

# Clinical trials of phosphodiesterase III inhibitors for heart failure in all type of patients

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

## 1 Phosphodiesterase III inhibitors

| Trial   | Treatments   | Patients   | Trials design and methods  |
|---|--|--|--|
| <b>Amrinone vs placebo</b>  |  |  |  |
| <b>AMTG , 1985</b><br>n=NA<br>follow-up: 3 months   | Amrinone <600mg/day<br>versus<br>placebo                           | patients with heart failure NYHA III/IV  | Parallel groups<br>double blind                                      |
| <b>Enoximone vs placebo</b>   |  |  |  |
| <b>EMOTE , 2007</b><br>n=101/100<br>follow-up: 26 weeks   | enoximone<br>versus<br>placebo                                     | patients with ultra-advanced heart failure<br>requiring IV inotropic therapy   | Parallel groups<br>double blind<br>US                                |
| <b>Cowley , 1994</b><br>n=75/76<br>follow-up: 12 months   | Enoximone 300mg/d<br>versus<br>placebo                             | NYHA III,IV  | Parallel groups<br>double blind                                      |
| <b>EMTG , 1990</b><br>n=50/52<br>follow-up: 4 months  | Enoximone <450 mg/d<br>versus<br>placebo                           | NYHA II, III   | Parallel groups<br>double blind                                      |
| <b>ESG , 2000</b><br>n=70/35<br>follow-up: 3 months   | Enoximone 75-150 mg/d<br>versus<br>placebo                         | NYHA II, III   | Parallel groups<br>double blind                                      |
| <b>ESSENTIAL (I and II) , 2009</b><br>[NCT00051285]<br>n=926/928<br>follow-up: 16.6 mo (median) | enoximone titrated to 50 mg three times daily<br>versus<br>placebo | Patients with New York Heart Association<br>class III/IV HF symptoms, left ventricular<br>ejection fraction 30% , and one<br>hospitalization or two ambulatory visits for<br>worsening HF in the previous year | Parallel groups<br>double blind<br>Europe and North andSouth America |
| <b>Lardoux , 1987</b><br>n=30/13<br>follow-up: 3 months   | Enoximone 150, 300mg/d<br>versus<br>placebo                        | NYHA NA  | Parallel groups<br>double blind                                      |
| <b>WESG , 1991</b><br>n=108/56<br>follow-up: 3 months   | Enoximone 150, 300 mg/d<br>versus<br>placebo                       | NYHA II, III   | Parallel groups<br>double blind                                      |
| <b>Flosequinan vs placebo</b>   |  |  |  |
| <b>REFLECT II , 1991</b><br>n=207/104<br>follow-up: 3 months                                    | -  | NYHA II-IV   | Parallel groups<br>double blind                                      |
| <b>Cowley , 1993</b><br>n=64/71<br>follow-up: 4 months  | Flosequinan 125mg/d<br>versus<br>placebo                           | NYHA II, III   | Parallel groups<br>double blind                                      |

continued...

| <b>Trial</b>   | <b>Treatments</b>  | <b>Patients</b>                         | <b>Trials design and methods</b> |
|--|--|---|----------------------------------|
| <b>FACET , 1993</b><br>n=212/110<br>follow-up: 4 months            | Flosequinan 100 and 150 mg/d<br>versus<br>placebo            | NYHA II, III                            | Parallel groups<br>double blind  |
| <b>REFLECT , 1993</b><br>n=93/100<br>follow-up: 3 months           | Flosequinan 100mg/d<br>versus<br>placebo                     | NYHA II,III                             | Parallel groups<br>double blind  |
| <b>ibopamine vs placebo</b>  |  |   |                                  |
| <b>PRIME II , 1997</b><br>n=953/953<br>follow-up: mean 11.4 months | oral ibopamine 100 mg three times daily<br>versus<br>placebo | patients with heart failure NYHA III-IV | Parallel groups<br>double blind  |
| <b>Imazodan vs placebo</b>   |  |   |                                  |
| <b>IRG , 1991</b><br>n=103/44<br>follow-up: 3 months               | Imazodan 4,10, 20 mg/d<br>versus<br>placebo                  | NYHA III,IV                             | Parallel groups<br>double blind  |
| <b>Indolidan vs placebo</b>  |  |   |                                  |
| <b>Dies , 1989</b><br>n=38/36<br>follow-up: 3 months               | Indolidan dose NA<br>versus<br>placebo                       | NYHA II,III                             | Parallel groups<br>double blind  |
| <b>Milrinone vs placebo</b>  |  |   |                                  |
| <b>MMTG , 1989</b><br>n=119/111<br>follow-up: 3 months             | Milrinone <40mg/d<br>versus<br>placebo                       | NYHA II-IV                              | Parallel groups<br>double blind  |
| <b>PROMISE , 1991</b><br>n=561/527<br>follow-up: 20 months         | Milrinone 40mg/d<br>versus<br>placebo                        | NYHA III,IV                             | Parallel groups<br>double blind  |
| <b>Pimobendan vs placebo</b>                                       |  |   |                                  |
| <b>Bergler-Klein , 1992</b><br>n=12/12<br>follow-up: 6 months      | Pimobendan 10mg/day<br>versus<br>placebo                     | NYHA II, III                            | Parallel groups<br>double blind  |
| <b>PMRG , 1992</b><br>n=149/49<br>follow-up: 3 months              | Pimobendan 2.5, 5, 10 mg/d<br>versus<br>placebo              | NYHA III,IV                             | Parallel groups<br>double blind  |
| <b>EPOCH , 2002</b><br>n=147/151<br>follow-up: 12 months           | Pimobendan 2.5 to 5mg/d<br>versus<br>placebo                 | NYHA II,III                             | Parallel groups<br>double blind  |
| <b>PICO , 1996</b><br>n=219/112<br>follow-up: 6 months             | Pimobendan 2.5, 5 mg/d<br>versus<br>placebo                  | NYHA II, III                            | Parallel groups<br>double blind  |
| <b>Vesnarinone vs placebo</b>                                      |  |   |                                  |
| <b>OPC-8212 MRG , 1990</b><br>n=45/48<br>follow-up: 3 months       | Vesnarinone 60mg/d<br>versus<br>placebo                      | NYHA II-IV                              | Parallel groups<br>double blind  |

continued...

| <b>Trial</b>   | <b>Treatments</b>                           | <b>Patients</b>  | <b>Trials design and methods</b> |
|--|---|--|----------------------------------|
| <b>VEST , 1998</b><br>n=2550/1283<br>follow-up: 9 months             | Vesnarinone 30, 60mg/d<br>versus<br>placebo | NYHA III,IV  | Parallel groups<br>double blind  |
| <b>VSG , 1993</b><br>n=NA<br>follow-up: 6 months                     | Vesnarinone 60mg/d<br>versus<br>placebo     | NYHA II-IV   | Parallel groups<br>double blind  |
| <b>enoximone vs placebo (on top metoprolol)</b>                      |   |  |                                  |
| <b>EMPOWER</b> <i>ongoing</i><br>[NCT00077948]<br>n=NA<br>follow-up: | enoximone<br>versus<br>placebo              | Advanced CHF Subjects Previously<br>Intolerant to Beta-Blocker Treatment | Parallel groups<br>double blind  |

## References

### AMTG, 1985:

Massie B, Bourassa M, DiBianco R, Hess M, Konstam M, Likoff M, Packer M Long-term oral administration of amrinone for congestive heart failure: lack of efficacy in a multicenter controlled trial. *Circulation* 1985 May;71:963-71 [[3886191](#)]

### EMOTE, 2007:

Feldman AM, Oren RM, Abraham WT, Boehmer JP, Carson PE, Eichhorn E, Gilbert EM, Kao A, Leier CV, Lowes BD, Mathier MA, McGrew FA, Metra M, Zisman LS, Shakar SF, Krueger SK, Robertson AD, White BG, Gerber MJ, Wold GE, Bristow MR Low-dose oral enoximone enhances the ability to wean patients with ultra-advanced heart failure from intravenous inotropic support: results of the oral enoximone in intravenous inotrope-dependent subjects trial. *Am Heart J* 2007 Nov;154:861-9 [[17967591](#)]

### Cowley, 1994:

Cowley AJ, Skene AM Treatment of severe heart failure: quantity or quality of life? A trial of enoximone. *Enoximone Investigators. Br Heart J* 1994 Sep;72:226-30 [[7946771](#)]

### EMTG, 1990:

Uretsky BF, Jessup M, Konstam MA, Dec GW, Leier CV, Benotti J, Murali S, Herrmann HC, Sandberg JA Multicenter trial of oral enoximone in patients with moderate to moderately severe congestive heart failure. Lack of benefit compared with placebo. *Enoximone Multicenter Trial Group. Circulation* 1990 Sep;82:774-80 [[2144216](#)]

### ESG, 2000:

Lowes BD, Higginbotham M, Petrovich L, DeWood MA, Greenberg MA, Rahko PS, Dec GW, LeJemtel TH, Roden RL, Schleman MM, Robertson AD, Gorczynski RJ, Bristow MR Low-dose enoximone improves exercise capacity in chronic heart failure. *Enoximone Study Group. J Am Coll Cardiol* 2000;36:501-8 [[10933364](#)]

### ESSENTIAL (I and II), 2009:

Metra M, Eichhorn E, Abraham WT, Linseman J, Bhm M, Corbalan R, DeMets D, De Marco T, Elkayam U, Gerber M, Komajda M, Liu P, Mareev V, Perrone SV, Poole-Wilson P, Roecker E, Stewart J, Swedberg K, Tendera M, Wiens B, Bristow MR Effects of low-dose oral enoximone administration on mortality, morbidity, and exercise capacity in patients with advanced heart failure: the randomized, double-blind, placebo-controlled, parallel group ESSENTIAL trials. *Eur Heart J* 2009 Dec;30:3015-26 [[19700774](#)]

### Lardoux, 1987:

Lardoux H, Trimarco B, Granier G, Marcadet O, Dubois-Randé JL, Multicentric, double blind and controlled study of oral enoximone (MDL 17043) in chronic heart failure. *Circulation* 1987;76(suppl IV):IV-179(abstr 0711).2

### WESG, 1991:

### REFLECT II, 1991:

### Cowley, 1993:

### FACET, 1993:

### REFLECT, 1993:

### PRIME II, 1997:

**IRG, 1991:**  
**Dies, 1989:**  
**MMTG, 1989:**  
**PROMISE, 1991:**  
**Bergler-Klein, 1992:**  
**PMRG, 1992:**  
**EPOCH, 2002:**  
**PICO, 1996:**  
**OPC-8212 MRG, 1990:**  
**VEST, 1998:**  
**VSG, 1993:**  
**EMPOWER, :**

Entry terms: Enoximone, Fenoximone, Perfan, MDL 19438, MDL-17043, MDL 17043, MDL17043, , enoximone sulfoxide, MDL 17043 sulfoxide,

## 2 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.