954.1F](#)

#### **Bech, 2001:**

Bech GJ, De Bruyne B, Pijls NH, de Muinck ED, Hoorntje JC, Escaned J, Stella PR, Boersma E, Bartunek J, Koolen JJ, Wijns W Fractional flow reserve to determine the appropriateness of angioplasty in moderate coronary stenosis: a randomized trial *Circulation* 2001;103:2928-34 [[11413082](#)]

#### **ISCHEMIA, :**

ongoing trial

#### **FAME II, 2012:**

De Bruyne B, Pijls NH, Kalesan B, Barbato E, Tonino PA, Piroth Z, Jagic N, Mobius-Winckler S, Rioufol G, Witt N, Kala P, Maccarthy P, Engstrm T, Oldroyd KG, Mavromatis K, Manoharan G, Verlee P, Frobert O, Curzen N, Johnson JB, Jni P, Fearon WF Fractional Flow Reserve-Guided PCI versus Medical Therapy in Stable Coronary Disease. *N Engl J Med* 2012 Aug 27;: [[22924638](#)] [10.1056/NEJMoa1205361](#)

De Bruyne B, Fearon WF, Pijls NH, Barbato E, Tonino P, Piroth Z, Jagic N, Mobius-Winckler S, Riouffol G, Witt N, Kala P, MacCarthy P, Engstrm T, Oldroyd K, Mavromatis K, Manoharan G, Verlee P, Frobert O, Curzen N, Johnson JB, Limacher A, Nesch E, Jni P Fractional Flow Reserve-Guided PCI for Stable Coronary Artery Disease. *N Engl J Med* 2014 Sep 1;: [[25176289](#)] [10.1056/NEJMoa1408758](#)

#### **FAME, 2008:**

Pijls NH, Fearon WF, Tonino PA, Siebert U, Ikeno F, Bornschein B, van't Veer M, Klauss V, Manoharan G, Engstrm T, Oldroyd KG, Ver Lee PN, MacCarthy PA, De Bruyne B Fractional flow reserve versus angiography for guiding percutaneous coronary intervention in patients with multivessel coronary artery disease: 2-year follow-up of the FAME (Fractional Flow Reserve Versus Angiography for Multivessel Evaluation) study. *J Am Coll Cardiol* 2010;56:177-84 [[20537493](#)] [10.1016/j.jacc.2010.04.012](#)

Tonino PA, De Bruyne B, Pijls NH, Siebert U, Ikeno F, van' t Veer M, Klauss V, Manoharan G, Engstrm T, Oldroyd KG, Ver Lee PN, MacCarthy PA, Fearon WF

Fractional flow reserve versus angiography for guiding percutaneous coronary intervention. *N Engl J Med* 2009;360:213-24 [[19144937](#)]

Pijls NH, Fearon WF, Tonino PA, Siebert U, Ikeno F, Bornschein B, van't Veer M, Klauss V, Manoharan G, Engstrm T, Oldroyd KG, Ver Lee PN, MacCarthy PA, De Bruyne B Fractional flow reserve versus angiography for guiding percutaneous coronary intervention in patients with multivessel coronary artery disease: 2-year follow-up of the FAME (Fractional Flow Reserve Versus Angiography for Multivessel Evaluation) study. *J Am Coll Cardiol* 2010;56:177-84 [[20537493](#)]

Sels JW, Tonino PA, Siebert U, Fearon WF, Van't Veer M, De Bruyne B, Pijls NH Fractional flow reserve in unstable angina and non-ST-segment elevation myocardial infarction experience from the FAME (Fractional flow reserve versus Angiography for Multivessel Evaluation) study. *JACC Cardiovasc Interv* 2011;4:1183-9 [[22115657](#)]

#### **DEFER, 2001:**

Bech GJ, De Bruyne B, Pijls NH, de Muinck ED, Hoorntje JC, Escaned J, Stella PR, Boersma E, Bartunek J, Koolen JJ, Wijns W Fractional flow reserve to determine the appropriateness of angioplasty in moderate coronary stenosis: a randomized trial. *Circulation* 2001;103:2928-34 [[11413082](#)]

#### **AWESOME, 2001:**

Morrison DA, Sethi G, Sacks J, Henderson W, Grover F, Sedlis S, Esposito R, Ramanathan K, Weiman D, Saucedo J, Antakli T, Paramesh V, Pett S, Vernon S, Birjiniuk V, Welt F, Krucoff M, Wolfe W, Lucke JC, Mediratta S, Booth D, Barbieri C, Lewis D Percutaneous coronary intervention versus coronary artery bypass graft surgery for patients with medically refractory myocardial ischemia and risk factors for adverse outcomes with bypass: a multicenter, randomized trial. Investigators of the Department of Veterans Affairs Cooperative Study 385, the Angina With Extremely Serious Operative Mortality Evaluation (AWESOME). *J Am Coll Cardiol* 2001;38:143-9 [[11451264](#)]

Morrison DA, Sethi G, Sacks J, Grover F, Sedlis S, Esposito R, Ramanathan KB, Weiman D, Krucoff M, Duhaylongsod F, Raya T, Pett S, Vernon S, Birjiniuk V, Booth D, Robinson C, Talley JD, Antckli T, Murphy E, Floten H, Curcovic V, Lucke JC, Lewis D, Barbier A multicenter, randomized trial of percutaneous coronary intervention versus bypass surgery in high-risk unstable angina patients. The AWESOME (Veterans Affairs Cooperative Study 385, angina with extremely serious operative mortality evaluation) investigators from the Cooperative Studies Program of the Department of Veterans Affairs. *Control Clin Trials* 1999;20:601-19 [[10588300](#)]

Morrison DA, Sethi G, Sacks J, Henderson WG, Grover F, Sedlis S, Esposito R Percutaneous coronary intervention versus repeat bypass surgery for patients with medically refractory myocardial ischemia: AWESOME randomized trial and registry experience with post-CABG patients. *J Am Coll Cardiol* 2002;40:1951-4 [[12475454](#)]

Ramanathan KB, Weiman DS, Sacks J, Morrison DA, Sedlis S, Sethi G, Henderson WG Percutaneous intervention versus coronary bypass surgery for patients older than 70 years of age with high-risk unstable angina. *Ann Thorac Surg* 2005;80:1340-6 [[16181866](#)] [10.1016/j.athoracsur.2005.03.057](#)

Rumsfeld JS, Magid DJ, Plomondon ME, Sacks J, Henderson W, Hlatky M, Sethi G, Morrison DA Health-related quality of life after percutaneous coronary intervention versus coronary bypass surgery in high-risk patients with medically refractory ischemia. *J Am Coll Cardiol* 2003;41:1732-8 [[12767656](#)]

Sedlis SP, Morrison DA, Lorin JD, Esposito R, Sethi G, Sacks J, Henderson W, Grover F, Ramanathan KB, Weiman D, Saucedo J, Antakli T, Paramesh V, Pett S, Vernon S, Birjiniuk V, Welt F, Krucoff M, Wolfe W, Lucke JC, Mediratta S, Booth D, Murphy E, Ward H, Percutaneous coronary intervention versus coronary bypass graft surgery for diabetic patients with unstable angina and risk factors for adverse outcomes with bypass: outcome of diabetic patients in the AWESOME randomized trial and registry. *J Am Coll Cardiol* 2002;40:1555-66 [[12427406](#)]

Sedlis SP, Ramanathan KB, Morrison DA, Sethi G, Sacks J, Henderson W Outcome of percutaneous coronary intervention versus coronary bypass grafting for patients with low left ventricular ejection fractions, unstable angina pectoris, and risk factors for adverse outcomes with bypass (the AWESOME Randomized Trial and Registry). *Am J Cardiol* 2004;94:118-20 [[15219521](#)] [10.1016/j.amjcard.2004.03.041](#)

Stroupe KT, Morrison DA, Hlatky MA, Barnett PG, Cao L, Lyttle C, Hynes DM, Henderson WG Cost-effectiveness of coronary artery bypass grafts versus percutaneous coronary intervention for revascularization of high-risk patients. *Circulation* 2006;114:1251-7 [[16966588](#)] [10.1161/CIRCULATIONAHA.105.570838](#)

#### **SYNTAX (diabetic), 2010:**

Banning AP, Westaby S, Morice MC, Kappetein AP, Mohr FW, Berti S, Glauber M, Kellett MA, Kramer RS, Leadley K, Dawkins KD, Serruys PW Diabetic and



nondiabetic patients with left main and/or 3-vessel coronary artery disease: comparison of outcomes with cardiac surgery and paclitaxel-eluting stents. *J Am Coll Cardiol* 2010;55:1067-75 [20079596]

**FREEDOM, 2012:**

Farkouh ME, Domanski M, Sleeper LA, Siami FS, Dangas G, Mack M, Yang M, Cohen DJ, Rosenberg Y, Solomon SD, Desai AS, Gersh BJ, Magnuson EA, Lansky A, Boineau R, Weinberger J, Ramanathan K, Sousa JE, Rankin J, Bhargava B, Buse J, Hueb W, Smith CR, Muratov Strategies for Multivessel Revascularization in Patients with Diabetes. *N Engl J Med* 2012 Nov 4;: [23121323] 10.1056/NEJMoa1211585

**Hong, 2005:**

Hong SJ, Lim DS, Seo HS, Kim YH, Shim WJ, Park CG, Oh DJ, Ro YM Percutaneous coronary intervention with drug-eluting stent implantation vs. minimally invasive direct coronary artery bypass (MIDCAB) in patients with left anterior descending coronary artery stenosis. *Catheter Cardiovasc Interv* 2005;64:75-81 [15619278]

**VA CARDS, 0:**

ongoing trial NCT00326196

**BARI 2D, 2009:**

Baseline characteristics of patients with diabetes and coronary artery disease enrolled in the Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) trial. *Am Heart J* 2008;156:528-536, 536.e1-5 [18760137]

A Randomized Trial of Therapies for Type 2 Diabetes and Coronary Artery Disease. *N Engl J Med* 2009;: [19502645]

Chaitman BR, Hardison RM, Adler D, Gebhart S, Grogan M, Ocampo S, Sopko G, Ramires JA, Schneider D, Frye RL The Bypass Angioplasty Revascularization Investigation 2 Diabetes Randomized Trial of Different Treatment Strategies in Type 2 Diabetes Mellitus With Stable Ischemic Heart Disease. Impact of Treatment Strategy on Cardiac Mortality and Myocardial Infarction. *Circulation* 2009;: [19920001]

Dagenais GR, Lu J, Faxon DP, Kent K, Lago RM, Lezama C, Hueb W, Weiss M, Slater J, Frye RL Effects of Optimal Medical Treatment With or Without Coronary Revascularization on Angina and Subsequent Revascularizations in Patients With Type 2 Diabetes Mellitus and Stable Ischemic Heart Disease. *Circulation* 2011;123:1492-1500 [21444887] 10.1161/CIRCULATIONAHA.110.978247

**Thiele, 2009:**

Thiele H, Neumann-Schriedewind P, Jacobs S, Boudriot E, Walther T, Mohr FW, Schuler G, Falk V Randomized comparison of minimally invasive direct coronary artery bypass surgery versus sirolimus-eluting stenting in isolated proximal left anterior descending coronary artery stenosis. *J Am Coll Cardiol* 2009 Jun 23;53:2324-31 [19539141]

### 3 coronary artery disease

Trial	Treatments	Patients	Trials design and methods
<b>PCI with or without stent vs medical treatment</b>			
TIME , 2001 n=NA follow-up:	coronary angiography and revascularisation versus optimised medical therapy	patients aged 75 years or older with chronic angina of at least Canadian Cardiac Society class II despite at least two antianginal drugs	Parallel groups open

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>AVERT , 1995</b> n=177/164 follow-up: 1.5y	angioplasty versus atorvastatin at 80 mg per day	Angina or asymptomatic, MI or unstable angina but not within 14 days, no triple vessel disease	Parallel groups open
<b>Dakik , 1998</b> n=19/22 follow-up: 1y	PTCA versus intensive medical therapy	stable survivors of AMI	Parallel groups open
<b>MASS II , 2007</b> n=205/203 follow-up: 5y	PCI versus medical therapy	patients with multivessel coronary artery disease with stable angina and preserved ventricular function	Parallel groups open
<b>COURAGE , 2007</b> [NCT00007657] n=1149/1138 follow-up: median 4.6 y	PCI coupled with optimal medical therapy versus optimal medical therapy alone	patients with stable coronary artery disease	Parallel groups open Canada, US
<b>ALKK , 2003</b> n=149/151 follow-up: 4.7y	angioplasty versus medical therapy	patients with single vessel disease of the infarct vessel and no or minor angina pectoris in the subacute phase (1 to 6 weeks) after an acute myocardial infarction	Parallel groups open Germany
<b>Hambrecht , 2004</b> n=50/51 follow-up: 1y	PCI versus 12 months of exercise training (20 minutes of bicycle ergometry per day)	male patients aged 70 years	Parallel groups open
<b>Bech , 2001</b> n=90/91 follow-up: 2y	PTCA versus deferral of PTCA	patients with planned PTCA and no documented ischemia and with coronary pressure-derived fractional flow reserve >0.75	Parallel groups open
<b>ISCHEMIA</b> <i>ongoing</i> n=NA follow-up:	invasive strategy, consisting of early routine cardiac catheterization followed by revascularization plus optimal medical therapy (OMT) and lifestyle changes versus conservative strategy of optimal medical therapy and lifestyle changes in which invasive procedures will be performed only after failure of OMT	patients with stable ischemic heart disease and moderate to severe ischemia	Parallel groups open-label
<b>FFR-guided PCI vs no PCI</b>			
<b>FAME II , 2012</b> [NCT01132495] n=447/441 follow-up:	fractional-flow-reserve (FFR)-guided stenting versus optimal medical therapy alone	patients with stable CAD found on FFR to have hemodynamically relevant disease	Parallel groups Europe, US, and Canada

continued...

<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>FAME , 2008</b> [NCT00267774] n=509/496 follow-up: 1 year	FFR-guided PCI (PCI with implantation of drug-eluting stents guided by FFR measurements in addition to angiography versus angiography-PCI (PCI with implantation of drug-eluting stents guided by angiography alone)	patients with multivessel coronary artery disease	Parallel groups open USA, Europe
<b>DEFER , 2001</b> n=90/91 follow-up: 24 months	PCI versus deferral (no PCI)	patients for whom PTCA was planned and who did not have documented ischemia and with fractional flow reserve >0.75	Parallel groups open
<b>PCI with drug-eluting stents vs CABG</b>			
<b>SYNTAX (diabetic) , 2010</b> [NCT00114972] n=NA follow-up: 1 year	paclitaxel-eluting stents versus surgical revascularization	sub group of diabetic patients with left main and/or 3-vessel disease	Parallel groups
<b>FREEDOM , 2012</b> [NCT00086450] n=953/947 follow-up: 3.8 yrs (median)	percutaneous coronary stenting versus CABG	patients with diabetes and multivessel coronary artery disease	Parallel groups open international
<b>PCI with drug-eluting stents vs CABG</b>			
<b>Hong , 2005</b> n=119/70 follow-up: 9 months	drug-eluting stents versus invasive direct coronary artery bypass (MIDCAB) surgery	proximal left anterior descending (LAD) coronary artery stenosis	Parallel groups open
<b>VA CARDS ongoing</b> [NCT00326196] n=NA follow-up:	percutaneous coronary stenting with drug eluting stents versus CABG	angiographically significant coronary artery disease in diabetes	Parallel groups open
<b>CABG or PCI vs medical treatment</b>			
<b>BARI 2D , 2009</b> [NCT00006305] n=1176/1192 follow-up: 5.3 y	prompt revascularization with intensive medical therapy versus intensive medical therapy alone	patients with type 2 diabetes and heart disease	Parallel groups open US, Canada, Brazil, Mexico, Czech Republic, Austria
<b>PCI with sirolimus ES vs MIDCAB</b>			
<b>Thiele , 2009</b> [NCT00299429] n=65/65 follow-up: 12 months	sirolimus-eluting stent versus MIDCAB surgery	isolated LAD disease	Parallel groups open Germany

continued...

Trial	Treatments	Patients	Trials design and methods
<b>PCI vs CABG</b>			
<b>AWESOME , 2001</b> n=222/232 follow-up: 5 years	percutaneous coronary intervention versus coronary artery bypass graft	high-risk patients with medically refractory ischemia	Parallel groups open US (Veterans Affairs Medical Centers)
<b>COMBAT</b> <i>ongoing</i> n=NA	PCI versus CABG	-	
<b>Korean Randomized Study</b> <i>ongoing</i> n=NA	PCI versus CABG	-	
<b>REVASCULARIZE</b> <i>ongoing</i> n=NA	PCI versus CABG	-	

More details and results :

- myocardial revascularization for coronary artery disease in all type of patient at <http://www.trialresultscenter.org/go-Q26>
- myocardial revascularization for coronary artery disease in diabetic patients at <http://www.trialresultscenter.org/go-Q30>
- myocardial revascularization for coronary artery disease in multivessels disease at <http://www.trialresultscenter.org/go-Q31>
- myocardial revascularization for coronary artery disease in single vessel disease at <http://www.trialresultscenter.org/go-Q32>
- Drug eluting stent for coronary artery disease in all type of patients at <http://www.trialresultscenter.org/go-Q206>
- Drug eluting stent for coronary artery disease in unparticular patients at <http://www.trialresultscenter.org/go-Q215>
- fractional-flow-reserve-guided PCI for coronary artery disease in all type of patients at <http://www.trialresultscenter.org/go-Q563>

## References

### TIME, 2001:

Trial of invasive versus medical therapy in elderly patients with chronic symptomatic coronary-artery disease (TIME): a randomised trial. *Lancet* 2001;358:951-7 [11583747]

Masson C, Pruvo JP, Meder JF, Cordonnier C, Touz E, De La Sayette V, Giroud M, Mas JL, Leys D Spinal cord infarction: clinical and magnetic resonance imaging findings and short term outcome. *J Neurol Neurosurg Psychiatry* 2004;75:1431-5 [15377691]

Pfisterer M, Buser P, Osswald S, Allemann U, Amann W, Angehrn W, Eeckhout E, Erne P, Estlinbaum W, Kuster G, Moccetti T, Naegeli B, Rickenbacher P Outcome of elderly patients with chronic symptomatic coronary artery disease with an invasive vs optimized medical treatment strategy: one-year results of the randomized TIME trial. *JAMA* 2003;289:1117-23 [12622581]

**AVERT, 1995:**

Pitt B, Waters D, Brown WV, van Boven AJ, Schwartz L, Title LM, Eisenberg D, Shurzinske L, McCormick LS Aggressive lipid-lowering therapy compared with angioplasty in stable coronary artery disease. Atorvastatin versus Revascularization Treatment Investigators N Engl J Med 1999;341:70-6 [[10395630](#)]

**Dakik, 1998:**

Dakik HA, Kleiman NS, Farmer JA, He ZX, Wendt JA, Pratt CM, Verani MS, Mahmarian JJ Intensive medical therapy versus coronary angioplasty for suppression of myocardial ischemia in survivors of acute myocardial infarction: a prospective, randomized pilot study Circulation 1998;98:2017-23 [[9808599](#)]

**MASS II, 2007:**

Hueb W, Lopes NH, Gersh BJ, Soares P, Machado LA, Jatene FB, Oliveira SA, Ramires JA Five-year follow-up of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease Circulation 2007;115:1082-9 [[17339566](#)] [10.1161/CIRCULATIONAHA.106.625475](#)

Hueb W, Soares PR, Gersh BJ, Csar LA, Luz PL, Puig LB, Martinez EM, Oliveira SA, Ramires JA The medicine, angioplasty, or surgery study (MASS-II): a randomized, controlled clinical trial of three therapeutic strategies for multivessel coronary artery disease: one-year results. J Am Coll Cardiol 2004;43:1743-51 [[15145093](#)]

Hueb W, Lopes N, Gersh BJ, Soares PR, Ribeiro EE, Pereira AC, Favarato D, Rocha AS, Hueb AC, Ramires JA Ten-year follow-up survival of the Medicine, Angioplasty, or Surgery Study (MASS II): a randomized controlled clinical trial of 3 therapeutic strategies for multivessel coronary artery disease. Circulation 2010;122:949-57 [[20733102](#)] [10.1161/CIRCULATIONAHA.109.911669](#)

**COURAGE, 2007:**

Boden WE, O'Rourke RA, Teo KK, Hartigan PM, Maron DJ, Kostuk WJ, Knudtson M, Dada M, Casperson P, Harris CL, Chaitman BR, Shaw L, Gosselin G, Nawaz S, Title LM, Gau G, Blaustein AS, Booth DC, Bates ER, Spertus JA, Berman DS, Mancini GB, Weintraub WS Optimal medical therapy with or without PCI for stable coronary disease. N Engl J Med 2007 Apr 12;356:1503-16 [[17387127](#)]

**ALKK, 2003:**

Zeymer U, Uebis R, Vogt A, Glunz HG, Vhringer HF, Harmjanz D, Neuhaus KL Randomized comparison of percutaneous transluminal coronary angioplasty and medical therapy in stable survivors of acute myocardial infarction with single vessel disease: a study of the Arbeitsgemeinschaft Leitende Kardiologische Krankenhausärzte Circulation 2003;108:1324-8 [[12939210](#)] [10.1161/01.CIR.0000087605.09362.0E](#)

**Hambrecht, 2004:**

Hambrecht R, Walther C, Mbius-Winkler S, Gielen S, Linke A, Conradi K, Erbs S, Kluge R, Kendziorra K, Sabri O, Sick P, Schuler G Percutaneous coronary angioplasty compared with exercise training in patients with stable coronary artery disease: a randomized trial Circulation 2004;109:1371-8 [[15007010](#)] [10.1161/01.CIR.0000121360.31954.1F](#)

**Bech, 2001:**

Bech GJ, De Bruyne B, Pijls NH, de Muinck ED, Hoorntje JC, Escaned J, Stella PR, Boersma E, Bartunek J, Koolen JJ, Wijns W Fractional flow reserve to determine the appropriateness of angioplasty in moderate coronary stenosis: a randomized trial Circulation 2001;103:2928-34 [[11413082](#)]

**ISCHEMIA, :**

ongoing trial

**FAME II, 2012:**

De Bruyne B, Pijls NH, Kalesan B, Barbato E, Tonino PA, Piroth Z, Jagic N, Mobius-Winckler S, Rioufol G, Witt N, Kala P, Maccarthy P, Engstrm T, Oldroyd KG, Mavromatis K, Manoharan G, Verlee P, Frobert O, Curzen N, Johnson JB, Jni P, Fearon WF Fractional Flow Reserve-Guided PCI versus Medical Therapy in Stable Coronary Disease. N Engl J Med 2012 Aug 27;: [[22924638](#)] [10.1056/NEJMoa1205361](#)

De Bruyne B, Fearon WF, Pijls NH, Barbato E, Tonino P, Piroth Z, Jagic N, Mobius-Winckler S, Riouffol G, Witt N, Kala P, MacCarthy P, Engstrm T, Oldroyd

K, Mavromatis K, Manoharan G, Verlee P, Frobert O, Curzen N, Johnson JB, Limacher A, Nesch E, Jni P Fractional Flow Reserve-Guided PCI for Stable Coronary Artery Disease. *N Engl J Med* 2014 Sep 1;: [25176289] [10.1056/NEJMoa1408758](https://doi.org/10.1056/NEJMoa1408758)

#### **FAME, 2008:**

Pijls NH, Fearon WF, Tonino PA, Siebert U, Ikeno F, Bornschein B, van't Veer M, Klauss V, Manoharan G, Engstrm T, Oldroyd KG, Ver Lee PN, MacCarthy PA, De Bruyne B Fractional flow reserve versus angiography for guiding percutaneous coronary intervention in patients with multivessel coronary artery disease: 2-year follow-up of the FAME (Fractional Flow Reserve Versus Angiography for Multivessel Evaluation) study. *J Am Coll Cardiol* 2010;56:177-84 [20537493] [10.1016/j.jacc.2010.04.012](https://doi.org/10.1016/j.jacc.2010.04.012)

Tonino PA, De Bruyne B, Pijls NH, Siebert U, Ikeno F, van' t Veer M, Klauss V, Manoharan G, Engstrm T, Oldroyd KG, Ver Lee PN, MacCarthy PA, Fearon WF Fractional flow reserve versus angiography for guiding percutaneous coronary intervention. *N Engl J Med* 2009;360:213-24 [19144937]

Pijls NH, Fearon WF, Tonino PA, Siebert U, Ikeno F, Bornschein B, van't Veer M, Klauss V, Manoharan G, Engstrm T, Oldroyd KG, Ver Lee PN, MacCarthy PA, De Bruyne B Fractional flow reserve versus angiography for guiding percutaneous coronary intervention in patients with multivessel coronary artery disease: 2-year follow-up of the FAME (Fractional Flow Reserve Versus Angiography for Multivessel Evaluation) study. *J Am Coll Cardiol* 2010;56:177-84 [20537493]

Sels JW, Tonino PA, Siebert U, Fearon WF, Van't Veer M, De Bruyne B, Pijls NH Fractional flow reserve in unstable angina and non-ST-segment elevation myocardial infarction experience from the FAME (Fractional flow reserve versus Angiography for Multivessel Evaluation) study. *JACC Cardiovasc Interv* 2011;4:1183-9 [22115657]

#### **DEFER, 2001:**

Bech GJ, De Bruyne B, Pijls NH, de Muinck ED, Hoorntje JC, Escaned J, Stella PR, Boersma E, Bartunek J, Koolen JJ, Wijns W Fractional flow reserve to determine the appropriateness of angioplasty in moderate coronary stenosis: a randomized trial. *Circulation* 2001;103:2928-34 [11413082]

#### **SYNTAX (diabetic), 2010:**

Banning AP, Westaby S, Morice MC, Kappetein AP, Mohr FW, Berti S, Glauber M, Kellett MA, Kramer RS, Leadley K, Dawkins KD, Serruys PW Diabetic and nondiabetic patients with left main and/or 3-vessel coronary artery disease: comparison of outcomes with cardiac surgery and paclitaxel-eluting stents. *J Am Coll Cardiol* 2010;55:1067-75 [20079596]

#### **FREEDOM, 2012:**

Farkouh ME, Domanski M, Sleeper LA, Siami FS, Dangas G, Mack M, Yang M, Cohen DJ, Rosenberg Y, Solomon SD, Desai AS, Gersh BJ, Magnuson EA, Lansky A, Boineau R, Weinberger J, Ramanathan K, Sousa JE, Rankin J, Bhargava B, Buse J, Hueb W, Smith CR, Muratov Strategies for Multivessel Revascularization in Patients with Diabetes. *N Engl J Med* 2012 Nov 4;: [23121323] [10.1056/NEJMoa1211585](https://doi.org/10.1056/NEJMoa1211585)

#### **Hong, 2005:**

Hong SJ, Lim DS, Seo HS, Kim YH, Shim WJ, Park CG, Oh DJ, Ro YM Percutaneous coronary intervention with drug-eluting stent implantation vs. minimally invasive direct coronary artery bypass (MIDCAB) in patients with left anterior descending coronary artery stenosis. *Catheter Cardiovasc Interv* 2005;64:75-81 [15619278]

#### **VA CARDS, 0:**

ongoing trial NCT00326196

#### **BARI 2D, 2009:**

Baseline characteristics of patients with diabetes and coronary artery disease enrolled in the Bypass Angioplasty Revascularization Investigation 2 Diabetes (BARI 2D) trial. *Am Heart J* 2008;156:528-536, 536.e1-5 [18760137]

A Randomized Trial of Therapies for Type 2 Diabetes and Coronary Artery Disease. *N Engl J Med* 2009;: [19502645]

Chaitman BR, Hardison RM, Adler D, Gebhart S, Grogan M, Ocampo S, Sopko G, Ramires JA, Schneider D, Frye RL The Bypass Angioplasty Revascularization Investigation 2 Diabetes Randomized Trial of Different Treatment Strategies in Type 2 Diabetes Mellitus With Stable Ischemic Heart Disease. Impact of Treatment Strategy on Cardiac Mortality and Myocardial Infarction. *Circulation* 2009;: [19920001]

Dagenais GR, Lu J, Faxon DP, Kent K, Lago RM, Lezama C, Hueb W, Weiss M, Slater J, Frye RL Effects of Optimal Medical Treatment With or Without Coronary Revascularization on Angina and Subsequent Revascularizations in Patients With Type 2 Diabetes Mellitus and Stable Ischemic Heart Disease. *Circulation* 2011;123:1492-1500 [21444887] [10.1161/CIRCULATIONAHA.110.978247](https://doi.org/10.1161/CIRCULATIONAHA.110.978247)

#### **Thiele, 2009:**

Thiele H, Neumann-Schriedewind P, Jacobs S, Boudriot E, Walther T, Mohr FW, Schuler G, Falk V Randomized comparison of minimally invasive direct coronary artery bypass surgery versus sirolimus-eluting stenting in isolated proximal left anterior descending coronary artery stenosis. *J Am Coll Cardiol* 2009 Jun 23;53:2324-31 [19539141]

#### **AWESOME, 2001:**

Morrison DA, Sethi G, Sacks J, Henderson W, Grover F, Sedlis S, Esposito R, Ramanathan K, Weiman D, Saucedo J, Antakli T, Paramesh V, Pett S, Vernon S, Birjiniuk V, Welt F, Krucoff M, Wolfe W, Lucke JC, Mediratta S, Booth D, Barbiere C, Lewis D Percutaneous coronary intervention versus coronary artery bypass graft surgery for patients with medically refractory myocardial ischemia and risk factors for adverse outcomes with bypass: a multicenter, randomized trial. Investigators of the Department of Veterans Affairs Cooperative Study 385, the Angina With Extremely Serious Operative Mortality Evaluation (AWESOME). *J Am Coll Cardiol* 2001;38:143-9 [11451264]

Morrison DA, Sethi G, Sacks J, Grover F, Sedlis S, Esposito R, Ramanathan KB, Weiman D, Krucoff M, Duhaylongsod F, Raya T, Pett S, Vernon S, Birjiniuk V, Booth D, Robinson C, Talley JD, Antakli T, Murphy E, Floten H, Curcovic V, Lucke JC, Lewis D, Barbier A multicenter, randomized trial of percutaneous coronary intervention versus bypass surgery in high-risk unstable angina patients. The AWESOME (Veterans Affairs Cooperative Study 385, angina with extremely serious operative mortality evaluation) investigators from the Cooperative Studies Program of the Department of Veterans Affairs. *Control Clin Trials* 1999;20:601-19 [10588300]

Morrison DA, Sethi G, Sacks J, Henderson WG, Grover F, Sedlis S, Esposito R Percutaneous coronary intervention versus repeat bypass surgery for patients with medically refractory myocardial ischemia: AWESOME randomized trial and registry experience with post-CABG patients. *J Am Coll Cardiol* 2002;40:1951-4 [12475454]

Ramanathan KB, Weiman DS, Sacks J, Morrison DA, Sedlis S, Sethi G, Henderson WG Percutaneous intervention versus coronary bypass surgery for patients older than 70 years of age with high-risk unstable angina. *Ann Thorac Surg* 2005;80:1340-6 [16181866] [10.1016/j.athoracsur.2005.03.057](https://doi.org/10.1016/j.athoracsur.2005.03.057)

Rumsfeld JS, Magid DJ, Plomondon ME, Sacks J, Henderson W, Hlatky M, Sethi G, Morrison DA Health-related quality of life after percutaneous coronary intervention versus coronary bypass surgery in high-risk patients with medically refractory ischemia. *J Am Coll Cardiol* 2003;41:1732-8 [12767656]

Sedlis SP, Morrison DA, Lorin JD, Esposito R, Sethi G, Sacks J, Henderson W, Grover F, Ramanathan KB, Weiman D, Saucedo J, Antakli T, Paramesh V, Pett S, Vernon S, Birjiniuk V, Welt F, Krucoff M, Wolfe W, Lucke JC, Mediratta S, Booth D, Murphy E, Ward H, Percutaneous coronary intervention versus coronary bypass graft surgery for diabetic patients with unstable angina and risk factors for adverse outcomes with bypass: outcome of diabetic patients in the AWESOME randomized trial and registry. *J Am Coll Cardiol* 2002;40:1555-66 [12427406]

Sedlis SP, Ramanathan KB, Morrison DA, Sethi G, Sacks J, Henderson W Outcome of percutaneous coronary intervention versus coronary bypass grafting for patients with low left ventricular ejection fractions, unstable angina pectoris, and risk factors for adverse outcomes with bypass (the AWESOME Randomized Trial and Registry). *Am J Cardiol* 2004;94:118-20 [15219521] [10.1016/j.amjcard.2004.03.041](https://doi.org/10.1016/j.amjcard.2004.03.041)

Stroupe KT, Morrison DA, Hlatky MA, Barnett PG, Cao L, Lyttle C, Hynes DM, Henderson WG Cost-effectiveness of coronary artery bypass grafts versus percutaneous coronary intervention for revascularization of high-risk patients. *Circulation* 2006;114:1251-7 [16966588] [10.1161/CIRCULATIONAHA.105.570838](https://doi.org/10.1161/CIRCULATIONAHA.105.570838)

#### **COMBAT, 0:**

ongoing trial

#### **Korean Randomized Study, 0:**

ongoing trial

**REVASCULARIZE, 0:**

ongoing trial

Entry terms: drug-eluting stents, CYPHER, TAXUS, Promus, Xience, Biomatrix, Nobori, Endeavor, Drug-Eluting Stents, Drug Eluting Stents, Drug-Eluting Stent, Drug-Coated Stents, Drug Coated Stents, Drug-Coated Stent, , sirolimus eluting stent, CYPHER, , Coronary Artery Bypass Surgery, Coronary Artery Bypass, Coronary Artery Bypasses, Coronary Artery Bypass Surgery, Aortocoronary Bypass, Aortocoronary Bypasses, Coronary Artery Bypass Grafting, CABG