Insuffisance cardiaque aiguë
Une synthèse

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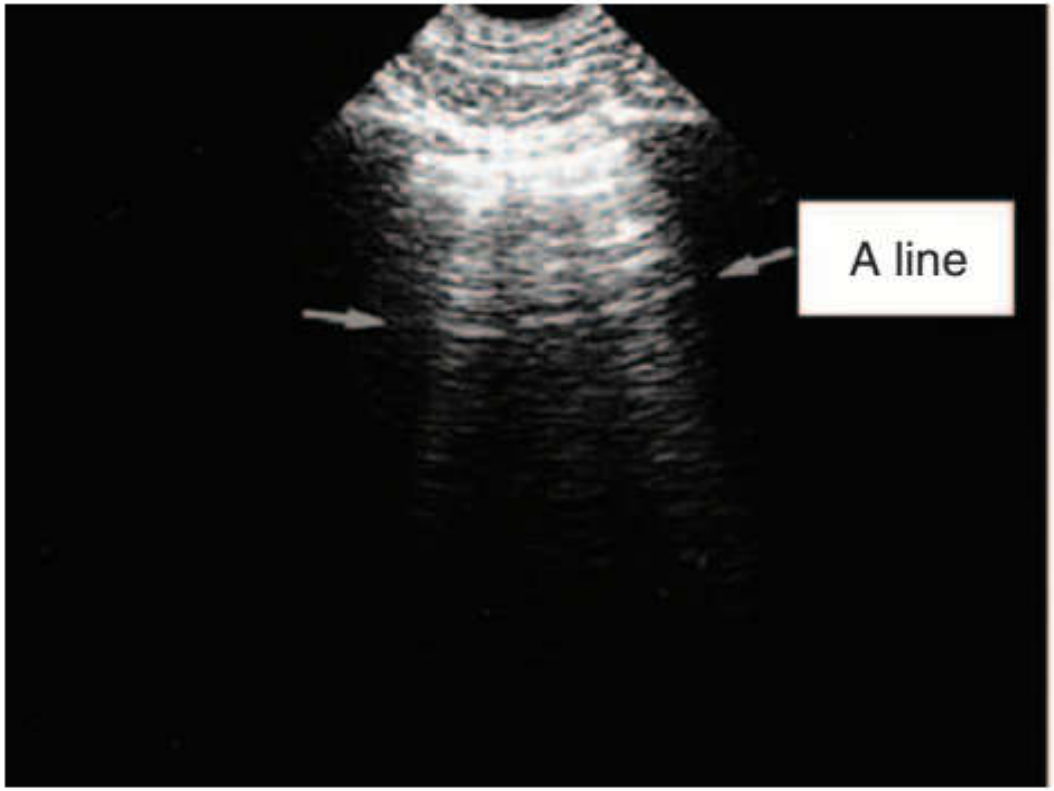
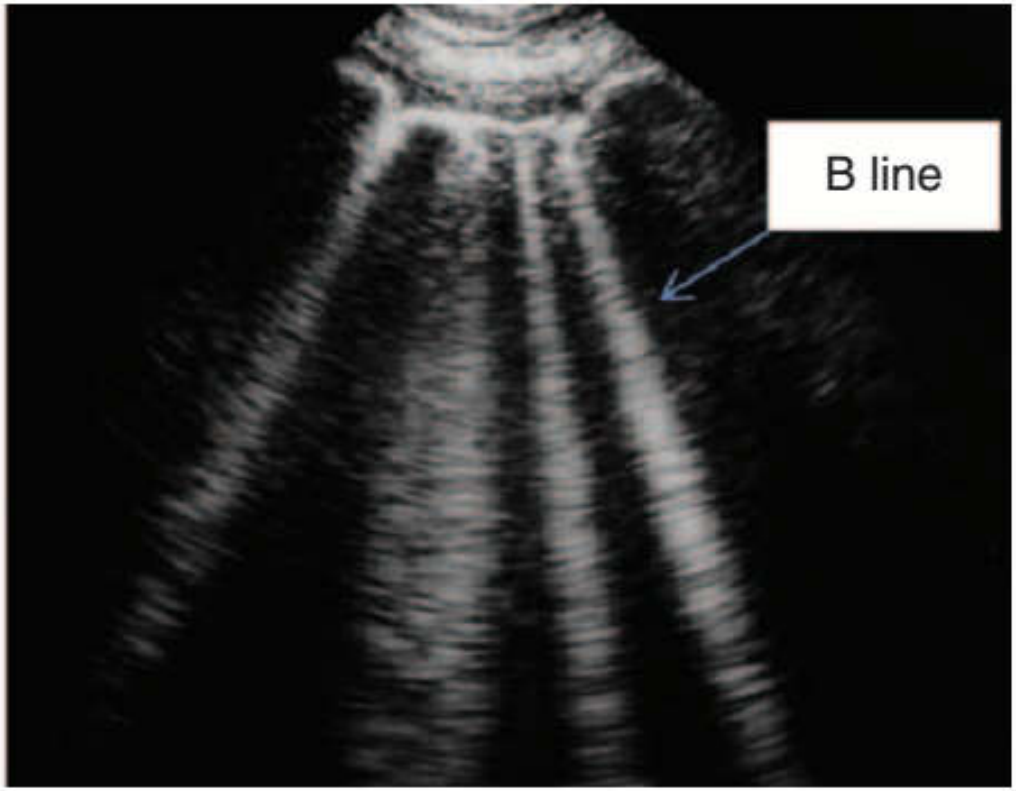
Situation simple
Oedeme aigu du poumon

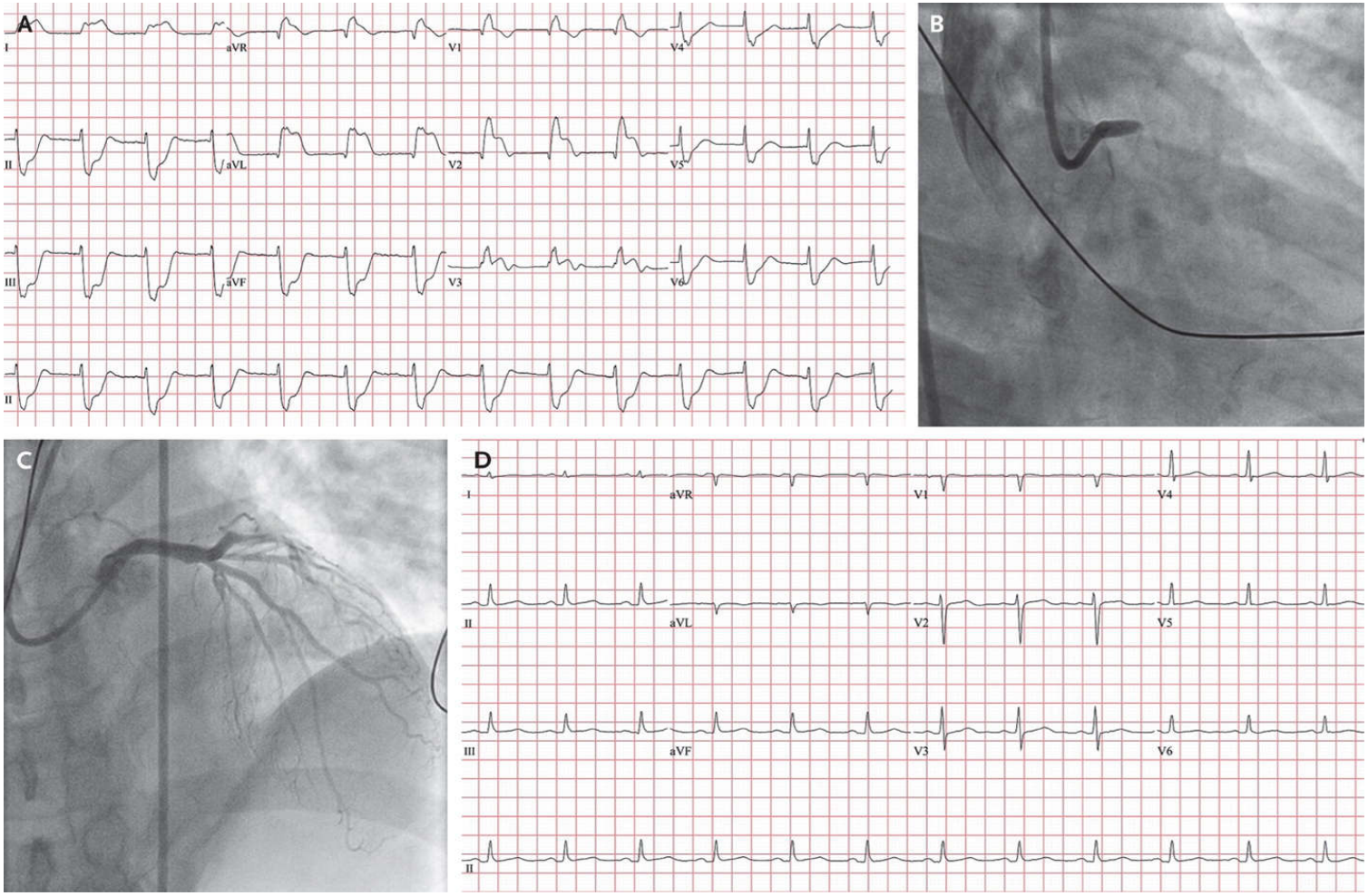




Recommendations for the treatment of patients with acute heart failure

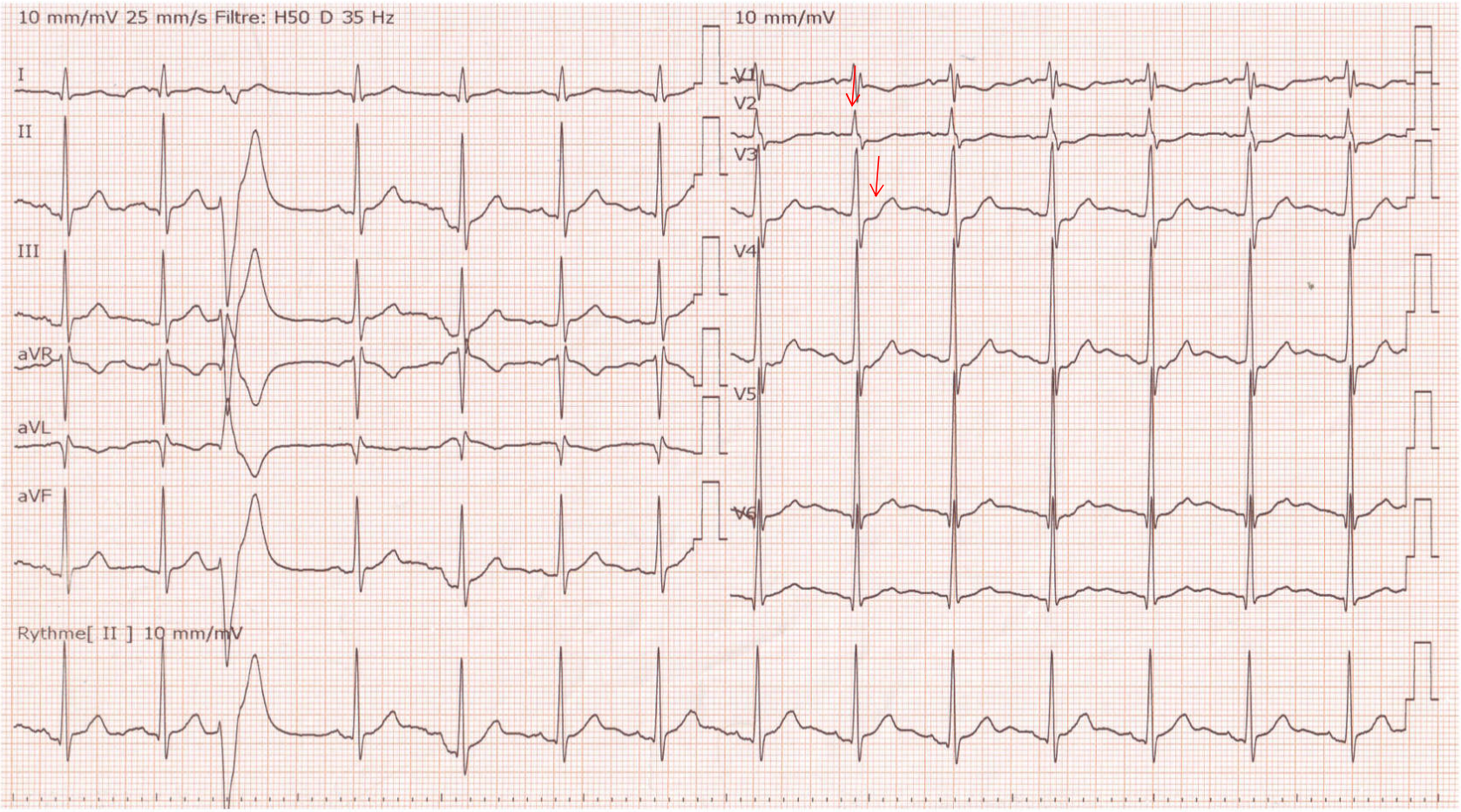
Recommendations	Class[a]	Level[b]	Ref[c]
Patients with pulmonary congestion/oedema without shock			
An i.v. loop diuretic is recommended to improve breathlessness and relieve congestion. Symptoms, urine output, renal function, and electrolytes should be monitored regularly during use of i.v. diuretic.	I	B	213
High-flow oxygen is recommended in patients with a capillary oxygen saturation <90% or PaO_2 <60 mmHg (8.0 kPa) to correct hypoxaemia.	I	C	–
Thrombo-embolism prophylaxis (e.g. with LMWH) is recommended in patients not already anticoagulated and with no contraindication to anticoagulation, to reduce the risk of deep venous thrombosis and pulmonary embolism.	I	A	214–216
Non-invasive ventilation (e.g. CPAP) should be considered in dyspnoeic patients with pulmonary oedema and a respiratory rate >20 breaths/min to improve breathlessness and reduce hypercapnia and acidosis. Non-invasive ventilation can reduce blood pressure and should not generally be used in patients with a systolic blood pressure <85 mmHg (and blood pressure should be monitored regularly when this treatment is used).	IIa	B	217
An i.v. opiate (along with an antiemetic) should be considered in particularly anxious, restless, or distressed patients to relieve these symptoms and improve breathlessness. Alertness and ventilatory effort should be monitored frequently after administration because opiates can depress respiration.	IIa	C	–
An i.v. infusion of a nitrate should be considered in patients with pulmonary congestion/oedema and a systolic blood pressure >110 mmHg, who do not have severe mitral or aortic stenosis, to reduce pulmonary capillary wedge pressure and systemic vascular resistance. Nitrates may also relieve dyspnoea and congestion. Symptoms and blood pressure should be monitored frequently during administration of i.v. nitrates.	IIa	B	218, 219
An i.v. infusion of sodium nitroprusside may be considered in patients with pulmonary congestion/oedema and a systolic blood pressure >110 mmHg, who do not have severe mitral or aortic stenosis, to reduce pulmonary capillary wedge pressure and systemic vascular resistance. Caution is recommended in patients with acute myocardial infarction. Nitroprusside may also relieve dyspnoea and congestion. Symptoms and blood pressure should be monitored frequently during administration of i.v. nitroprusside.	IIb	B	220
Inotropic agents are NOT recommended unless the patient is hypotensive (systolic blood pressure <85 mmHg), hypoperfused, or shocked because of safety concerns (atrial and ventricular arrhythmias, myocardial ischaemia, and death).	III	C	–

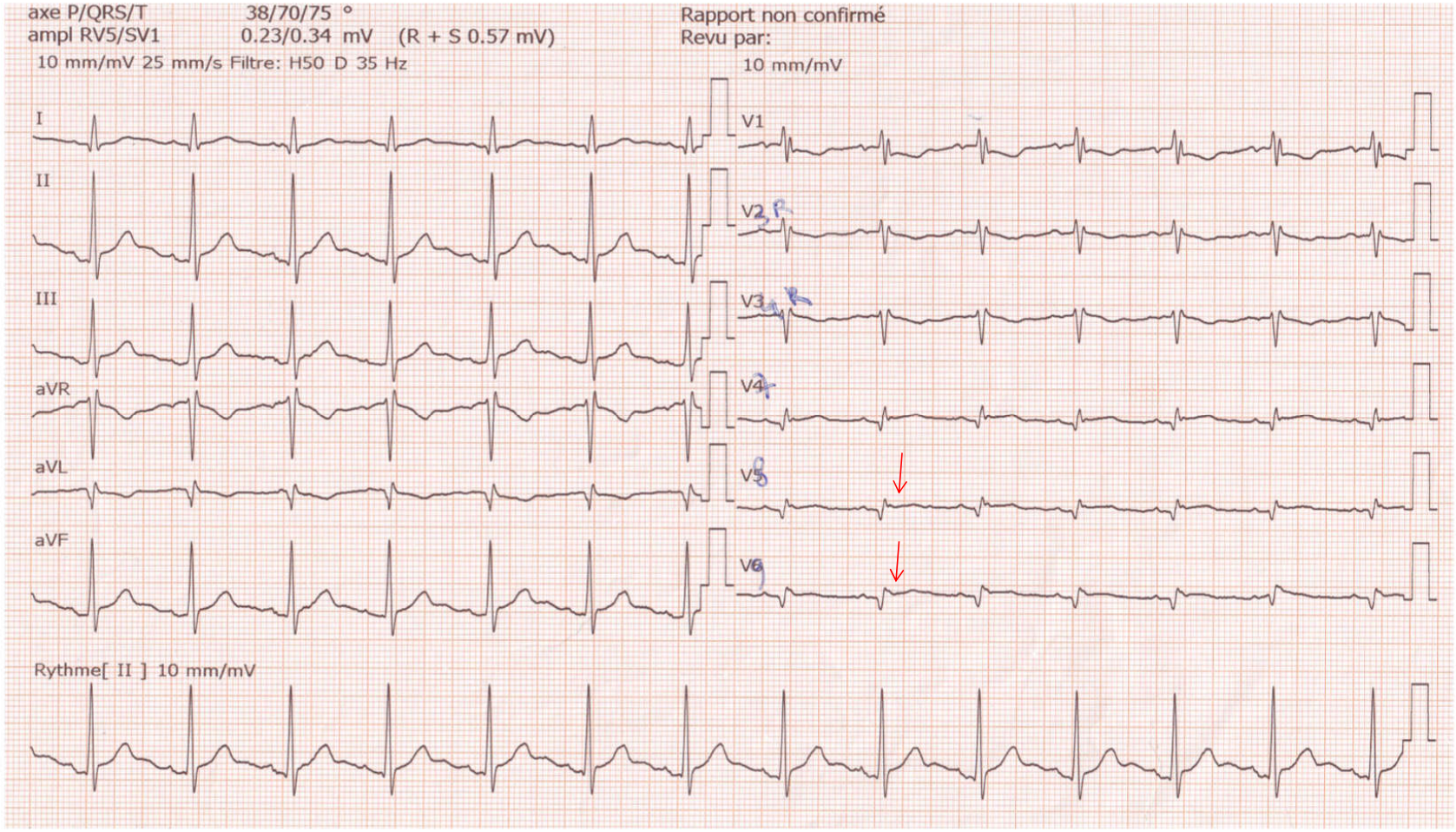
Situation simple : choc cardiogénique
Le plus souvent un infarctus du myocarde



Dwyer N, Kanani R. N Engl J Med 2012

Choc cardiogénique, parfois plus difficile




axe P/QRS/T 38/70/75 °
ampl RV5/SV1 0.23/0.34 mV (R + S 0.57 mV)
10 mm/mV 25 mm/s Filtre: H50 D 35 Hz
Rapport non confirmé
Revu par:
10 mm/mV
I
II
III
aVR
aVL
aVF
V1
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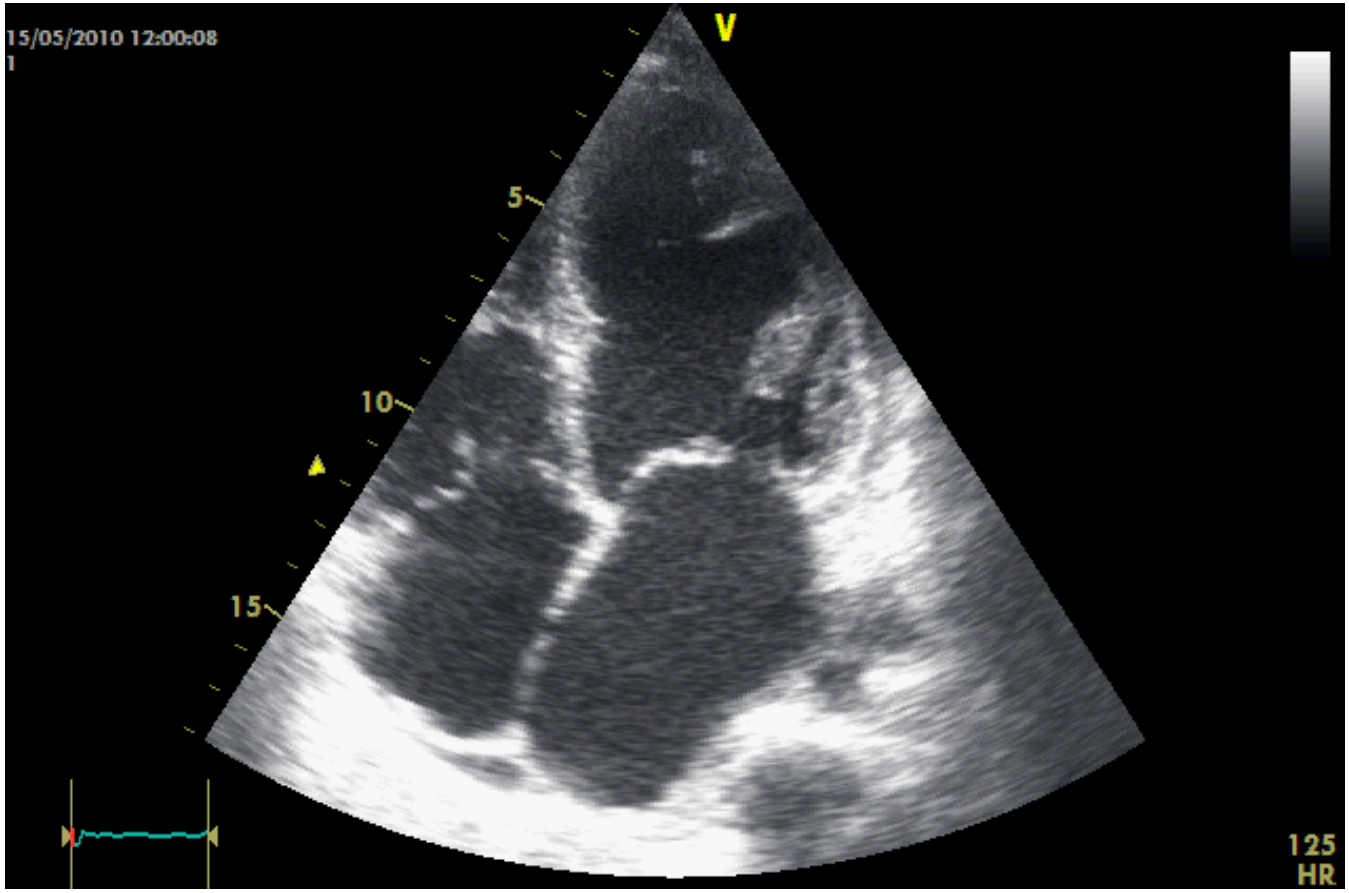
V3
V4
V5
V6
Rythme[II] 10 mm/mV


15/05/2010 12:00:08
1
V
5
10
15
125
HR

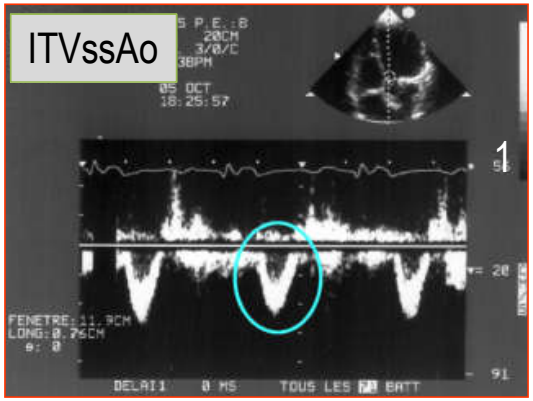
ALLER AU DELA DE LA FRACTION D'EJECTION

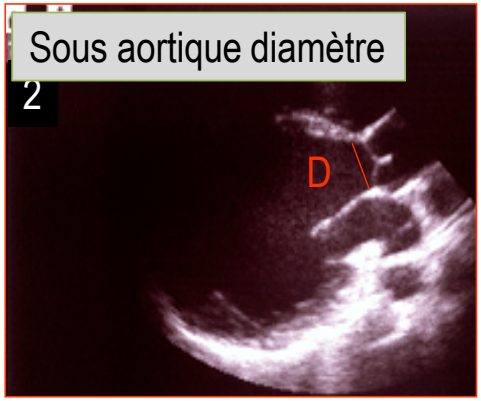
Calculer le débit cardiaque, c'est facile

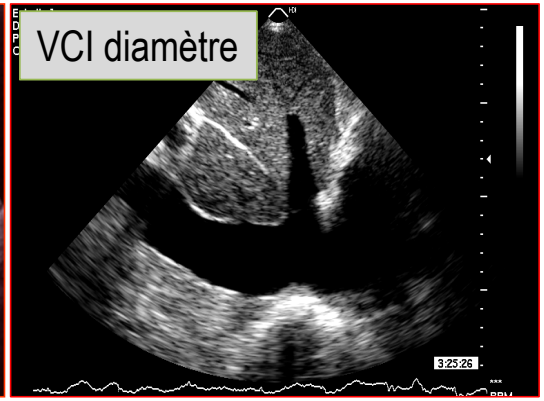
VES

$$DC = FC \times VES = \pi \times D^2/4 \times VTI \times FC$$

POD





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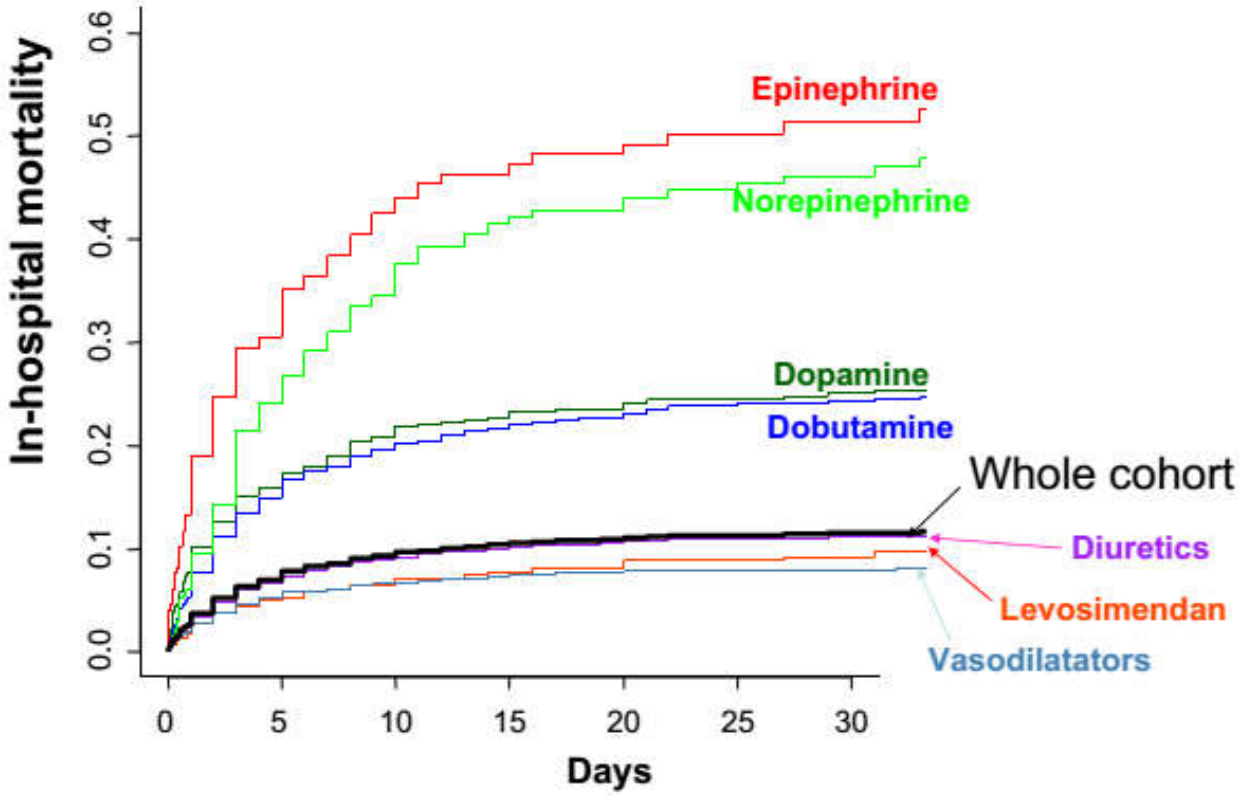
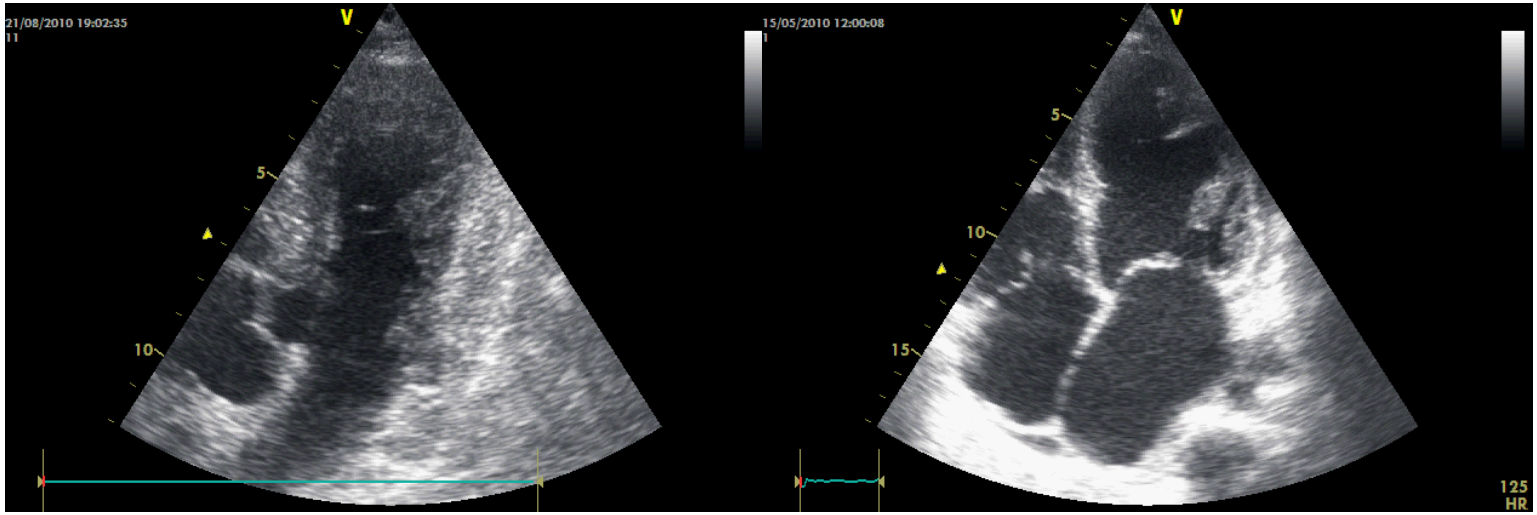
Survie à court terme et traitement en phase aiguë



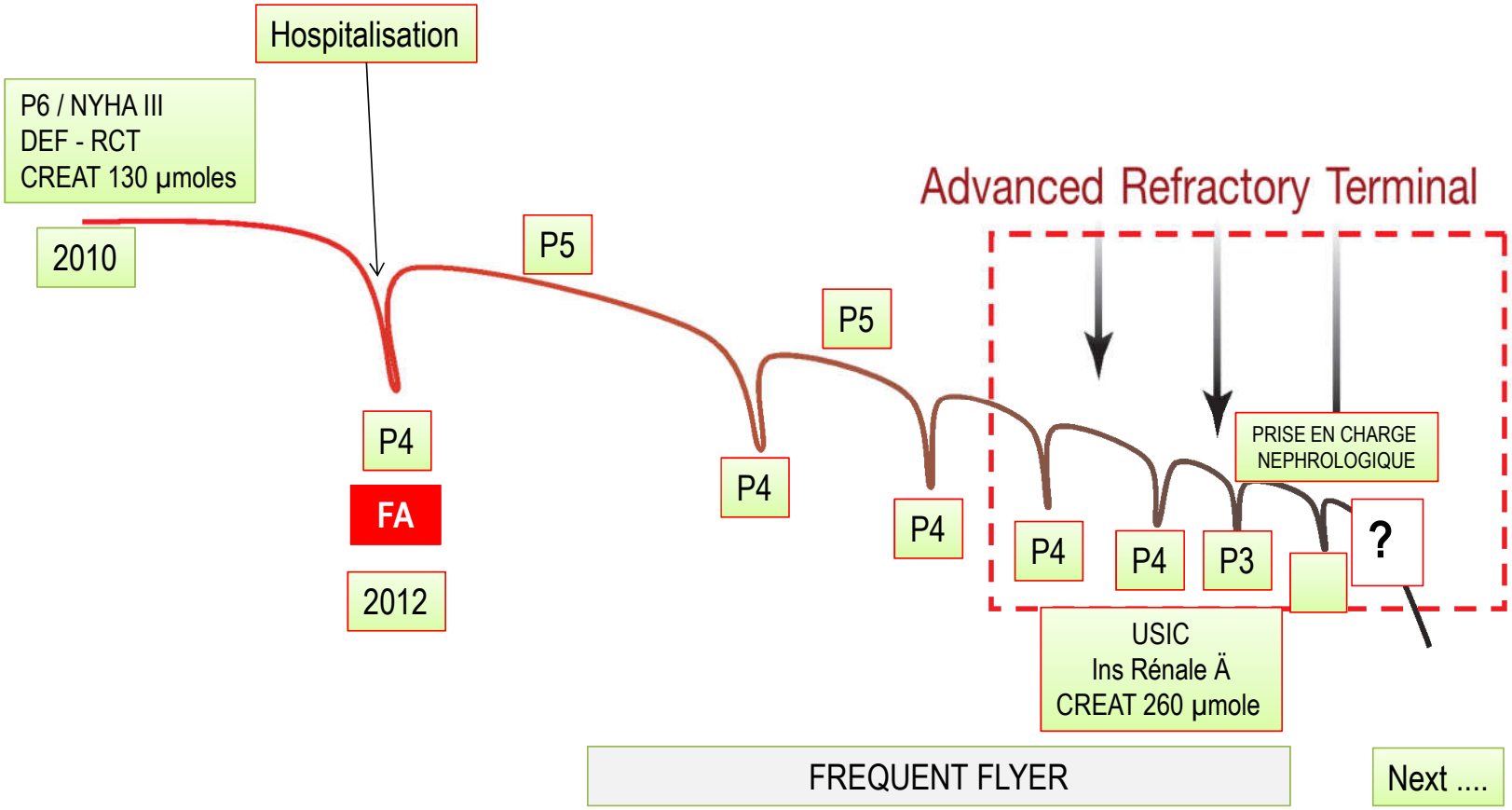
ALARM-HF registry using propensity scoring methods
Mebazaa Intensive Care Med 2011

Les situations les plus compliquées
Rétention hydrosodée et fréquent flyer

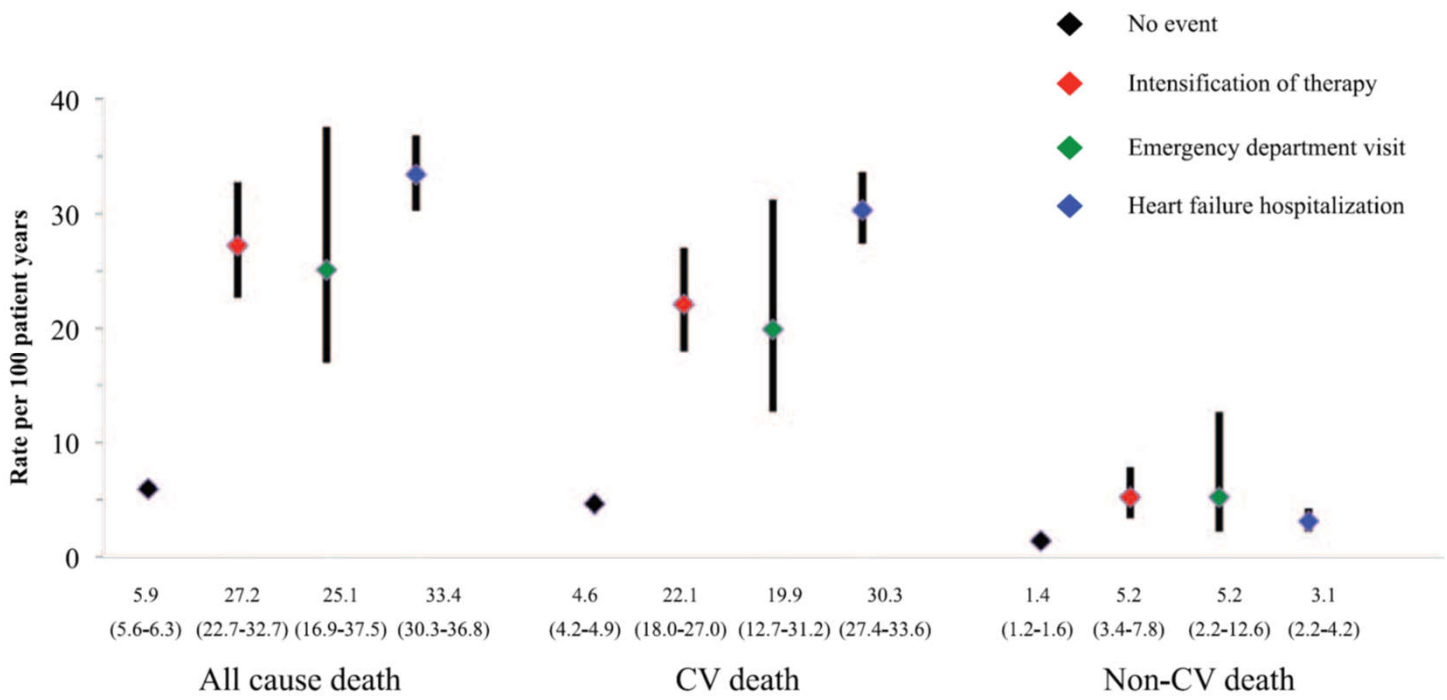
SYMPTOMES
SIGNES CLINIQUES
HEMODYNAMIQUE
ECG



Insuffisance cardiaque aiguë et chronique sont liées
Profils de sévérité intermacs P1 à P7



Intensification du traitement ou consultation aux urgences ont la même valeur pronostique qu'une hospitalisation



***Okumura Circulation* 2016**

HOPSITALISATION non programmée

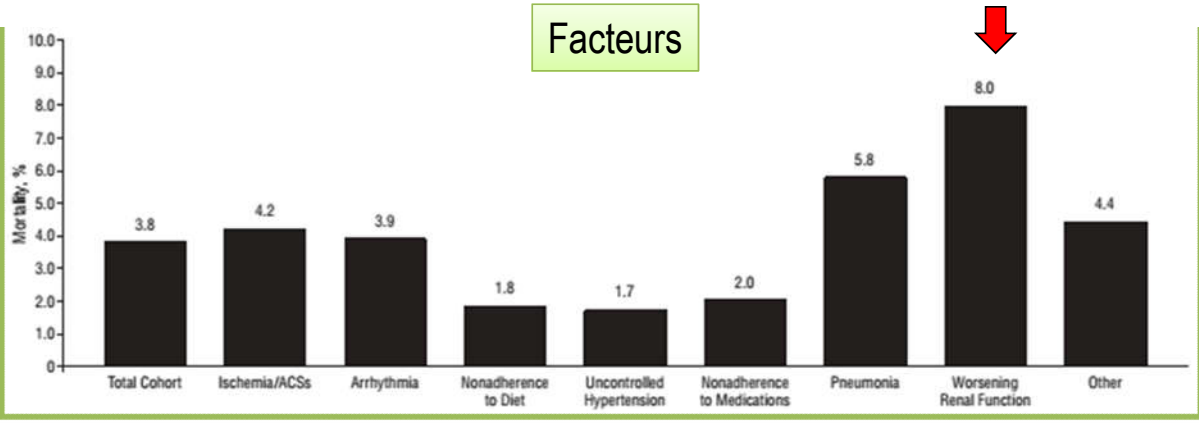
Un marqueur dans l'évolution d'une insuffisance cardiaque

- Réhospitalisations
  - à 3 mois 28%
  - à 6 mois 38%
  - à 1 an 66%
- Causes cardiovasculaires = non cardiovasculaires
- 50% avant la première visite prévue
- Ischémique > non ischémique
- HF-REF = HF-PEF

Dar Crit Care Med 2008

Facteurs identifiés comme associés ou précipitants une hospitalisation pour insuffisance cardiaque et mortalité

Mortalité hospitalière

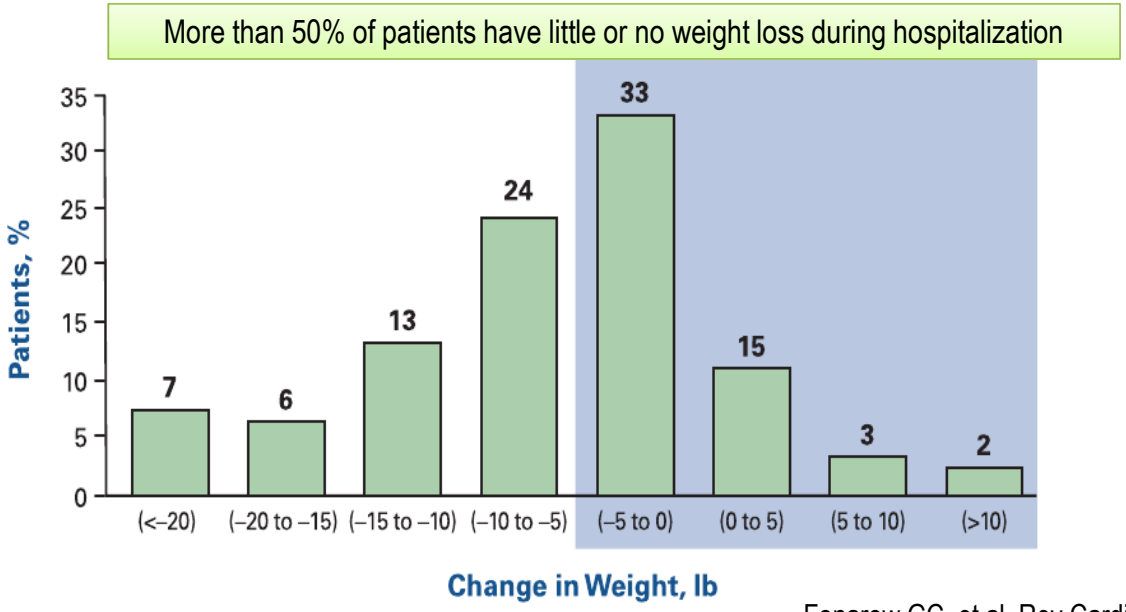


Factor	Follow-up Mortality: Adjusted Odds Ratio (95% Confidence Interval)	*P* Value
Ischemia/acute coronary syndrome	1.52 (1.20-1.93)	<.001
Arrhythmia	0.76 (0.57-1.02)	.06
Nonadherence to diet	0.81 (0.51-1.29)	.37
Uncontrolled hypertension	0.61 (0.40-0.95)	.03
Nonadherence to medications	1.10 (0.75-1.61)	.63
Pneumonia/respiratory process	1.25 (0.96-1.62)	.10
Worsening renal function	1.46 (1.06-2.00)	.02
Other	1.46 (1.09-1.96)	.01

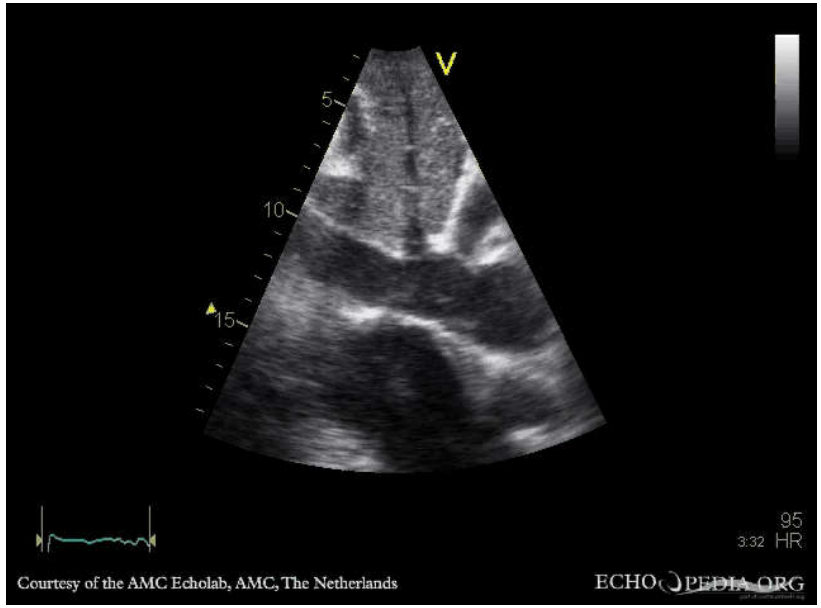
Fonarow Arch Intern Med. 2008

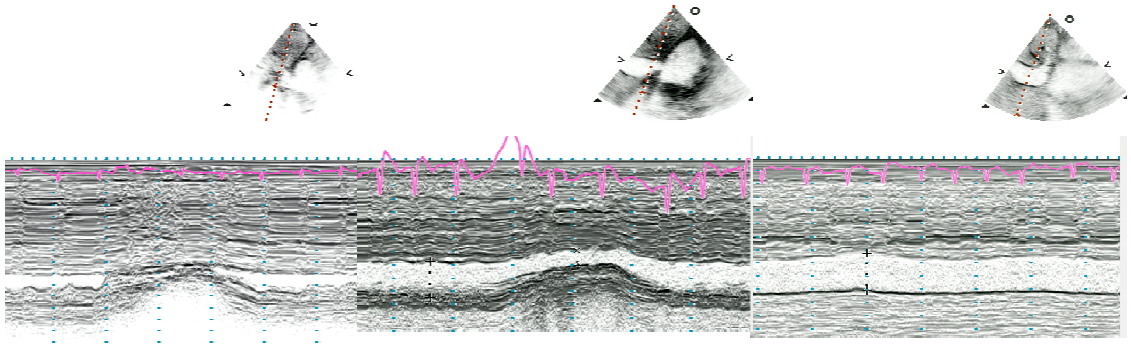
La surcharge volumique de l'insuffisant cardiaque est difficile à traiter

- La plupart des réhospitalisations sont en relation avec une IC congestive
- La congestion n'est pas ou ne peut pas être suffisamment traitée



Fonarow GC, et al. Rev Cardiovasc Med. 2003; 4(suppl 7):S21-S30



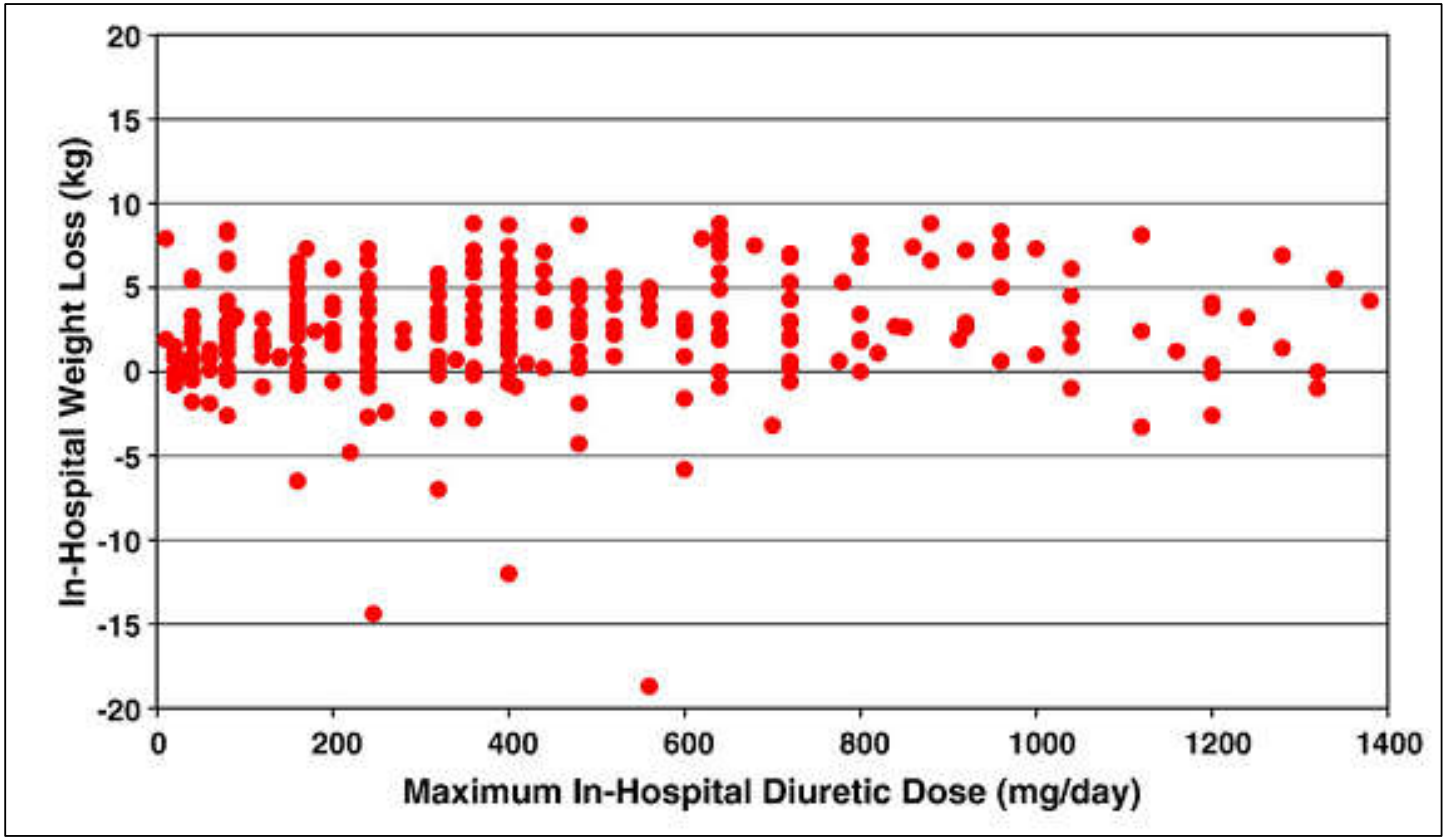


Diamètre < 21 mm +
collapsus inspir. > 50 %
→ POD 3 à 5 mmHg

Collapsus modéré :
POD # 10 mmHg

Diamètre > 21 mm ET
collapsus < 50%
→ POD = 15 mmHg

Le maniement des diurétiques est difficile chez l'insuffisant cardiaque



Hasselblad Eur J of Heart Fail 2007

Insuffisance cardiaque
L'insuffisance rénale est fréquente

Prévalence d'une dysfonction rénale – patients insuffisants cardiaques – Hôpital

	Renal Impairment			
	Any*		Moderate to Severe†	
Population	%	n/N	%	n/N
All patients	63	49,163/77,793	29	18,724/65,324
Non-randomized	69	38,218/55,475	32	17,703/55,475
Outpatients	51	11,621/23,007	10	1,049/10,538
Hospitalized	69	37,542/54,786	32	17,675/54,786

Smith GL J Am Coll Cardiol 2006

Supplement - Bart N Engl J Med. 2012

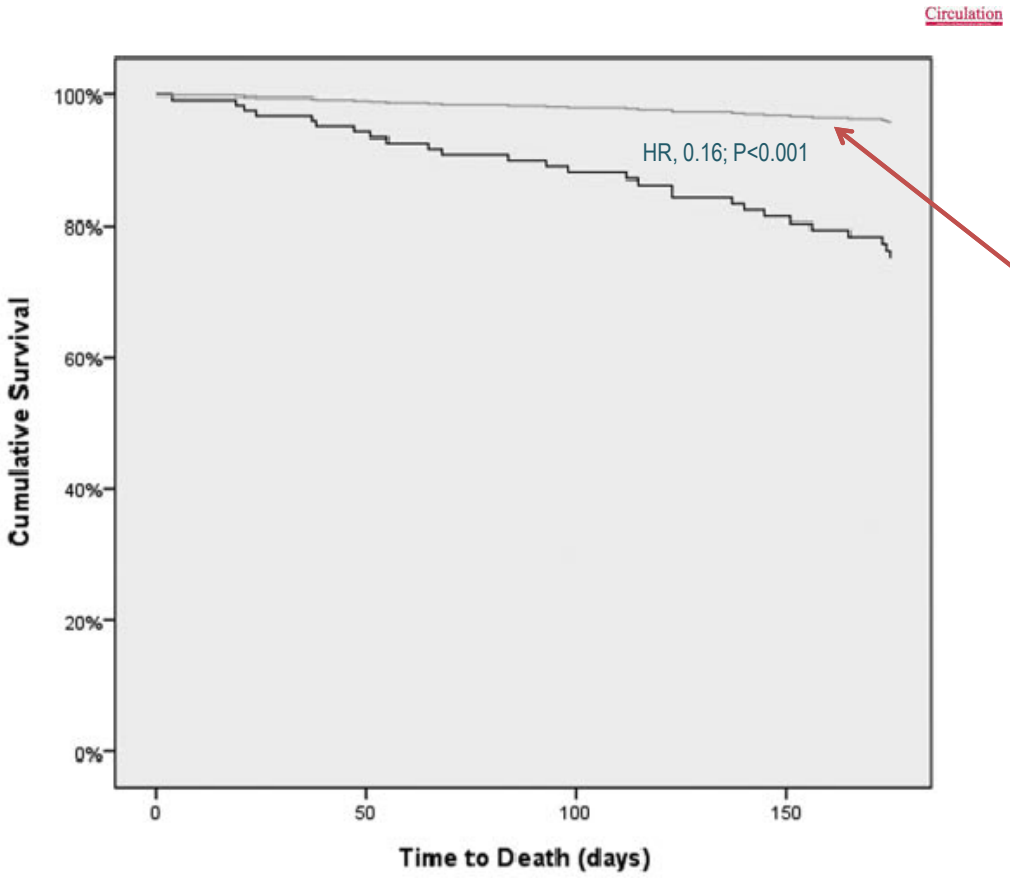
Protocole diurétique de CARRESS-HF

Un nouveau standard pour l'utilisation des diurétiques

	ADMISSION	Dose suggérée	
ETAPES	**Si furosemide**	**Furosemide**	***[HCZ]***
A	≤ 80 mg/j	40 mg IV bolus ET PSE 125 mg/24h	*0*
B	81-160 mg/j	80 mg IV bolus ET PSE 250 mg/24h	*25 mg*
C	161-240 mg/j	80 mg IV bolus ET PSE 500 mg/24h	*50 mg*
D	>240 mg/j	80 mg IV bolus ET PSE 750 mg/24h	*50 mg*
AJOUT	• **Dobutamine à 2 µg/kg/min,** si PAS<110 mmHg ET FE<40 % / si dysfonction systolique du coeur droit • Dérivé nitré (ntiroprusside) si PA syst > 120 mmHg ET symptômes cliniques sévères		

DIURESE	Admission à 24ème H	24ème à 48ème H	48ème à 72ème H	72ème à 96ème H
< 3 L	Etape sup	Etape sup + complément	Etape sup + complément	Etape sup + complément
3-5 L	Prescription identique	Prescription identique	Prescription identique	Prescription identique
> 5 L	Diminution *possible*	Diminution *possible*	Diminution *possible*	Diminution *possible*

Hémoconcentration à la sortie comme conséquence du traitement diurétique



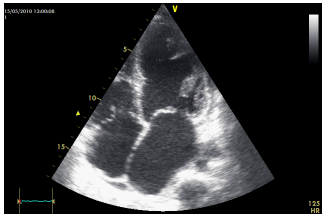
Hémoconcentration

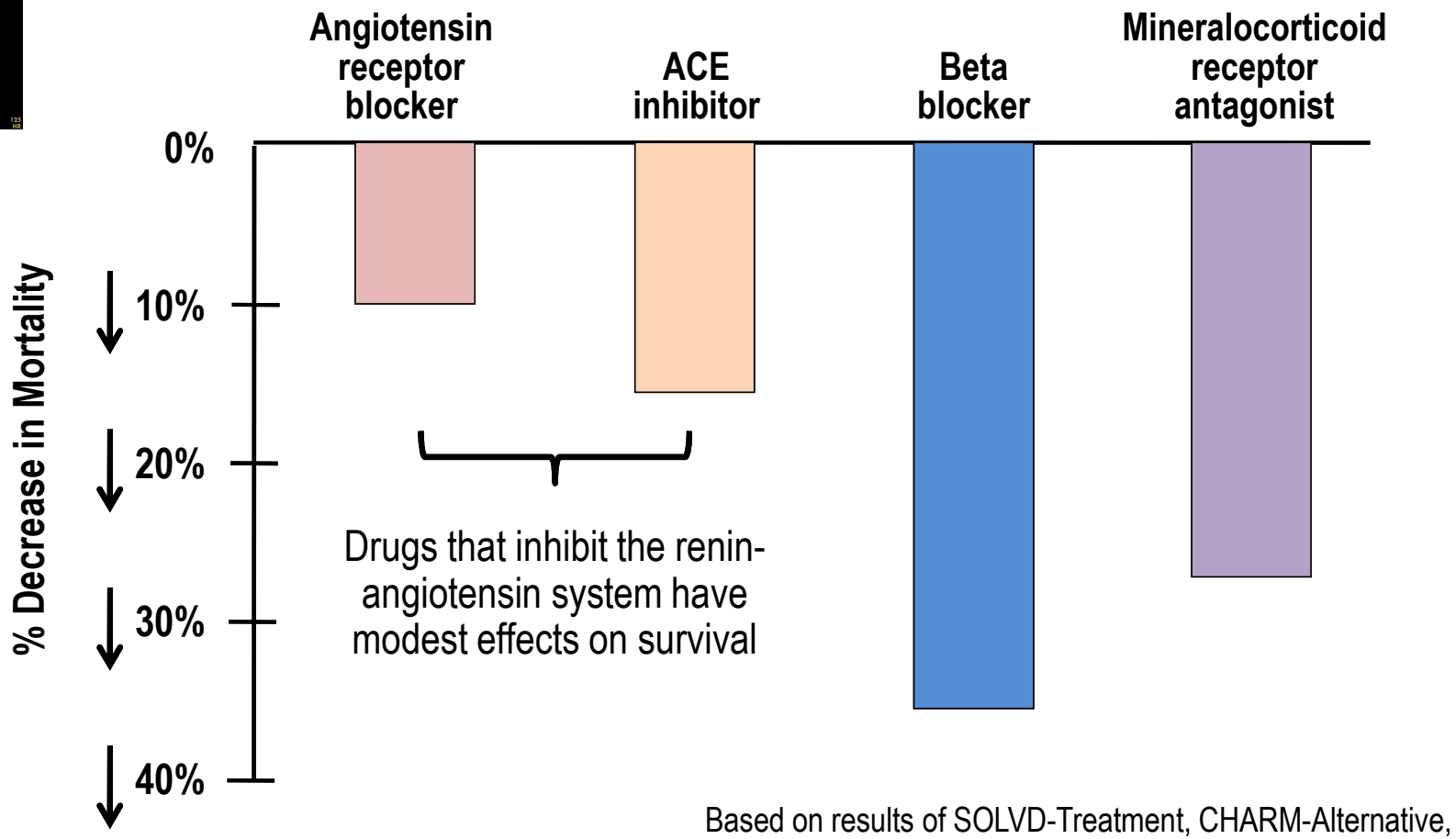
- doses plus élevées de diurétiques
- dégradation de la fonction rénale
- **perte de poids plus importante**
- **diminution des pressions de remplissage**
- **mortalité à 6 mois plus faible**

Hématocrite - albumine - totales proteines adm°/sortie
Hémoconcentration : > 2 dans le 3ème tertile

Testani, Circulation. 2010;122:265-272

Drugs That Reduce Mortality in Heart Failure With Reduced Ejection Fraction

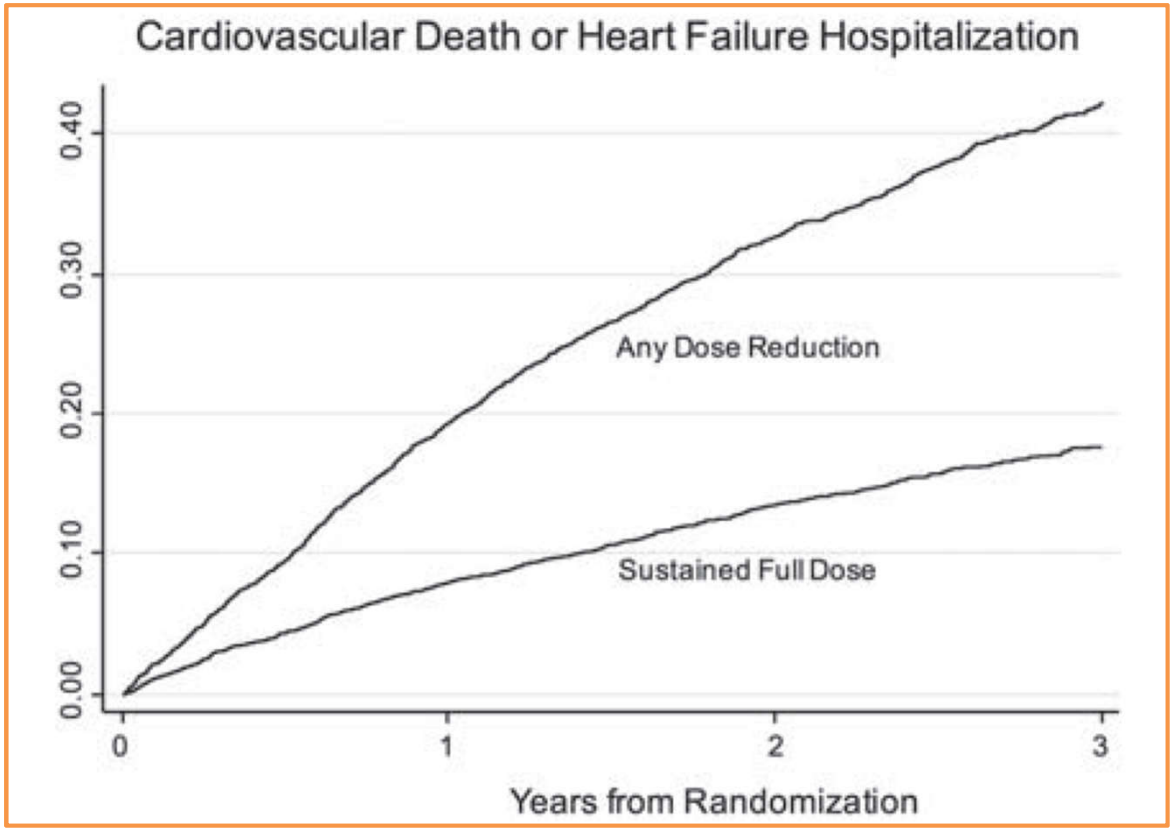




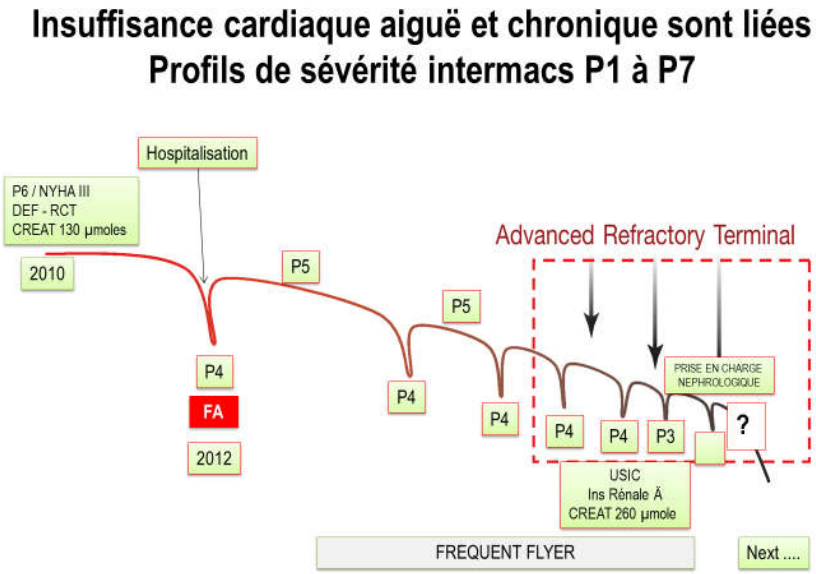
Based on results of SOLVD-Treatment, CHARM-Alternative, COPERNICUS, MERIT-HF, CIBIS II, RALES and EMPHASIS-HF

Packer M 2014

Les patients traités à une dose plus faible que la dose cible



Vardeny Eur Heart J 2016



HISTOIRE CLINIQUE ET TEMOIGNAGE MR V