

Clinical trials of enalapril

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1 acute myocardial infarction

| Trial | Treatments | Patients | Trials design and methods |
|--|--|--|--|
| captopril or enalapril vs placebo | | | |
| PRACTICAL (captopril) , 1994 n=150/75 follow-up: 1 year | captopril 25 mg three times daily or enalapril 5 mg three times daily versus placebo | patients with acute myocardial infarction within 24 hours of onset | Parallel groups double blind |
| enalapril vs placebo | | | |
| CONSENSUS 2 , 1992 n=3044/3046 follow-up: 6 months | enalapril (1 mg IV infusion +5-20 mg PO daily) for 6 months versus placebo | patients with acute myocardial infarctions and blood pressure above 100/60 mm Hg, <24h of MI | Parallel groups double blind Scandinavia |
| Schulman , 1995 n=22/21 follow-up: 1 year | intravenous enalaprilat (1 mg) then oral treatment for 1 month versus placebo | patients with an acute Q-wave AMI within 24 hours of symptom onset | Parallel groups double blind US |

More details and results :

- angiotensin-Converting Enzyme Inhibitors for acute myocardial infarction in systematic early treatment (with or without sign of HF) at <http://www.trialresultscenter.org/go-Q145>
- angiotensin-Converting Enzyme Inhibitors for acute myocardial infarction in patients with or without HF at <http://www.trialresultscenter.org/go-Q146>

References

PRACTICAL (captopril), 1994:

Foy SG, Crozier IG, Turner JG, Richards AM, Frampton CM, Nicholls MG, Ikram H Comparison of enalapril versus captopril on left ventricular function and survival three months after acute myocardial infarction (the "PRACTICAL" study). Am J Cardiol 1994;73:1180-6 [8203335]

CONSENSUS 2, 1992:

Swedberg K, Held P, Kjekshus J, Rasmussen K, Ryden L, Wedel H Effects of the early administration of enalapril on mortality in patients with acute myocardial infarction. Results of the Cooperative New Scandinavian Enalapril Survival Study II (CONSENSUS II) N Engl J Med 1992 Sep 3;327:678-84 [1495520]

Schulman, 1995:

Schulman SP, Weiss JL, Becker LC, Guerci AD, Shapiro EP, Chandra NC, Siu C, Flaherty JT, Coombs V, Taube JC Effect of early enalapril therapy on left ventricular function and structure in acute myocardial infarction. Am J Cardiol 1995;76:764-70 [7572651]

2 hypertension

| Trial | Treatments | Patients | Trials design and methods |
|---|--|--|--------------------------------------|
| enalapril vs diuretics | | | |
| ANBP2 , 2003 n=3044/3039 follow-up: 4.1 y | enalapril versus hydrochlorothiazide | subjects with hypertension 65 to 84 years | Parallel groups open Australia |
| enalapril vs nisoldipine | | | |
| ABCD (H) , 1998 n=235/235 follow-up: 53 y | enalapril versus nisoldipine | patients with non-insulin-dependent diabetes and hypertension | double blind |

More details and results :

- anti hypertensive agents for hypertension in elderly (60 years and more) at <http://www.trialresultscenter.org/go-Q9>
- anti hypertensive agents for hypertension in all type of patient at <http://www.trialresultscenter.org/go-Q13>

References

ANBP2, 2003:

Wing LM, Reid CM, Ryan P, Beilin LJ, Brown MA, Jennings GL, Johnston CI, McNeil JJ, Macdonald GJ, Marley JE, Morgan TO, West MJ A comparison of outcomes with angiotensin-converting-enzyme inhibitors and diuretics for hypertension in the elderly. N Engl J Med 2003;348:583-92 [12584366]

ABCD (H), 1998:

Estacio RO, Jeffers BW, Hiatt WR, Biggerstaff SL, Gifford N, Schrier RW The effect of nisoldipine as compared with enalapril on cardiovascular outcomes in patients with non-insulin-dependent diabetes and hypertension. N Engl J Med 1998 Mar 5;338:645-52 [9486993]

3 heart failure

| Trial | Treatments | Patients | Trials design and methods |
|-----------------------------|------------|----------|---------------------------|
| enalapril vs control | | | |

continued...

| Trial | Treatments | Patients | Trials design and methods |
|---|---|--|--|
| Enalapril CHF investigators , 1987 n=126/130 follow-up: | - | - | |
| Rucinska-a (enalapril) , 1991 <i>unpublished</i> n=67/65 follow-up: | - | - | |
| Rucinska-b (enalapril) , 1991 <i>unpublished</i> n=55/55 follow-up: | - | - | |
| enalapril vs placebo | | | |
| CASSIS (enalapril) , 1995 n=48/48 follow-up: 12 weeks | enalapril 5-10mg daily versus placebo | patients with chronic congestive heart failure of NYHA classes II-IV | Parallel groups double blind |
| Chrysant , 1985 n=NA follow-up: 14 weeks | enalapril versus placebo | patients with congestive heart failure (CHF), New York Heart Association class II-III | double blind |
| Cleland , 1985 n=10/10 follow-up: 8 weeks | enalapril titrated up to 40mg once daily versus placebo | patients with New York Heart Association functional class II to IV heart failure who were clinically stable on digoxin and diuretic therapy | Cross over double blind |
| CONSENSUS , 1987 n=127/126 follow-up: 188 days | enalapril (2.5 to 40 mg per day) versus placebo | severe congestive heart failure (New York Heart Association [NYHA] functional class IV) | Parallel groups double blind Finland, Sweden, Norway |
| Dickstein , 1991 n=20/21 follow-up: 48 weeks | enalapril versus placebo | men with symptomatic heart failure (functional class II or III) and documented myocardial infarction greater than 6 months previously | double blind |
| McGrath , 1985 n=13/12 follow-up: 12 week | enalapril versus placebo | patients with chronic congestive cardiac failure | double blind |
| Sharpe , 1984 n=18/18 follow-up: 3 months | enalapril 5mg twice day versus placebo | patients with New York Heart Association functional class II to III heart failure who were clinically stable on digoxin and diuretic therapy | double blind |

continued...

| Trial | Treatments | Patients | Trials design and methods |
|--|--|---|---------------------------------------|
| SOLVD prevention , 1992 [NCT00000516] n=2111/2117 follow-up: 3.1 y | Enalapril initial dose 25 or 5 mg twice daily up to 10 mg twice daily versus placebo | MI >1 month, No treatment for CHF, LVEF <=35% | Parallel groups double blind |
| SOLVD treatment , 1991 [NCT00000516] n=1285/1284 follow-up: 3.5 y | Enalapril initial dose 25 or 5 mg twice daily up to 10 mg twice daily versus placebo | MI >1 month, Congestive HF, LVEF <=35% | Parallel groups Double blind |
| enalapril vs enalapril | | | |
| NETWORK (2.5 bid vs 10 bid) , 1998 n=506/516 follow-up: 6 months | enalapril 2.5 mg twice daily versus enalapril 10 mg twice daily | patients with NYHA II-IV heart failure | Parallel groups double blind UK |
| NETWORK (5 bid vs 10 bid) , 1998 n=510/516 follow-up: 6 months | enalapril 5 mg twice daily versus enalapril 10 mg twice daily | patients with NYHA II-IV heart failure | Parallel groups double blind UK |
| enalapril vs hydralazine+ISDN | | | |
| V-HeFT II , 1991 n=403/401 follow-up: 2.5y (range 0.5-5.7y) | enalapril 20mg daily versus hydralazine 300 mg plus isosorbide dinitrate 160 mg daily | men with chronic congestive heart failure and cardiac dilatation (CT ratio>0.55) or LVEF <45% in association with reduced exercise tolerance and diuretic therapy | Parallel groups double blind |
| carvedilol+enalapril vs enalapril | | | |
| CARMEN (carvedilol+enalapril) , 2004 ongoing n=191/190 follow-up: 18 months | carvedilol (target 25 mg bid) + enalapril (target 10 mg bid) versus enalapril (target 10 mg bid) | patients with mild heart failure | NA |

More details and results :

- angiotensin-Converting Enzyme Inhibitors for heart failure in all type of heart failure at <http://www.trialresultscenter.org/go-Q43>
- beta-blockers for heart failure in all type of heart failure at <http://www.trialresultscenter.org/go-Q44>

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Enalapril CHF investigators, 1987:

Enalapril CHF Investigators Long-term effects of enalapril in patients with congestive heart failure: a multicenter, placebo-controlled trial. *Heart Failure*. 1987;3:102-107

Rucinska-a (enalapril), 1991:

unpublished

Rucinska-b (enalapril), 1991:

unpublished

CASSIS (enalapril), 1995:

Widimsk J, Kremer HJ, Jerie P, Uhr O Czech and Slovak spirapril intervention study (CASSIS). A randomized, placebo and active-controlled, double-blind multicentre trial in patients with congestive heart failure. *Eur J Clin Pharmacol* 1995;49:95-102 [8751029]

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Chrysant SG, Gollub S, Dunn MI, Bal IS, Dreiling R, Konijeti JR Hemodynamic and metabolic effects of enalapril in patients with heart failure. *Clin Cardiol* 1985;8:585-90 [2998663]

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CONSENSUS, 1987:

Effects of enalapril on mortality in severe congestive heart failure. Results of the Cooperative North Scandinavian Enalapril Survival Study (CONSENSUS). The CONSENSUS Trial Study Group. *N Engl J Med* 1987 Jun 4;316:1429-35 [2883575]

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Dickstein K, Barvik S, Aarsland T Effect of long-term enalapril therapy on cardiopulmonary exercise performance in men with mild heart failure and previous myocardial infarction. *J Am Coll Cardiol* 1991;18:596-602 [1856429]

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Sharpe, 1984:

Sharpe DN, Murphy J, Coxon R, Hannan SF Enalapril in patients with chronic heart failure: a placebo-controlled, randomized, double-blind study. *Circulation* 1984;70:271-8 [6329547]

SOLVD prevention, 1992:

Effect of enalapril on mortality and the development of heart failure in asymptomatic patients with reduced left ventricular ejection fractions. The SOLVD Investigators *N Engl J Med* 1992;327:685-91 [1463530]

SOLVD treatment, 1991:

Effect of enalapril on survival in patients with reduced left ventricular ejection fractions and congestive heart failure. The SOLVD Investigators *N Engl J Med* 1991;325:293-302 [2057034]

NETWORK (2.5 bid vs 10 bid), 1998:

Clinical outcome with enalapril in symptomatic chronic heart failure; a dose comparison. The NETWORK Investigators. *Eur Heart J* 1998 Mar;19:481-9 [9568453]

NETWORK (5 bid vs 10 bid), 1998:

Clinical outcome with enalapril in symptomatic chronic heart failure; a dose comparison. The NETWORK Investigators. Eur Heart J 1998 Mar;19:481-9 [9568453]

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Cohn JN, Johnson G, Ziesche S, Cobb F, Francis G, Tristani F, Smith R, Dunkman WB, Loeb H, Wong M A comparison of enalapril with hydralazine-isosorbide dinitrate in the treatment of chronic congestive heart failure. N Engl J Med 1991;325:303-10 [2057035]

CARMEN (carvedilol+enalapril), 2004:

ongoing trial

Remme WJ, Riegger G, Hildebrandt P, Komajda M, Jaarsma W, Bobbio M, Soler-Soler J, Scherhag A, Lutiger B, Rydn L The benefits of early combination treatment of carvedilol and an ACE-inhibitor in mild heart failure and left ventricular systolic dysfunction. The carvedilol and ACE-inhibitor remodelling mild heart failure evaluation trial (CARMEN). Cardiovasc Drugs Ther 2004 Jan;18:57-66 [15115904]

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4 atrial fibrillation

9

| Trial | Treatments | Patients | Trials design and methods |
|--|--------------------------------|---------------------|---------------------------|
| enalapril vs control | | | |
| Ueng , 2003 n=70/75 follow-up: 270 days (range 61-575d) | enalapril versus control | atrial fibrillation | Parallel groups open |
| enalapril vs placebo | | | |
| SOLVD (AF ancillary study) , 2003 n=186/188 follow-up: 2.9 y | enalapril versus placebo | Heart failure | |

More details and results :

- prevention for atrial fibrillation in patient with history of atrial fibrillation at <http://www.trialresultscenter.org/go-Q328>
- prevention for atrial fibrillation in patients without history of AF (primary prevention) at <http://www.trialresultscenter.org/go-Q331>

References

Ueng, 2003:

Ueng KC, Tsai TP, Yu WC, Tsai CF, Lin MC, Chan KC, Chen CY, Wu DJ, Lin CS, Chen SA Use of enalapril to facilitate sinus rhythm maintenance after external cardioversion of long-standing persistent atrial fibrillation. Results of a prospective and controlled study. Eur Heart J 2003;24:2090-8 [14643269]

SOLVD (AF ancillary study), 2003:

Vermes E, Tardif JC, Bourassa MG, Racine N, Levesque S, White M, Guerra PG, Ducharme A Enalapril decreases the incidence of atrial fibrillation in patients with left ventricular dysfunction: insight from the Studies Of Left Ventricular Dysfunction (SOLVD) trials. Circulation 2003;107:2926-31 [12771010] 10.1161/01.CIR.0000072793.81076.D4

5 diabetes type 2

| Trial | Treatments | Patients | Trials design and methods |
|--|--|-------------------------------------|--|
| enalapril vs placebo | | | |
| SCAT (diabetic subgroup) , 2000 n=25/25 follow-up: Jun 1991 - Jul 1995 | enalapril 2.5mg twice daily versus placebo | normocholesterolemic patients | Factorial plan double-blind Canada |
| SOLVD (subgroup) , 1996 n=646/664 follow-up: 3.5y | enalapril versus placebo | patients with chronic heart failure | Parallel groups double-blind |

More details and results :

- anti hypertensive agents for diabetes type 2 in patients with or without hypertension at <http://www.trialresultscenter.org/go-Q414>

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SCAT (diabetic subgroup), 2000:

Teo KK, Burton JR, Buller CE, Plante S, Catellier D, Tymchak W, Dzavik V, Taylor D, Yokoyama S, Montague TJ Long-term effects of cholesterol lowering and angiotensin-converting enzyme inhibition on coronary atherosclerosis: The Simvastatin/Enalapril Coronary Atherosclerosis Trial (SCAT). Circulation 2000;102:1748-54 [11023927]

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SOLVD (subgroup), 1996:

Shindler DM, Kostis JB, Yusuf S, Quinones MA, Pitt B, Stewart D, Pinkett T, Ghali JK, Wilson AC Diabetes mellitus, a predictor of morbidity and mortality in the Studies of Left Ventricular Dysfunction (SOLVD) Trials and Registry. Am J Cardiol 1996;77:1017-20 [8644628]

Anker SD, Negassa A, Coats AJ, Afzal R, Poole-Wilson PA, Cohn JN, Yusuf S Prognostic importance of weight loss in chronic heart failure and the effect of treatment with angiotensin-converting-enzyme inhibitors: an observational study. *Lancet* 2003;361:1077-83 [12672310] 10.1016/S0140-6736(03)12892-9

6 patients at high risk for cardiovascular events

| Trial | Treatments | Patients | Trials design and methods |
|---|---|---|---------------------------------|
| enalapril vs placebo | | | |
| CAMELOT (enalapril) , 2004 n=673/655 follow-up: 24 months | Enalapril 20mg daily versus Placebo | patients with angiographically documented CAD (>20% stenosis by coronary angiography) and diastolic blood pressure <100 mm Hg | Parallel groups double blind |

More details and results :

- angiotensin-Converting Enzyme Inhibitors for patients at high risk for cardiovascular events in all type of patients at <http://www.trialresultscenter.org/go-Q98>
- inhibition of the renin-angiotensin system (ACEI or ARB) for patients at high risk for cardiovascular events in all type of patients at <http://www.trialresultscenter.org/go-Q157>

References

CAMELOT (enalapril), 2004:

Nissen SE, Tuzcu EM, Libby P, Thompson PD, Ghali M, Garza D, Berman L, Shi H, Buebendorf E, Topol EJ Effect of antihypertensive agents on cardiovascular events in patients with coronary disease and normal blood pressure: the CAMELOT study: a randomized controlled trial. *JAMA* 2004 Nov 10;292:2217-25 [15536108]

Entry terms: carvedilol, carvedilol, Querto, Coreg, Dilatrend, Kredex, Coropres, Eucardic, BM 14190, BM-14190, captopril, SQ-14534, SQ 14534, SQ14534, SQ-14225, SQ 14225, SQ14225, Capoten, Lopirin,