# Evidence-Based Medicine

and

# Treatment of Congestive Heart Failure In elderly patients

**JP Emeriau**

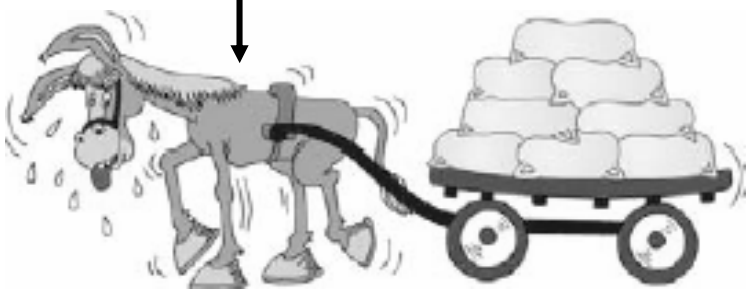
Jean-paul.emeriau@chu-bordeaux.fr

# Heart failure in elderly patients

***A complex problem***

**heart**

**vessels,**
**endocrine regulation,**
**muscles …..**



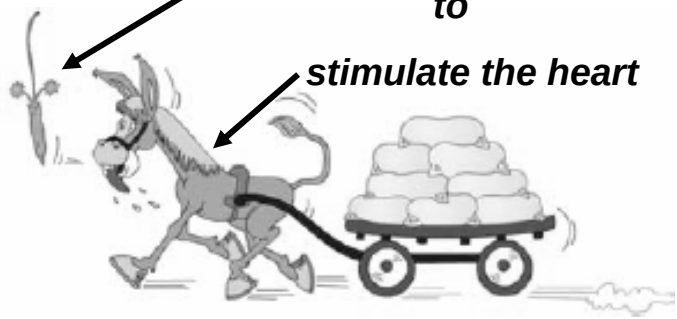
R. Leung

# To treat heart failure

***with inotropic drug***

***to***

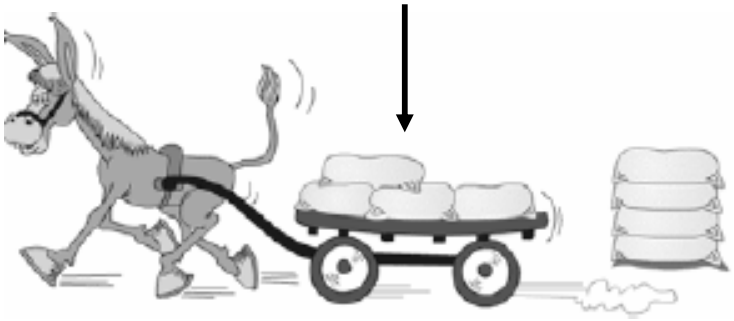
***stimulate the heart***



R. Leung

# To treat heart failure

***Reduce preload and afterload***



***to reduce the work of the heart !***

R. Leung

# Management of heart failure

| | studies | elderly population |
|---|---|---|
| Mean age (years) | 60-65 | 75-85 |
| sex ratio M / F | 4 / 1 | 1 / 1 |
| Atrial fibrillation | 20 % | 30-40 % |
| Coronary D., HTA | exclude | 30-50 % |
| EF LV > 40 % | exclude | # 40 % |
| GFR < 30 ml | exclude | 1 / 3 |
| comorbidity | exclude | +++ |
| optimum treatment | target | rare |
| compliance | excellent | low |

***Tavazzi L Eur. Heart J. 2000; 21: 1211**-14*

## Warning

**In the absence of specific studies on the elderly and very elderly patients, most of the recommendations are extrapolated from data generated in studies of younger populations**

# French guidelines

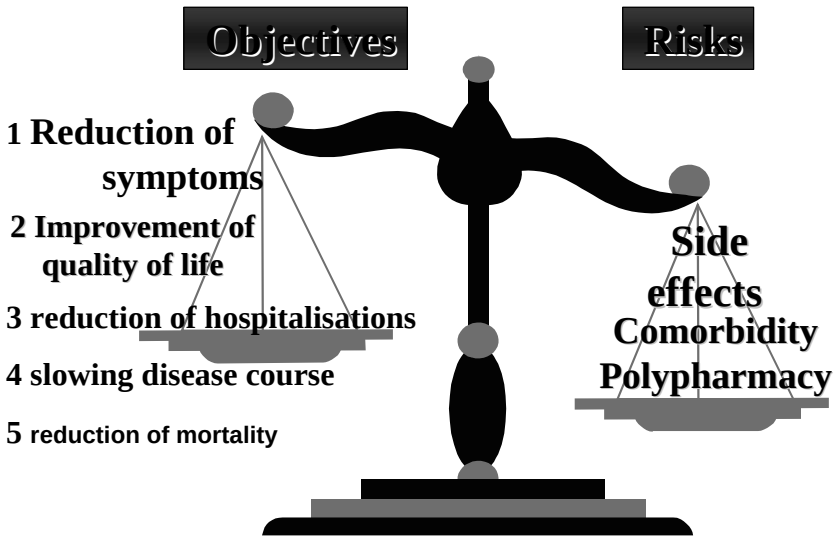
Theses guidelines are based on the

**Management of heart failure in the elderly: recommendations from the French Society of Cardiology and the French Society of Gerontology and Geriatrics**

*The Journal of Nutrition, Health & Aging*

*2006; 10: 434-45*

# Treatment of heart failure



## Non-pharmacological management

C **1 weight control ( 3 times each week)**

**unexpected weight gain > 2kg in 3 days**

⇒ **adjustment of diuretic dose**

C **2 sodium**

**no less than 4 to 5 g/day**

C **3 physical exercise**

**regular exercise can safely increase physical capacity**

***Hambrecht R Physical exercise in older patients with chronic heart failure Dtsch Med Wochenschr 2005; 130: 710-6***

## Drug therapy

### the “big” three !

- **Diuretics**
- **Angiotensin - converting enzyme (ACE) inhibitors**
- **ß-blockers**

# Diuretics C

**No randomized, placebo-controlled trial reported in the literature !**

**Diuretics are used in the event of signs of sodium/fluid retention**

**Exacerbation of the signs of heart failure necessitates gradual increase in dosage**

***Howard PA aggressive dieresis for severe heart failure in the elderly Chest 2001; 119: 807-10***

**Diuretic dosage is a marker of disease progression and enables the risk of sudden death and heart failure-related death**

***Neuberg GW PRAISE investigators Diuretic resistance predicts mortality in patients with advanced heart failure Am Heart J 2002; 144: 31-8***

# Adverse effects of diuretics

- **Hypovolemia: orthostatic and post-prandial hypotension**

***Mehagnoul-Schipper DJ furosemide HF = 70y Am J cardiol 2002; 90: 596-600***

- **Hyponatremia**
  - **Low salt diet**
  - **Drugs: serotonin reuptake inhibitors, omeprazole, sulfonylureas, digoxin, lactulose loop diuretic + thiazide**

***Rosholm JU hyponatremia in very old Drugs Aging 2002; 19: 685-93***

- **Hypokaliemia ! given the nephrons' reduction: supplementation is not the rule**

# Permanent Diuretic treatment

## Not always necessary

- in asymptomatic LV systolic dysfunction
- in diastolic heart failure

to be reduced or even suspended
as soon as decompensation
has been brought under control

*Van Kraaij DJ furosemid withdrawal elderly…Am J Cardiol 2000; 85: 1461-6*

**BUT, in the most severe forms**
**withdrawal often leads to relapse**

*Walma EP withdrawal long term diuretic elderly…Brit Med J 1997;315: 464-8*

## Angiotensin-converting enzyme inhibitors

| Study | n | mean age (years) |
|---|---|---|
| CONSENSUS (1987) | 253 | 71 |
| VeHFT-II | 804 | 60.5 |
| SOLVD prevention | 4228 | 59.1 |
| SOLVD treatment | 2569 | 61 |
| SAVE | 2231 | 59.4 |
| AIRE | 2206 | 65 |
| TRACE | 1749 | 67.5 |
| ATLAS | 3164 | 63.6 |
| PEP-CHF | 1000 | 82 |

# Level of evidence

**Recommendations regarding treatments are based on the degree of available evidence**

| Level of evidence | | Available evidence |
|---|---|---|
| A | → | At least 2 randomized trials supporting recommendation |
| B | → | 1 randomized trial and/or meta-analysis supporting recommendation |
| C | → | Consensus statement from experts based on trials and clinical experience |

**Angiotensin-converting enzyme inhibitors**

**Heart failure in the elderly** **B**

**In the meta-analyses**
**no difference between age groups**
**was observed**
**for the beneficial effects of ACE inhibitors**

***Garg R, Yusuf S JAMA 1995; 273: 1450-6***

***Flather MD Lancet 2000; 355: 1575-81***

***Mangoni AA Brit J Clin Pharmacol 2006; 61: 502-12***

## Angiotensin-converting enzyme inhibitors

**B**

**Cohort studies**

**confirmation for the beneficial effect of ACE inhibitors**

**for elderly patients**

*Havranek EP ACE and mortality* *Arch Intern Med 1998; 158: 2024-8*

*Ahmed A older Medicare beneficiaries* *South Med J 2003; 96: 1967-78*

*Johnson D mortality, Alberta* *J Am Coll Cardiol 2003; 42: 1438-45*

## Angiotensin-converting enzyme inhibitors

**Sage study**

**86 000 patients in nursing home**
**very old: 85 ± 8 years**

**retrospective cohort study**

**ACE inhibitors compared with digoxin**

- **10 % reduction in mortality**

**and**

- **a lower rate of functional decline**

*Gambassi R Arch Intern Med 2000; 160: 53-60*

# ACE inhibitors

**Which drug to choose ?**

**heart failure:**

**captopril, cilazapril, enalapril,**
**fosinopril, lisinopril, perindopril,**
**quinapril, ramipril, trandolapril**

**criteria for choice**

**long half-life of elimination**

***no reference concerning elderly patients, above 75 years !!***

# ACE inhibitors

**indications**

- **Systolic heart failure**
  - → **NYHA I to IV**
  - **post myocardial infarction**
    **captopril, ramipril, trandolapril**
- **Diastolic heart failure ?**

# Starting an ACE Inhibitor

## Recommended procedure

1 review the need and dose of diuretics
2 avoid excessive diuresis before treatment
3 advisable to start treatment in the evening
4 Start with a low dose and build up
5 If renal function deteriorates: stop treatment
6 Avoid K-sparing diuretics and NSAIDs
7 Check BP, renal F. & electrolytes
1-2 weeks after each dose increment
at 3 months and subsequently at 6 m. intervals

*Guidelines E S C Eur Heart J 2001; 22: 1527-60*

# ATLAS

***Assessment of Treatment with Lisinopril And Survival Study***

**For high-dose lisinopril compared with low-dose**

**Combined outcome of All-cause mortality and Heart failure hospitalization**

**was reduced by 15% ( p< 0.001)**

**With a 24% reduction in HF hospitalization (p= 0.002)**

**High doses of lisinopril reduced morbidity and mortality independently of age**

*Packer M Circulation 1999; 100: 2312-8*

## High dose ACE inhibitors reduced morbidity and mortality independently of age

**B**

**Alberta 1994-99**

| Medication Use | Total Cohort (N = 11,942) ( mean age 79 ± 8 yrs) All-Cause Mortality | Total Cohort (N = 11,942) ( mean age 79 ± 8 yrs) Heart Failure Hospitalizations | Healthiest Subgroup (n = 1336) All-Cause Mortality | Healthiest Subgroup (n = 1336) Heart Failure Hospitalizations |
|---|---|---|---|---|
| | Hazard Ratio (95% Confidence Interval) | | | |
| ACE inhibitors | 0.59 (0.55–0.62) | 0.93 (0.87–1.00) | 0.53 (0.44–0.64) | 0.89 (0.71–1.10) |
| Lower dose | 0.67 (0.61–0.72) | 0.99 (0.90–1.10) | 0.68 (0.51–0.90) | 0.97 (0.71–1.32) |
| Higher dose | 0.55 (0.51–0.59) | 0.89 (0.82–0.97) | 0.47 (0.37–0.59) | 0.88 (0.69–1.11) |

* Adjusted for age, sex, Charlson comorbidity score, hypertension, ischemic heart disease, propensity scores, and concomitant medications.
ACE = angiotensin-converting enzyme.

***Sin: Am J Med 2002;113:650***

## Angiotensin-converting enzyme inhibitors

**"In the absence of a specific study,**

**the optimum dosage is that reached in the large-scale mortality studies,**

**the maximum tolerated dosage ,**

**and, if possible,**

**a daily dosage close to that achieved in the large mortality studies."**

*French guidelines Komajda M J Nutrition Health Aging 2006; 10: 434-44*

**Angiotensin-converting enzyme inhibitors**

**Nevertheless**

**In the epidemiological studies**

**age seems a limiting factor for**

**- ACE inhibitor prescription**

**- prescription of recommended dosages**

*Heckman GA Can J Cardiol 2004; 20: 963-9*

*Manyemba J Eur J Heart Fail 2003; 5: 693-6*

*Masoudi FA Circulation 2004; 110: 724-31*

# Heart failure

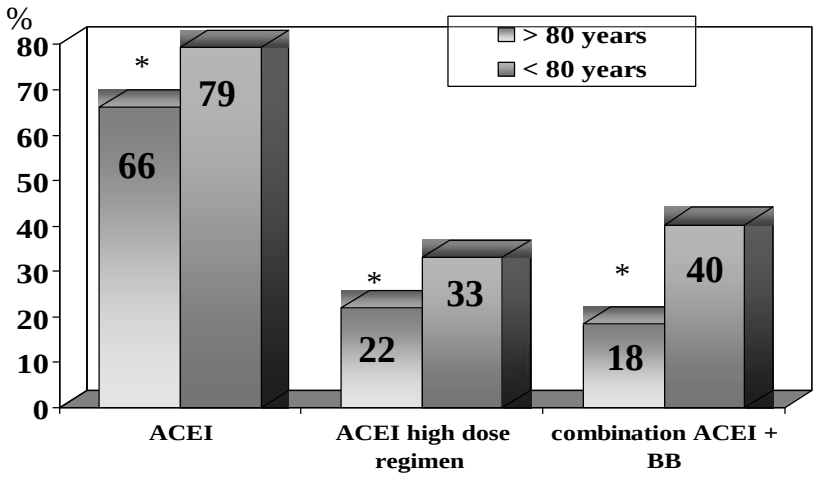
**French Register 1997**

| age | 27-68 | 68-78 | 78-86 | 86-100 yrs | p |
|---|---|---|---|---|---|
| ACE inh. | 82 % | 67 % | 60 % | 49 % | 0,001 |
| Diuretics | 91 % | 93 % | 92 % | 88 % | 0,3 |
| Digoxin | 40 % | 39 % | 35 % | 34 % | 0,5 |
| Hospital stay(days) | 9 ± 6 | 11 ± 9 | 14 ± 14 | 15 ±18 | 0,0001 |
| Hosp. mortality | 3 % | 7 % | 11 % | 16 % | 0,003 |

*Cohen-Solal A Eur. J. Heart. Fail 2000; 2 : 223-6*

## ACE inhibitors and LV systolic dysfunction

***Euro Heart Failure Survey*** ***Komajda M Eur Heart J 2007; 28: 1310-8***




* p < 0.0001

## ACE inhibitors and LV systolic dysfunction

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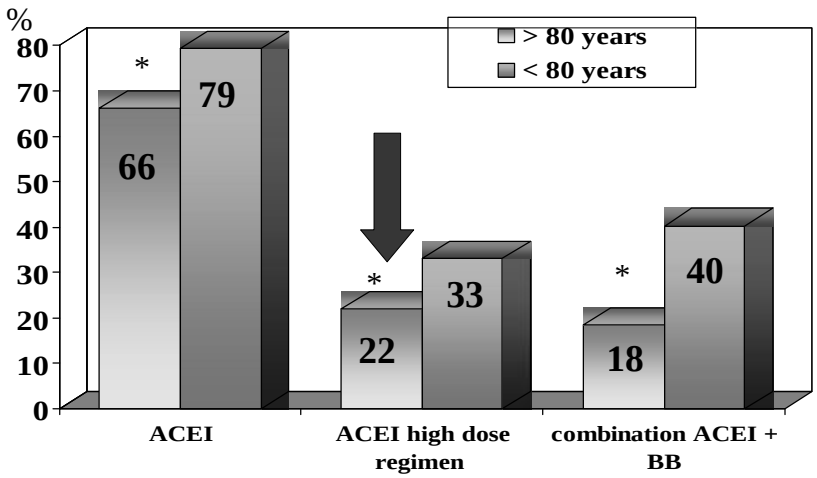


* p < 0.0001

# ACE inhibitors and LV systolic dysfunction

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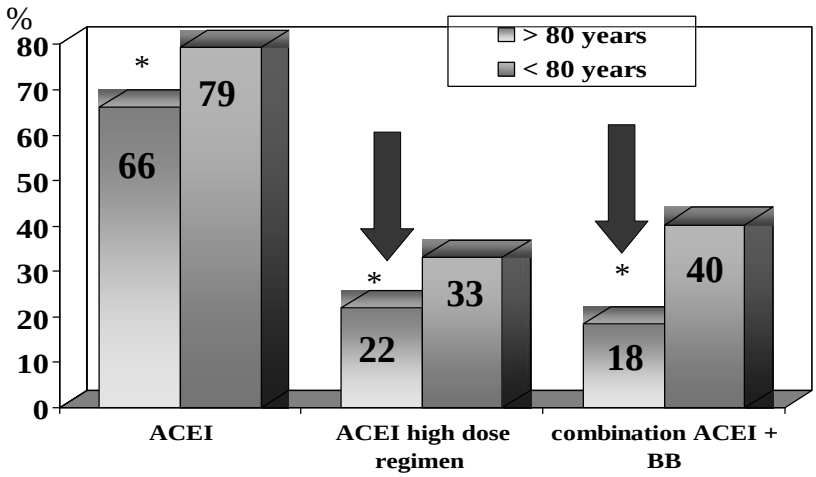
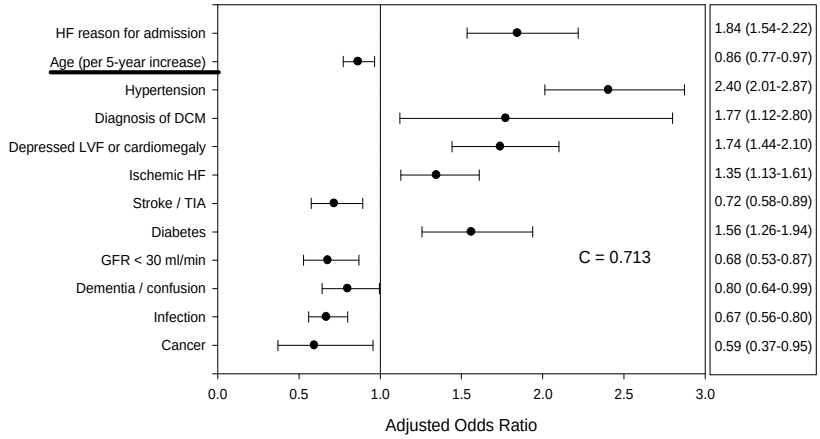



* p < 0.0001

# Euro Heart Failure Survey I

## ACE inhibitors and octogenarians n:2780,85 yrs

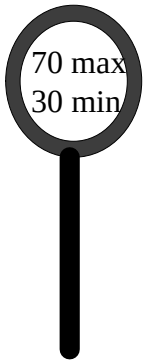
***Komajda M Eur Heart J 2007; 28: 1310-8***




**adjusted odds ratios with 95%-confidence intervals as results of multiple logistic regression**

**HF = Heart Failure, DCM = Dilated Cardiomopathy, LVF = Left Ventricular Function, TIA = Transient Ischaemic Attack, GFR = Glomerular Filtration Rate**

# ß-blockers

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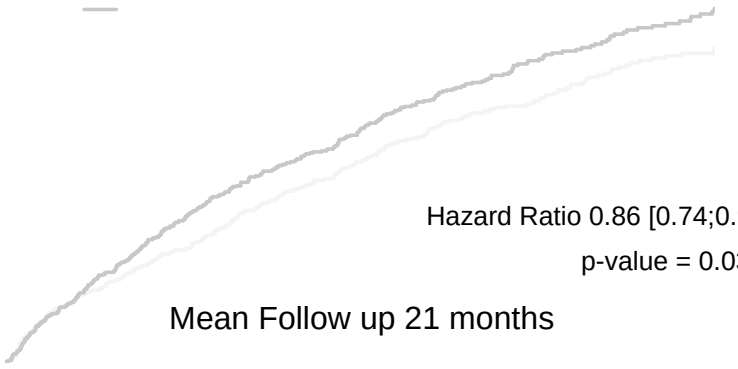
# ß-blockers

| Study | n | mean age (years) |
|---|---|---|
| Best | 2708 | 60 |
| CIBIS-I | 641 | 60 |
| CIBIS-II | 2647 | 61 |
| COPERNICUS | 2289 | 63 |
| MERIT-HF | 3991 | 64 |
| US Carvedilol | 1094 | 58 |
| COMET | 3029 | 62 |
| SENIORS | 2128 | 76 |

# Mortality and CV Hospitalisation

*Flather MD. Eur Heart J 2005;26:215-5*



Hazard Ratio 0.86 [0.74;0.99]

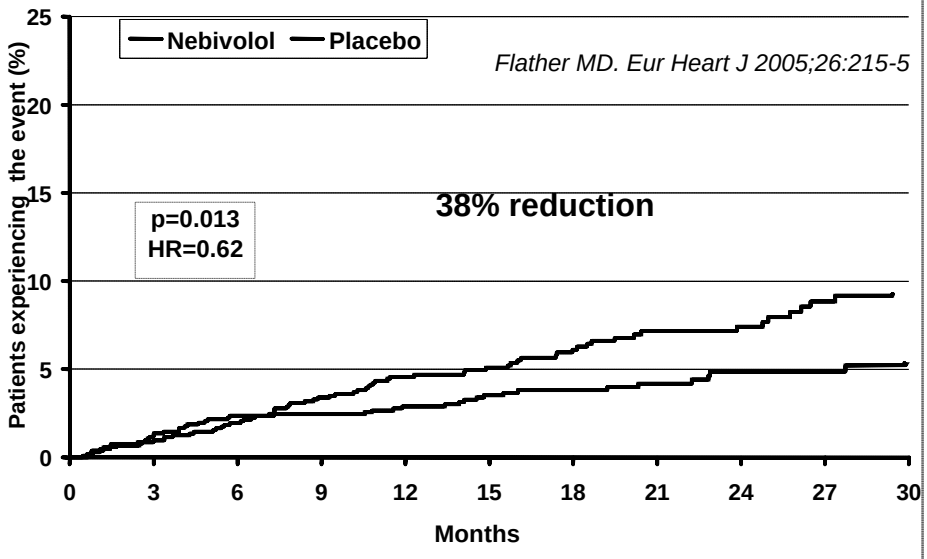
p-value = 0.039[1]

Mean Follow up 21 months

***[1] adjusted by sex, age and baseline LVEF; unadjusted HR= 0.85 [0.74; 0.99] p-value= 0.034***

**No. of events: Nebivolol 332 (31.1%); Placebo 375 (35.3%)**

# Sudden death




*Flather MD. Eur Heart J 2005;26:215-5*

# With ß-blockers

**The clinical trials have shown that the amplitude of benefit is the same for all age groups**

**B**

*CIBIS-II Lancet 1999; 353: 9-13*
*MERIT-HF Lancet 1999; 353: 2001-7*
*COPERNICUS Packer M Circulation 2002; 106: 2194-9*

# ß-blockers

## Which drug ?

| ß-blocker | first dose (mg) | increments (mg.day) | target dose (mg.day) | titration |
|---|---|---|---|---|
| CARVEDILOL (1) | 3.125 | 6.25, 12.5, 25, 50 | 50 | weeks-month |
| METOPROLOL(2) (succinate ) | 12.5 | 25, 50, 100, 200 | 200 | weeks-month |
| BISOPROLOL (3) | 1.25 | 2.5, 3.75, 5, 7.5, 10 | 10 | weeks-month |
| NEBIVOLOL (4) | 1.25 | 2.5, 3.7,5,5,7.5, 10 | 10 | weeks-month |

*(1) US Carvedilol Packer M N Engl J Med 1996;334:1349-55*
*(2) MERIT-HF Lancet 1999; 353: 2001-7*
*(3) CIBIS II Lancet 1999; 353: 9-13*
*(4) SENIORS Flather MD Eur Heart J 2005; 26: 215-25*

# Starting a ß-blocker

## Recommended procedure

1 background therapy with ACE inh. + diuretic

2 patient in a stable condition

3 start with a very low dose

and monitor the patient

**"in a specific setting for 4 hours to monitor heart failure symptoms, fluid retention, hypotension and bradycardia"**

***Guidelines E S C Eur Heart J 2001; 22: 1527-60***

# Starting a ß-blocker

**Recommended procedure**

1 background therapy with ACE inh. + diuretic

2 patient in a stable condition

3 start with a very low dose

4 if the preceding dose is well tolerated

the dose may be doubled every 2 weeks

5 transient worsening failure, hypotension or bradycardia may occur during titration period

***Guidelines E S C Eur Heart J 2001; 22: 1527-60***

# Starting a ß-blocker C

**Recommended procedure**

## 5 transient worsening

- ***worsening symptoms:***
  - ***1st increase dose of diuretics and / or ACE inh.***
  - ***and then reduction of* ß-blocker *dose if necessary***
- ***hypotension:***
  - ***1st reduce the dose of vasodilators and / or diuretics***
  - ***and then reduction of* ß-blocker *dose if necessary***
- ***bradycardia***
  - ***1st reduce or discontinue drugs that may lower heart rate***
  - ***and then reduction of* ß-blocker *dose if necessary***

- **but always consider *the reintroduction and/or uptitration of* ß-blocker *when the patient becomes stable***

***Guidelines E S C Eur Heart J 2001; 22: 1527-60***

# ß-blockers

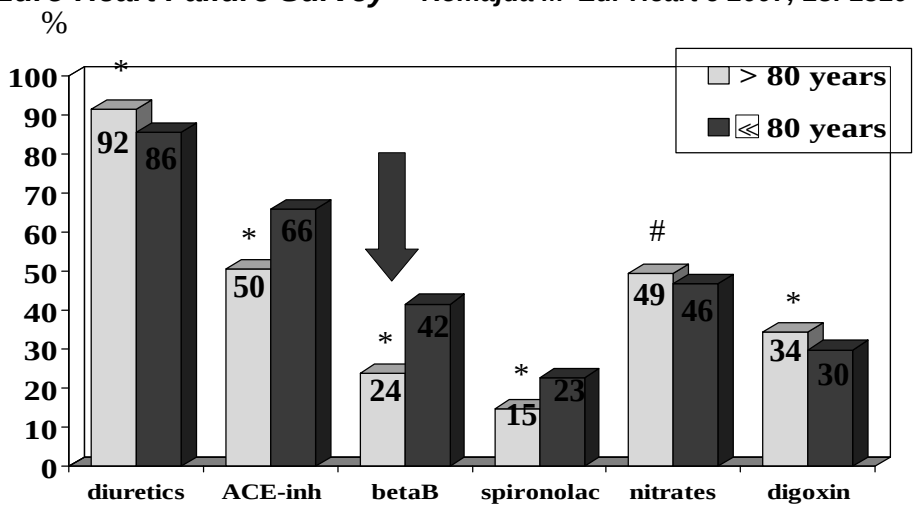
**Are to be combined**

→ **LV systolic dysfunction, with** **B**
**ACE inhibitors, diuretics**
**potentially digoxin**

→ **LV diastolic dysfunction** **C**
**no morbidity-mortality study to date !**

# Heart failure treatments

***Euro Heart Failure Survey*** ***Komajda M Eur Heart J 2007; 28: 1310-8***

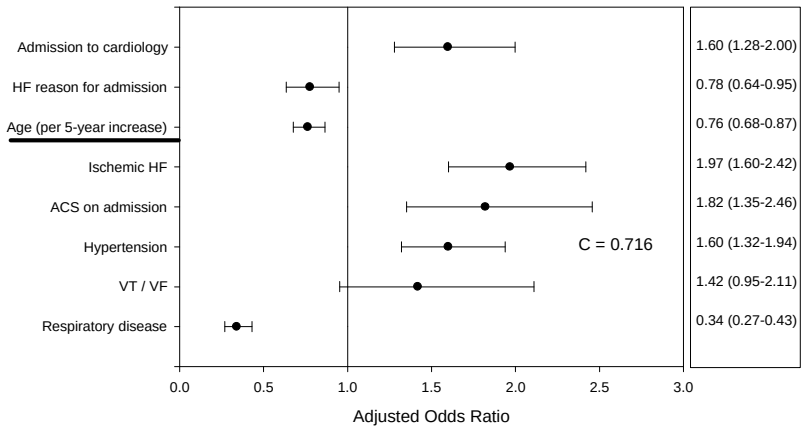



* p < 0.0001, # p < 0.01

# Euro Heart Failure Survey I

## ß-blockers and octogenarians n:2780,85 yrs

***Komajda M Euro Heart J 2007; 28: 1310-8***




**adjusted odds ratios with 95%-confidence intervals as results of multiple logistic regression**

**HF = Heart failure, ACS = Acute Coronary Syndrome, VT/VF = Ventricular tachycardia/Ventricular Fibrillation**

# Other treatments

# Angiotensin II receptor blockers

**ELITE and ELITE II ( Evaluation Losartan In The Elderly )**
**mortality and morbidity # , better tolerated than captopril**

***Pitt B Lancet 1997; 349: 747-52  Lancet 2000; 355: 1582-7***

**Val-HeFT ( Valsartan Heart Failure Trial ) versus placebo,**
**improvement of morbidity, mortality, EF, NYHA in elderly patients**

***Baruch L  Circulation 2004; 106(suppl II): S685***

# Angiotensin II receptor blockers

**CHARM** **( Cadesartan in Heart Failure ) versus placebo**

- **Added: EF £ 40% + ACE inh.**
  **McMURRAY JJ Lancet 2003; 362: 767-71**
- **Alternative: ACE inh. Intolerance**
  **Granger CB Lancet 2003; 362: 772-7**
- **Preserved: EF > 40 %** ***Efficacy more evident in patients = 75 years***
  **Yusuf S Lancet 2003; 362: 777-81**
- **Overall programme**
  **Pfeffer MA Lancet 2003; 362: 759-66**

# Angiotensin II receptor blockers

**Indication: only**

**A**

**In heart failure patients**

**with ACE inhibitors poorly tolerated**

**ARBs are beneficial**

**in the context of**

**- systolic dysfunction**

**- post-infarction**

***CHARM Alternative trial candesartan Lancet 2003; 362: 772-6***

***Valsartan Acute Myocardial InfarctionTrial Invest.***

***N Engl J Med 2003; 349: 1893-906***

# ACE inhibitors + ARBs ?

**Despite the use of ACE inhibitors, blockade of the renin angiotensin aldosterone system remains incomplete**

**with evidence of continued**

**production of angiotensin II**

**by non-ACE-dependent pathways**

**Question: what are the safety and potential benefits of ACE inhibitors + ARBs association in elderly?**

# ACE inhibitors + ARBs ?

**Response: for patients who remain symptomatic**

**CHARM-Added study**

**reduction in CV events** **B**

**in patients with**

**Congestive Heart Failure +**

**LV EF reduced**

**but adverse reactions increased**

**a close monitoring of renal function and serum potassium levels is needed**

***McMurray JJ Lancet 2003; 362: 767-71***

## ALDOSTERONE RECEPTOR ANTAGONISTS

**RALES** **age 65 ± 12 years**

**heart failure NYHA IV, 6 months before**

**LV EF < 35%**

**Spironolactone 25 mg/d versus placebo**

**associated withAEC inh, diurétic ± digoxin**

- **30% mortality risk (35% vs 46%)**
- **31% heart mortality**
- **30% hospitalisation**

***Pitt, NEJM 1999, 341, 10 : 709-717***

## ALDOSTERONE RECEPTOR ANTAGONISTS

**RALES : spironolactone + ACE inhibitors association**

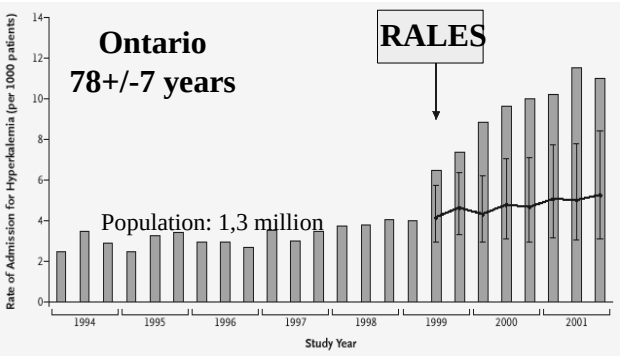
**serious adverse effects**

| | 12,5 | 25 | 50 | 75 mg/d |
|---|---|---|---|---|
| Hyperkaliemia | 5 | 13 | 20 | 25 % |
| creatininemia (mg/l) | 8 | 10 | 16 | 20 |

***RALES, Am J cardiol 1996; 78 : 194-198***

# Spironolactone after RALES

C




**Explications**

**RALES**

- **Age: 65 ± 12 ans**
- **NYHA II-III**
- **Monitoring !!**
  - **Kaliemia**
  - **renal function**

***Juurlink DN N Engl J Med 2004;351:543***

# DIGOXIN

***DIG study***

**results**

**HF with LV EF < 45%**

**Age 63 ± 11 years**

**6 800 patients**

**Treatment associated with ACE and diurétics**

**Digoxin 0.25 mg/d versus Placebo**

**37 months**

**Mortality: same (35%)**

**HF mortality NS**

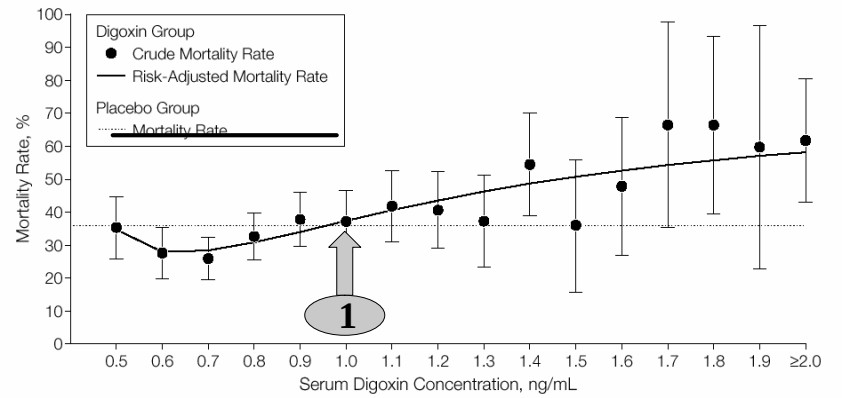
**- 6% re-hospitalisations**

**reduction of hospitalisation for worsening HF**

**quality of live Improved**

***NEJM 1997, 336, 8 : 525-533***

## DIG: digoxinemia and mortality




***Rathore SI JAMA 2003;289:871***

## DIGOXIN

**B**

**adjusted dosage**

- **body mass, creatinine clearance**

**Target: serum digoxin**

- **between 0.5 and 0.8 ng/ml**
- **24 h after ingestion of the last pill**

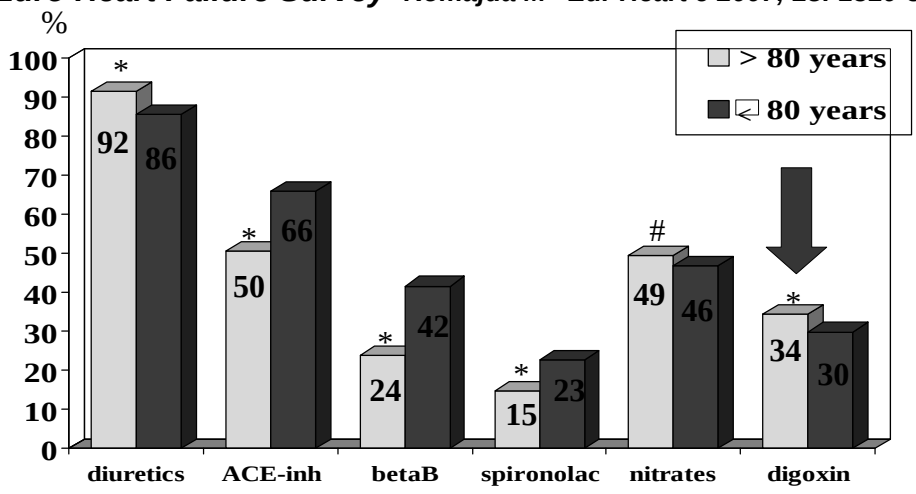
**Tachyarrhythmia due to atrial fibrillation**

- **heart rate reduction generally delayed**
- **combining other bradycardiac agents**
- **rather than increasing digoxin dosage**

***French guidelines Komajda M J Nutrition Health Aging 2006; 10: 434-44***

# Heart failure treatments

***Euro Heart Failure Survey*** ***Komajda M Eur Heart J 2007; 28: 1310-8***




* p < 0.0001, # p < 0.01

# calcium antagonists

**Contraindication for**

- **first generation dihydropyridine**
- **verapamil**
- **diltiazem**

**No specific indication for**

- **other dihydropyridine**

## NITRATES C

**Nitrates have no recognized indication in the treatment of chronic congestive heart failure.**

**Nitrate patches have no demonstrated effect although widely prescribed**

**The only indication of nitrates in heart failure is the management of acute failure with maintained blood pressure**

***French guidelines Komajda M J Nutrition Health Aging 2006; 10: 434-44***

## ANTICOAGULANTS AND ANTITHROMBOTICS

### ORAL ANTICOAGULANTS C

**HEART FAILURE ISOLATED**
**IS NOT AN INDICATION**

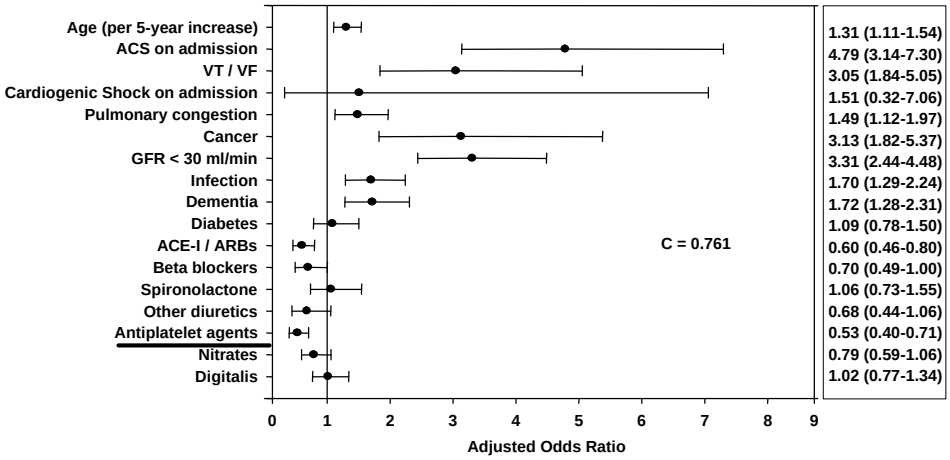
**+ ATRIAL FIBRILLATION**
**INDICATION**
**even for very old patients**

***Fuster V ACC/AHA/ESC Eur Heart J 2001; 22: 763-9***

**Determinants of in hospital mortality in octogenarians**

***Euro Heart failure survey*** ***(mean age = 85 yrs)***

***Eur heart J 2007; 28: 1310-8***




***ACS:Acute Coronary Syndrom, VT/VF:Ventricular Tachycacardia/V Fibrillation ACF-/ARRS: IEC et ARA II***

# Platelet aggregation inhibitors

**No study to date**

**in the literature !!**

**So no recommendations**

**Interaction between ACE inhibitors and aspirin ?**

**Results from SOLVD study suggest that ACE inh. may be less effective in patients receiving aspirin**

**Systematic overview of data for 22060 pts from 6 long-term randomized trials**

**Major clinical outcomes**

**Aspirin odds ratio 0.80 (99%CI 0.73-0.88)**
**Absence odds ratio 0.71 (99%ci 0.62-0.81)**

**Results: little evidence of any reduction in the benefits of ACE-inhibitor therapy**

***Teo KK Lancet 2002; 360: 1037-43***

# Heart failure and atrial fibrillation

## AF-CHF trial

**1376 patients randomized rhythm versus heart rate control**

| | rhythm | heart rate | p |
|---|---|---|---|
| CV mortality | 26.7% | 25.2% | 0.59 |
| Total mortality | 31.8% | 32.9% | ns |
| Stroke | 2.6% | 3.6% | ns |
| Heart failure | 27.6% | 30.8% | ns |

***American Heart Association 2008***

# ventricular resynchronisation

R. Leung

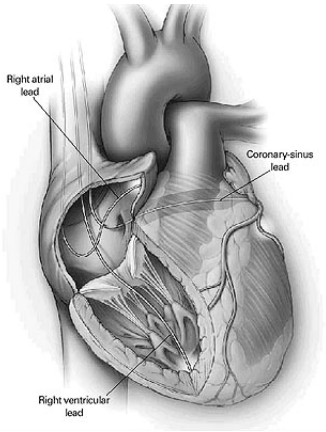
# ventricular resynchronisation

***Indication: sinusal rhythm + large left bundle branch block***

**Meta-analysis: 1634 patients ,**

**4 multi center studies**

**follow-up 3 to 6 month**




**heart failure mortality - 51 %**

**rehospitalisations - 29 %**

***but very few elderly patients are concerned !***

***Bradley DJ JAMA 2003; 289: 730-40***

## ventricular resynchronisation

?

In the absence of specific studies,

The decision to resynchronise an elderly patient presenting with symptomatic heart failure due to systolic left ventricular dysfunction on optimum medicinal treatment is to be made on a case-by-case basis

*French guidelines Komajda M J Nutrition Health Aging 2006; 10: 434-44*

## Implantable defibrillator

?

The current recommendations do not include any statement with respect to the age of the patients.

Assessment of clinical status is fundamental before taking the decision to implant a defibrillator in an elderly patient.

*French guidelines Komajda M J Nutrition Health Aging 2006; 10: 434-44*

# Diastolic Heart Failure

## Pharmacotherapy basis

- ß-blockers to lower heart rate and increase the diastolic period
- Verapamil-type calcium antagonists
  same reasons
- ACE inhibitors to improve relaxation and cardiac distensibility, lead to regression of LV hypertrophy and reduce hypertension
- Diuretics to treat acute episodes with fluid overload with the risk to lower excessively preload !

*Task Force Report. Guidelines for the diagnosis and treatment of chronic heart failure. ESC. Eur Heart J 2001;22:1527-1560*

**Recommendations are**

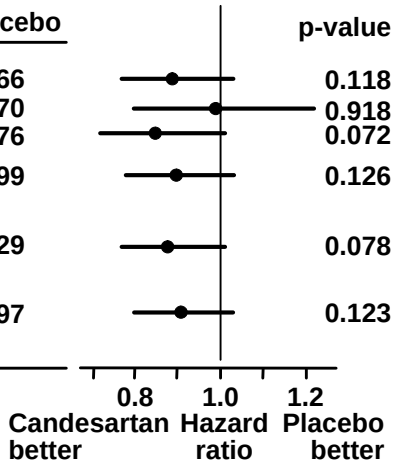
**largely speculative**

**with limited data !**

# CHARM-Preserved

## Primary and secondary outcomes

| | Number of patients | | p-value | Covariate adjusted p-value |
|---|---|---|---|---|
| | Candesartan | Placebo | | |
| CV death, CHF hosp. | 333 | 366 | 0.118 | 0.051 |
| - CV death | 170 | 170 | 0.918 | 0.635 |
| - CHF hospitalisation | 241 | 276 | 0.072 | 0.047 |
| CV death, CHF hosp, MI | 365 | 399 | 0.126 | 0.051 |
| CV death,CHF hosp, MI, stroke | 388 | 429 | 0.078 | 0.037 |
| CV death,CHF hosp, MI, stroke, revasc | 460 | 497 | 0.123 | 0.130 |

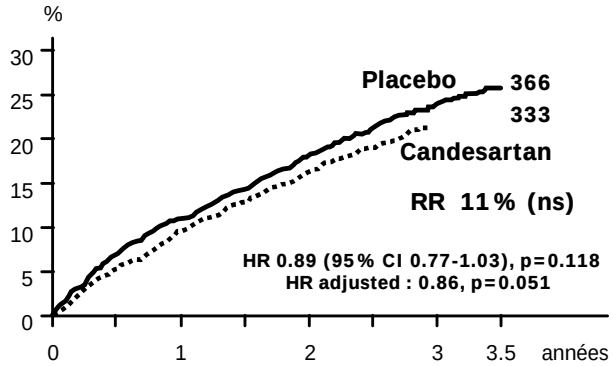



Yusuf S , Lancet 2003; 362: 777-81

# CHARM-Preserved

**Mortality rate and CV hospitalisations**

Mean age 67 years

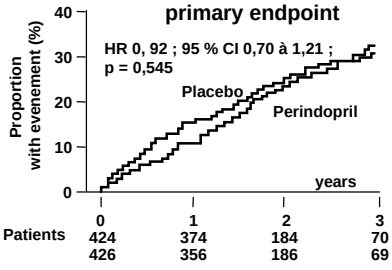


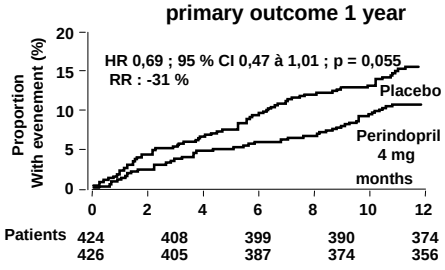

| Total patients | | | | | |
|---|---|---|---|---|---|
| **Candesartan** | **1 514** | **1 458** | **1 377** | **833** | **182** |
| **Placebo** | **1 509** | **1 441** | **1 359** | **824** | **195** |

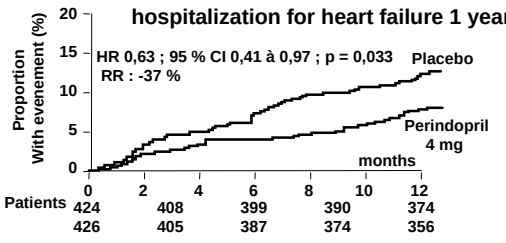
***Yusuf S Lancet ; 2003; 362: 777-81***

# Perindopril Elderly Patient-CHF

*n=850, 76 years, follow-up 2.1 years*



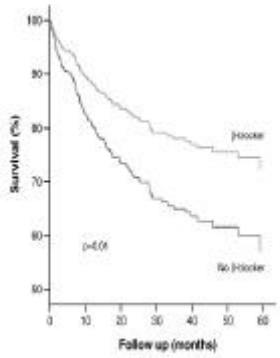




***Cleland JG Eur Heart J 2006; 27: 2338-45***

# ß-blockers and Heart failure with preserved left ventricular systolic function

443 patients EF LV ≥ 40%
mean age 78 years
follow-up 24 ± 18 months

Mortality rate - 43%
(HR 0,57 ; 0,37-0,88)
high dosage
Mortality rate - 49%
(HR 0,51 ; 0,30-0,86)
Low dosage
Mortality rate - 26% NS

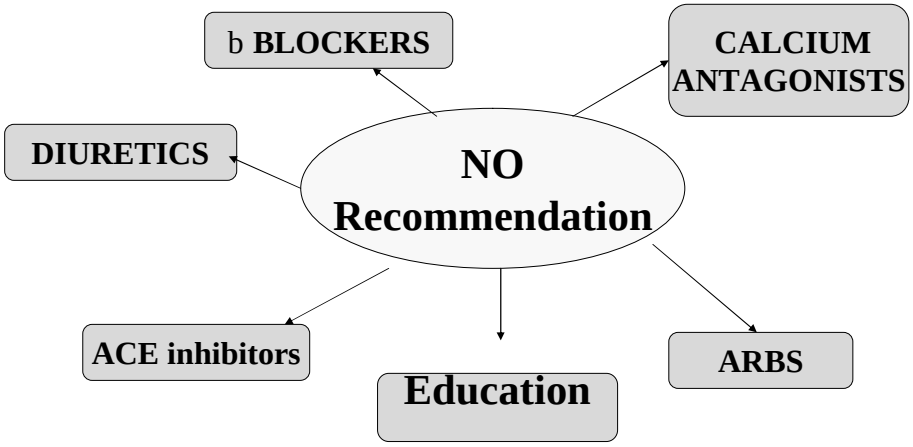



Multivariate relation between β-blocker dose and mortality in patients with advanced HF and EF ≥ 40%

| Variable | N (%) | Adjusted HR | 95% CI | P value |
|---|---|---|---|---|
| β-blockers | | | | |
| Low dose | 93 (41) | 0.74 | 0.45–1.21 | 0.2 |
| High dose | 134 (59) | 0.51 | 0.30–0.86 | 0.01 |

***Dobre Eur Heart J 2007; 9 : 280-286***

# Heart failure with preserved left ventricular systolic function



## Utilization of evidence-based therapies for heart failure in the institutionalized elderly

**15 long-term care facilities (Edmonton, Alberta)**

**Retrospective chart review**

**prevalence 15% (313:2062), mean age: 87 years**

| | |
|---|---|
| **ACE inhibitors** | **51%** |
| **beta-blockers** | **16%** |
| **spironolactone** | **10%** |

***Shibata MC Eur J Heart Fail 2005; 7: 1122-5***

## Drugs to avoid or beware of

**Used with caution when co-prescribed**

- **NSAIDs**
- **Class I anti-arrhythmics**
- **Calcium antagonists**
  - **verapamil, diltiazem**
  - **1st generation dihydropyridine**
- **Tricyclic antidepressants**
- **Corticosteroids**
- **Lithium**

***Feenstra J J Am Coll Cardiol 1999; 33: 1152-62***

- **glitazone, thiazolidinedione**

***Erdmann E Eur Heart J 2008; 29: 12-20***

## To conclude

**To treat heart failure**
**the highest dosage**
**is the best**
**But, for elderly patients**
**the lowest number of drugs**
**also is the best**
**What a difficult paradox !**

***and***

## Anything else ?

## What else ?

***At present time nothing more to treat elderly patient***

# What else ?

***But for you, don't forget***

***NESPRESSO***

***we are in Switzerland !!!***

*Clooney G  Santa Monica 31 1 2006*