

# Clinical trials of anticoagulant for acute coronary syndrome in All ACS (including AMI)

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## 1 oral anticoagulant

Trial	Treatments	Patients	Trials design and methods
<b>coumadin vs control (on top of aspirin)</b>			
<b>ASPECT-2 (coumadin+asp vs asp) , 2002</b> n=333/336 follow-up: 1 year	coumadin(INR mean 2.4) +aspirin versus aspirin	UA, AMI	open the Netherlands
<b>warfarin vs control (on top of aspirin)</b>			
<b>ATACS (pilot study) (warfarin vs control) , 1990</b> n=37/32 follow-up: 65279;3 months	heparin/warfarin target INR 65279;3-4.5 + aspirin versus aspirin alone	65279;UA, NSTEMI	open
<b>ATACS , 1994</b> n=105/109 follow-up: 3 months	heparin/warfarin (INR median 2.3) + aspirin versus aspirin	UA, NSTEMI	open
<b>CARS , 1997</b> n=5410/3393 follow-up: 14 months	warfarin (INR mean 1.5) (3 mg warfarin or 1 mg warfarin with 80 mg aspirin) versus aspirin 160 mg/d	AMI	
<b>OASIS Pilot (phase 1) , 1998</b> n=155/154 follow-up: 6 months	warfarin 3mg/d for 6 months (INR mean 1.5) versus control	UA, NSTEMI	open
<b>OASIS Pilot (phase 2) , 1998</b> n=98/99 follow-up: 3 months	warfarin adjusted dose (INR mean 2.3) for 3 months versus standard treatment	UA, NSTEMI	open
<b>OASIS-2 Warfarin Substudy , 2001</b> n=1848/1864 follow-up: 5 months	warfarin target INR 65279;22.5 for 5 months +aspirin versus control	UA	open
<b>APRICOT-2 , 2002</b> n=135/139 follow-up: 3 months	moderate-intensity coumarin target INR 2-3 (+aspirin) versus aspirin	STEMI	
<b>CHAMP , 2002</b> n=2522/2537 follow-up: 2.7 years	-	AMI	

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Trial	Treatments	Patients	Trials design and methods
<b>WARIS , 2002</b> n=1208/1206 follow-up: 4 years	-	AMI	
<b>LoWASA , 2004</b> n=1659/1641 follow-up: 5 years	-	AMI	
<b>Zibaenezhad , 2004</b> n=70/70 follow-up: 1 year	-	AMI	
<b>warfarin vs placebo (on top of aspirin)</b>			
<b>Williams , 1997</b> n=29/28 follow-up: 2.5 months	warfarin target INR 65279;22.5 +aspirin versus placebo +aspirin	UA, AMI	double blind
<b>Huyhn , 2001</b> n=44/46 follow-up: 1 year	warfarin adjusted dose for INR 22.5 +aspirin versus placebo +aspirin	UA, NSTEMI with prior CABG	double blind
<b>coumadin vs aspirin</b>			
<b>ASPECT-2 (coumadin vs aspirin) , 2002</b> n=325/336 follow-up: 1 year (range 0-26 months)	coumadin (phenprocoumon or acenocoumarol) target INR 3-4 versus aspirin 80mg daily	UA, AMI	Parallel groups open the Netherlands
<b>warfarin vs aspirin</b>			
<b>ATACS (pilot study) warfarin vs aspirin , 1990</b> n=24/32 follow-up: 65279;3 months	heparin/warfarin target INR 65279;3-4 versus aspirin 65279;325 mg daily	65279;UA, NSTEMI	open

## References

### ASPECT-2 (coumadin+asp vs asp), 2002:

van Es RF, Jonker JJ, Verheugt FW, Deckers JW, Grobbee DE Aspirin and coumadin after acute coronary syndromes (the ASPECT-2 study): a randomised controlled trial. *Lancet* 2002;360:109-13 [[12126819](#)]

### ATACS (pilot study) (warfarin vs control), 1990:

Cohen M, Adams PC, Hawkins L, Bach M, Fuster V Usefulness of antithrombotic therapy in resting angina pectoris or non-Q-wave myocardial infarction in preventing death and myocardial infarction (a pilot study from the Antithrombotic Therapy in Acute Coronary Syndromes Study Group). *Am J Cardiol* 1990;66:1287-92 [[2244556](#)]

### ATACS, 1994:

Cohen M, Adams PC, Parry G, Xiong J, Chamberlain D, Wiczorek I, Fox KA, Chesebro JH, Strain J, Keller C Combination antithrombotic therapy in unstable rest angina and non-Q-wave infarction in nonprior aspirin users. Primary end points analysis from the ATACS trial. *Antithrombotic Therapy in Acute Coronary Syndromes Research Group. Circulation* 1994;89:81-8 [[8281698](#)]

### CARS, 1997:

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### OASIS Pilot (phase 1), 1998:

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**OASIS Pilot (phase 2), 1998:**

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**OASIS-2 Warfarin Substudy, 2001:**

Effects of long-term, moderate-intensity oral anticoagulation in addition to aspirin in unstable angina. The Organization to Assess Strategies for Ischemic Syndromes (OASIS) Investigators. *J Am Coll Cardiol* 2001;37:475-84 [[11216966](#)]

**APRICOT-2, 2002:**

Brouwer MA, van den Bergh PJ, Aengevaeren WR, Veen G, Luitjen HE, Hertzberger DP, van Boven AJ, Vromans RP, Uijen GJ, Verheugt FW Aspirin plus coumarin versus aspirin alone in the prevention of reocclusion after fibrinolysis for acute myocardial infarction: results of the Antithrombotics in the Prevention of Reocclusion In Coronary Thrombolysis (APRICOT)-2 Trial. *Circulation* 2002;106:659-65 [[12163424](#)]

**CHAMP, 2002:**

Fiore LD, Ezekowitz MD, Brophy MT, Lu D, Sacco J, Peduzzi P Department of Veterans Affairs Cooperative Studies Program Clinical Trial comparing combined warfarin and aspirin with aspirin alone in survivors of acute myocardial infarction: primary results of the CHAMP study. *Circulation* 2002;105:557-63 [[11827919](#)]

**WARIS, 2002:**

Hurlen M, Abdelnoor M, Smith P, Erikssen J, Arnesen H Warfarin, aspirin, or both after myocardial infarction. *N Engl J Med* 2002;347:969-74 [[12324552](#)]

**LoWASA, 2004:**

Herlitz J, Holm J, Peterson M, Karlson BW, Haglid Evander M, Erhardt L Effect of fixed low-dose warfarin added to aspirin in the long term after acute myocardial infarction; the LoWASA Study. *Eur Heart J* 2004;25:232-9 [[14972424](#)]

**Zibaenezhad, 2004:**

Zibaenezhad MJ, Mowla A, Sorbi MH Warfarin and aspirin versus aspirin alone in patients with acute myocardial infarction: a pilot study. *Angiology* 2004;55:17-20 [[14759085](#)]

**Williams, 1997:**

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Huyhn T, Throux P, Bogaty P, Nasmith J, Solymoss S Aspirin, warfarin, or the combination for secondary prevention of coronary events in patients with acute coronary syndromes and prior coronary artery bypass surgery. *Circulation* 2001;103:3069-74 [[11425770](#)]

**ASPECT-2 (coumadin vs aspirin), 2002:**

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## 2 oral direct thrombin inhibitor

Trial	Treatments	Patients	Trials design and methods
<a href="#">dabigatran</a> vs placebo			

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Trial	Treatments	Patients	Trials design and methods
<b>REDEEM, 2009</b> <i>unpublished</i> [NCT00621855] n=1501/373 follow-up: 6 months	dabigatran 4 dosages (50mg twice daily, 75mg twice daily, 110mg twice daily, 150mg twice daily) versus placebo	patients with recent acute coronary syndromes (ST- or non-ST-elevation myocardial infarction)	Parallel groups double blind

## References

### REDEEM, 2009:

Oldgren J, Budaj A, Granger CB, Khder Y, Roberts J, Siegbahn A, Tijssen JG, Van de Werf F, Wallentin L Dabigatran vs. placebo in patients with acute coronary syndromes on dual antiplatelet therapy: a randomized, double-blind, phase II trial. *Eur Heart J* 2011 Nov;32:2781-9 [21551462]

## 3 oral factor Xa inhibitor

Trial	Treatments	Patients	Trials design and methods
<b>apixaban vs placebo</b>			
<b>APPRAISE 2, 2011</b> [NCT00831441] n=3705/3687 follow-up: 8 months	apixaban 5mg twice daily versus placebo	patients with a recent acute coronary syndrome and at least two additional risk factors for recurrent ischemic events	Parallel groups double blind 39 countries
<b>APPRAISE-1 (10mg od), 2009</b> [NCT00313300] n=318/611 follow-up: 6 months	apixaban 10 mg once daily versus placebo	patients with a recent ST-elevation or nonST-elevation acute coronary syndrome(<7 days)	Parallel groups double blind Europe, Middle East, North America
<b>APPRAISE-1 (2.5 mg bid), 2009</b> [NCT00313300 ] n=NA follow-up: 6 months	Apixaban 2.5mg twice daily versus placebo	patients with a recent ST-elevation or nonST-elevation acute coronary syndrome(<7 days)	double blind Europe, Middle East, North America
<b>APPRAISE japan ongoing</b> [NCT00852397] n=NA follow-up:	2 doses of apixaban (2.5 mg BID and 5.0 mg BID) for 24 weeks in combination with standard therapy (aspirin and /or additional antiplatelet therapy) versus placebo	patients with recent (<=7 days) acute coronary syndrome	double-blind Japan
<b>rivaroxaban 2.5mg vs placebo</b>			
<b>ATLAS ACS-TIMI 46 (2.5mg), 2009</b> [NCT00402597] n=152/1160 follow-up: 6 months	rivaroxaban 2.5 mg twice daily versus placebo	recent ACS patients treated with aspirin alone (n=761) or aspirin plus clopidogrel (n=2730)	double blind 27 countries

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<b>Trial</b>	<b>Treatments</b>	<b>Patients</b>	<b>Trials design and methods</b>
<b>ATLAS ACS 2 - TIMI 51 (2.5mg) , 2011</b> [NCT00809965] n=5174/5176 follow-up: 13 months	rivaroxaban 2.5 mg twice daily in addition to standard care versus placebo	patients with a recent ACS	Parallel groups double blind 44 countries
<b>rivaroxaban 5mg vs placebo</b>			
<b>ATLAS ACS-TIMI 46 (5mg) , 2009</b> [NCT00402597] n=519/1160 follow-up: 6 months	rivaroxaban 5 mg twice daily versus placebo	recent ACS patients treated with aspirin alone (n=761) or aspirin plus clopidogrel (n=2730)	Parallel groups double blind 27 countries
<b>ATLAS ACS 2 - TIMI 51 (5mg) , 2011</b> [NCT00809965] n=5176/5176 follow-up: 13 months	rivaroxaban 5 mg twice daily in addition to standard care versus placebo	patients with a recent ACS	double blind 44 countries
<b>ximelagatran vs placebo</b>			
<b>ESTEEM , 2003</b> n=1245/638 follow-up: 6 months	oral ximelagatran at doses of 24 mg, 36 mg, 48 mg, or 60 mg twice daily versus placebo	patients who had had recent ST-elevation or non-STelevation myocardial infarction	Parallel groups double-blind
<b>otamixaban vs unfractionated heparin</b>			
<b>SEPIA-ACS1 TIMI 42 , 2009</b> [NCT00317395] n=2792/449 follow-up: 7 days	otamixaban 5 doses (008 mg/kg bolus followed by 0.035, 0.070, 0.105, 0.140, 0.175 mg/kg/h) versus Heparin+eptifibatide	patients with non-ST-elevation acute coronary syndromes	Parallel groups double blind 36 countries

## References

### APPRAISE 2, 2011:

Alexander JH, Lopes RD, James S, Kilaru R, He Y, Mohan P, Bhatt DL, Goodman S, Verheugt FW, Flather M, Huber K, Liaw D, Husted SE, Lopez-Sendon J, De Caterina R, Jansky P, Darius H, Vinereanu D, Cornel JH, Cools F, Atar D, Leiva-Pons JL, Keltai M, Ogawa H Apixaban with Antiplatelet Therapy after Acute Coronary Syndrome. N Engl J Med 2011 Jul 24;: [21780946] [10.1056/NEJMoa1105819](https://doi.org/10.1056/NEJMoa1105819)

### APPRAISE-1 (10mg od), 2009:

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### APPRAISE-1 (2.5 mg bid), 2009:

### APPRAISE japan, :

### ATLAS ACS-TIMI 46 (2.5mg), 2009:

### ATLAS ACS 2 - TIMI 51 (2.5mg), 2011:

### ATLAS ACS-TIMI 46 (5mg), 2009:

### ATLAS ACS 2 - TIMI 51 (5mg), 2011:

### ESTEEM, 2003:

## 4 About TrialResults-center.org

TrialResults-center is an innovative knowledge database that collects the results of RCTs and provides dynamic interactive systematic reviews and meta-analysis in the field of all major heart and vessels diseases.

The TrialResults-center database provides a unique view of the treatment efficacy based on all data provided directly from clinical trial results, offering a valuable alternative to personal bibliographic search, published meta-analysis, etc. Furthermore, it would allow comparing easily the various concurrent therapeutic for the same clinical condition.

Rigorous meta-analysis method is used to populate TrialResults-center: widespread search of published and non published trials, study selection using pre-specified criteria, data extraction using standard form.

TrialResults-center is continually updated on a weekly basis. We continually search all new results (whatever their publication channel) and these news results are immediately added to the database with a maximum of 1 week.

TrialResults-center is non-profit and self-funded.