UPEC
UNIVERSITÉ PARIS-EST CRÉTEIL
FACULTÉ DE MÉDECINE

CARMAS

Dysfonction myocardique du sepsis

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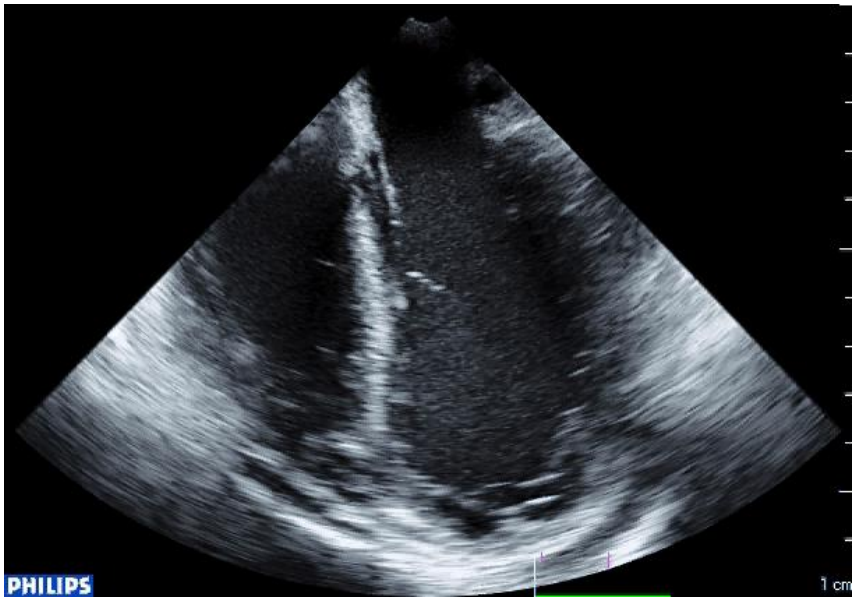
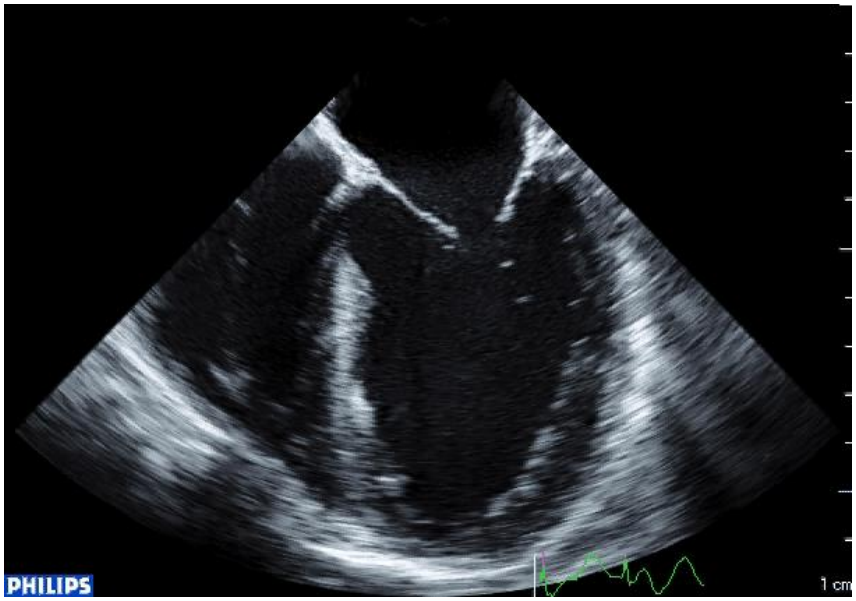
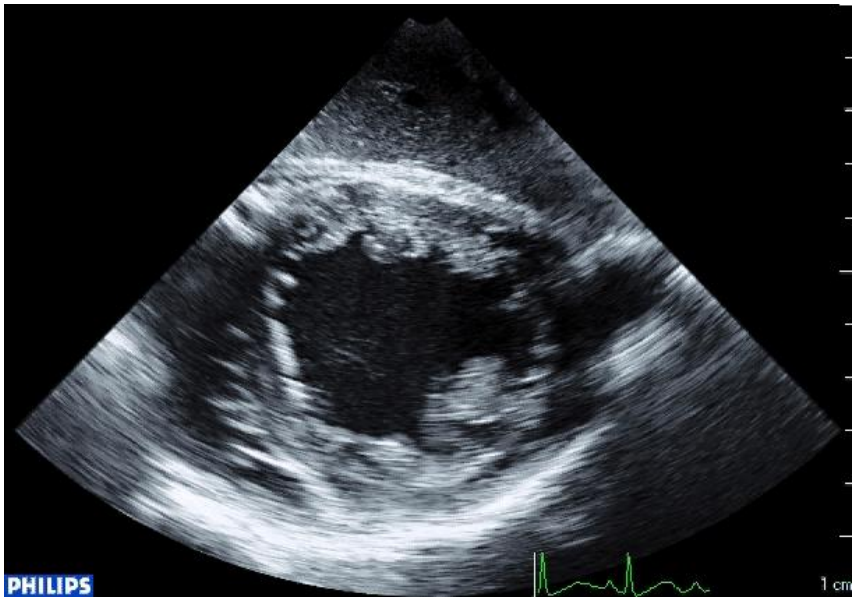
PRESENTATION CLINIQUE

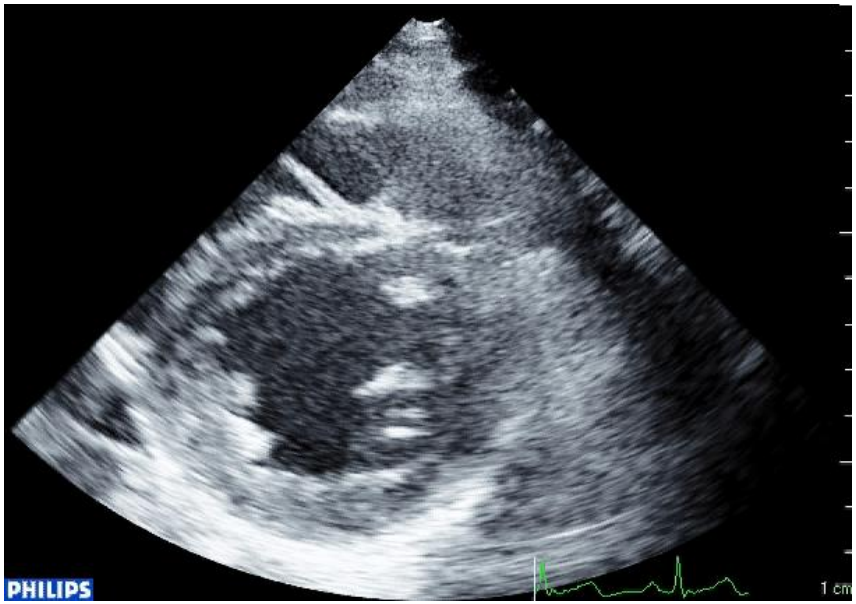
Dysfonction VG systolique



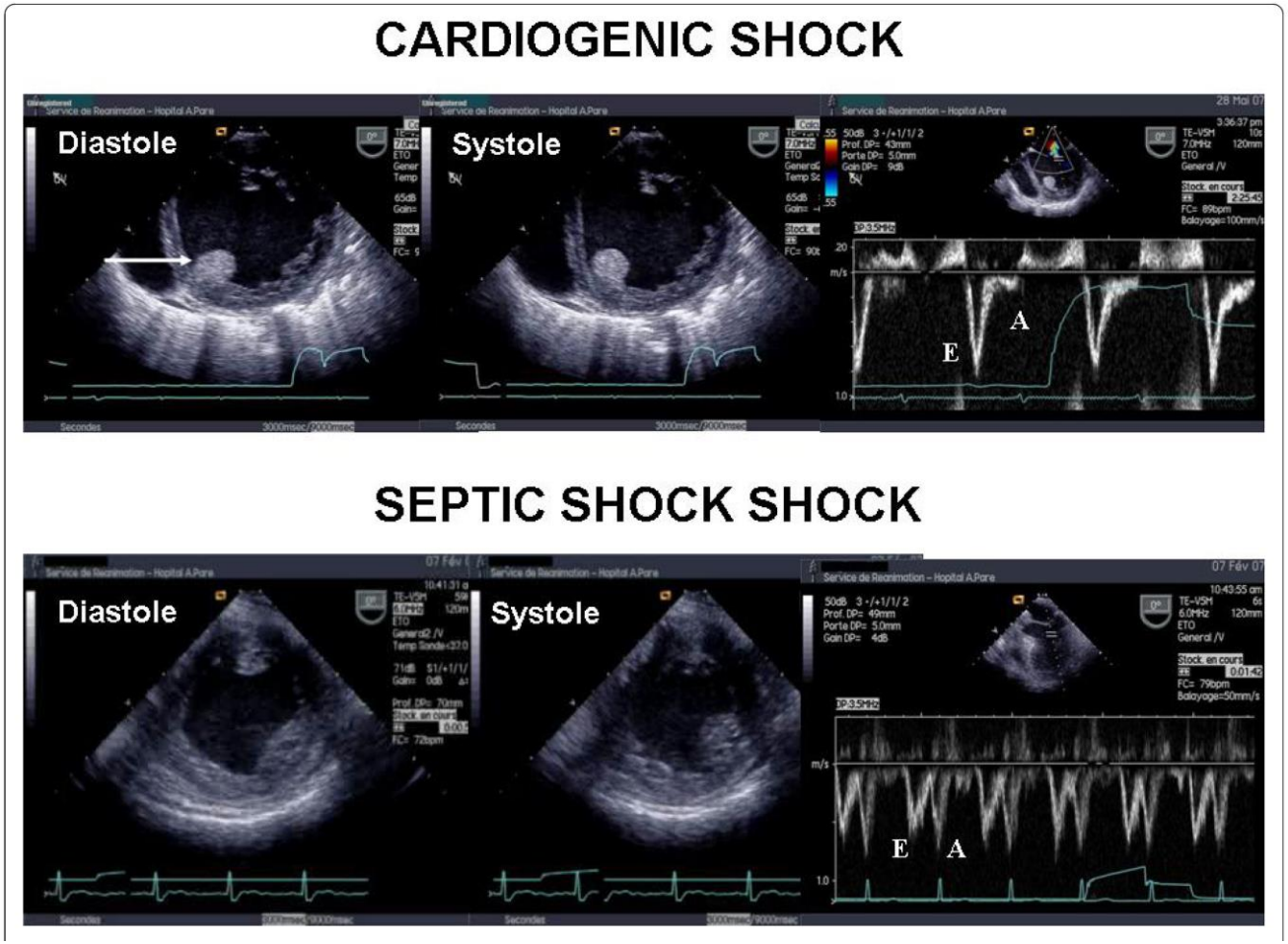


Dysfonction VG systolique



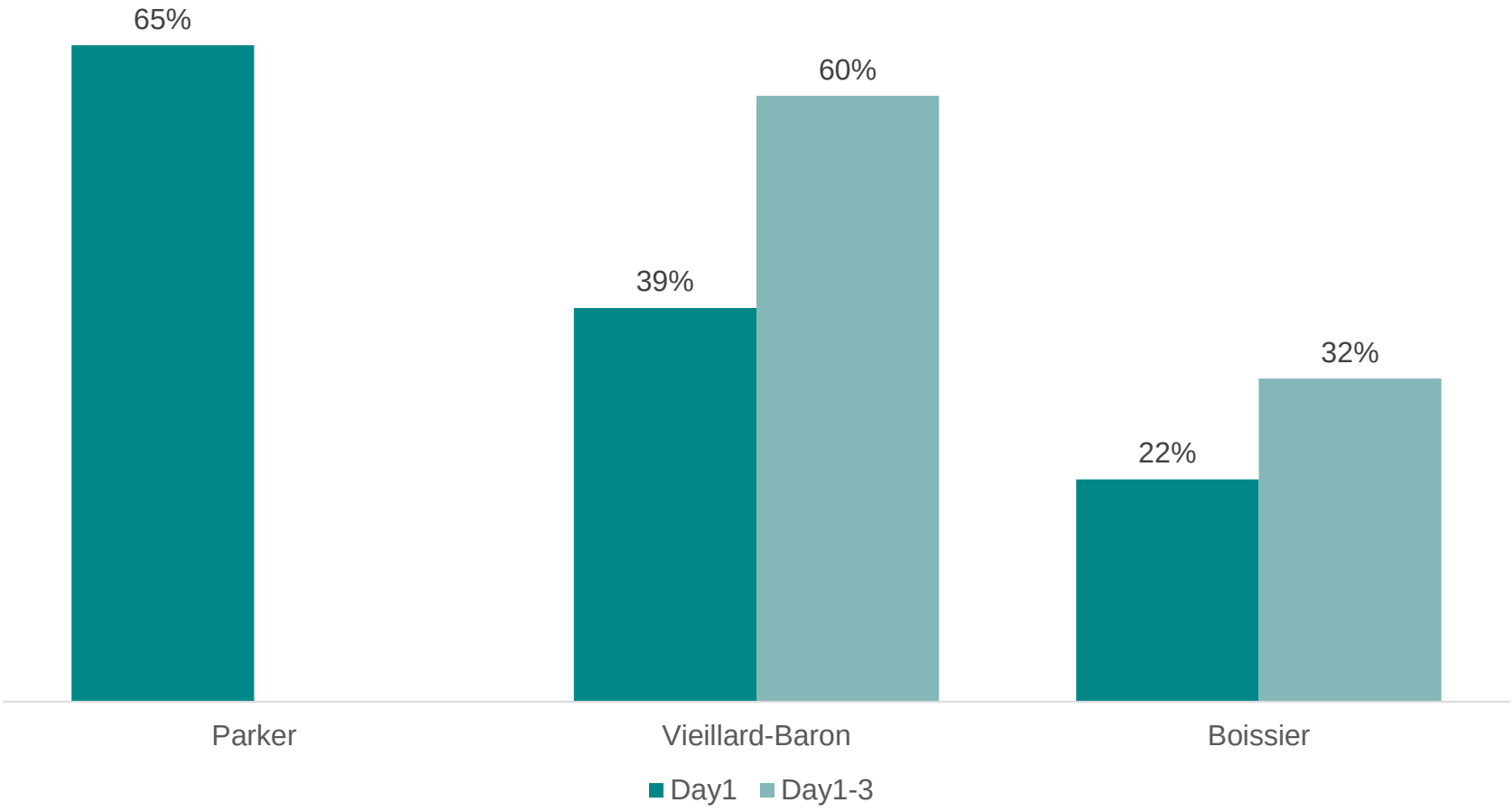


Pressions de remplissage typiquement basses

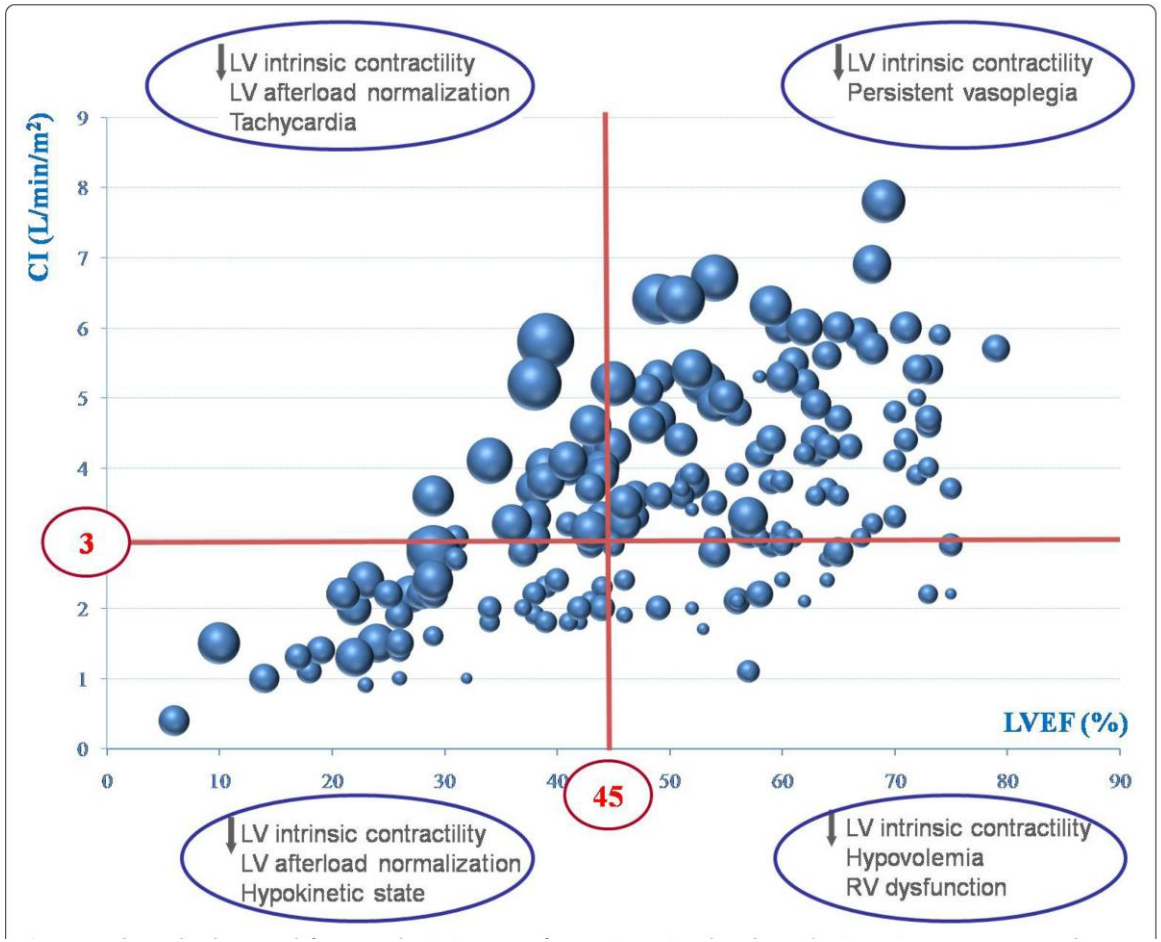


Vieillard-Baron AIC 2011

Incidence de la dysfonction systolique

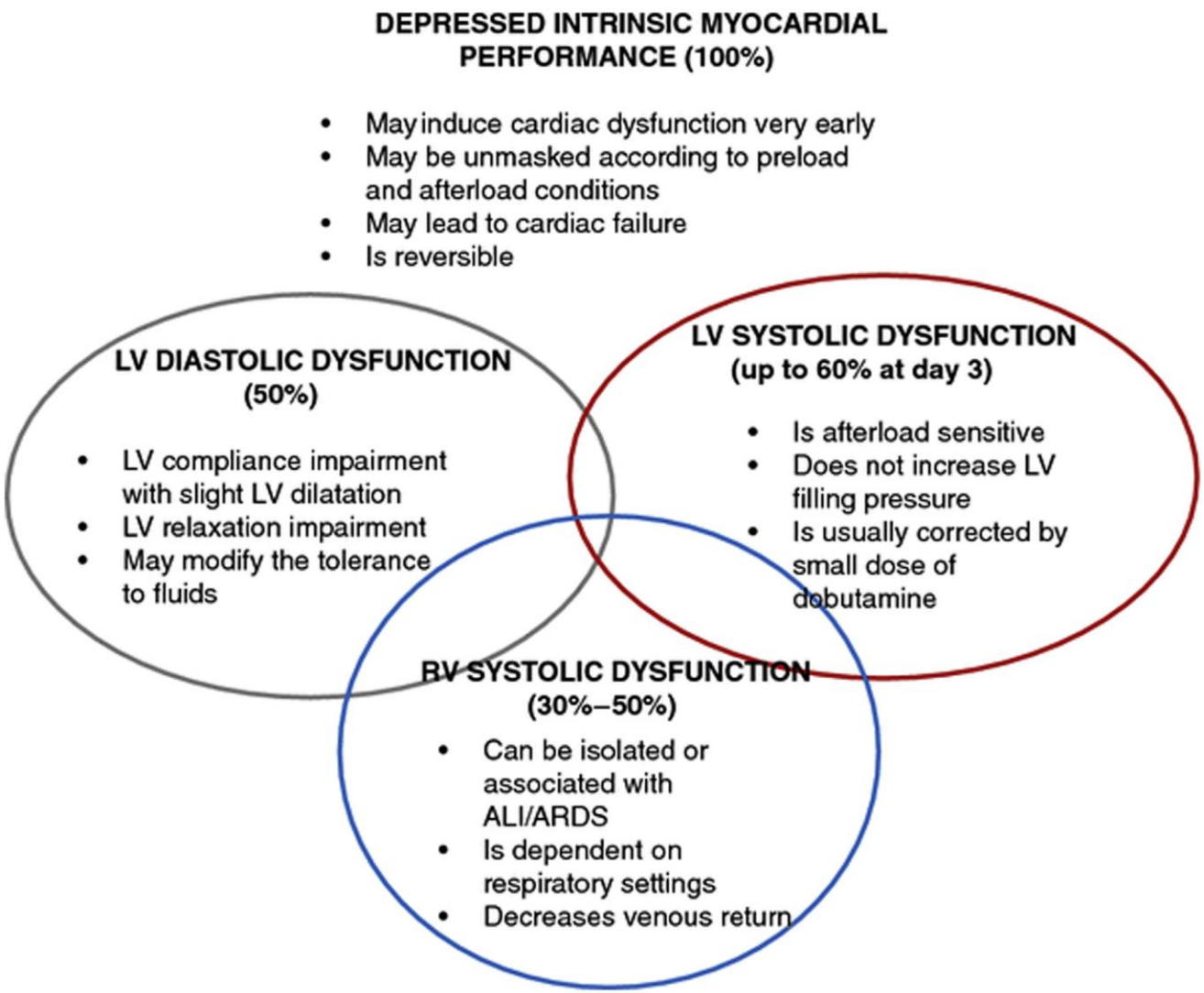


Fonction cardiaque globale très variable



Vieillard-Baron AIC 2011

Multiple altérations hémodynamiques

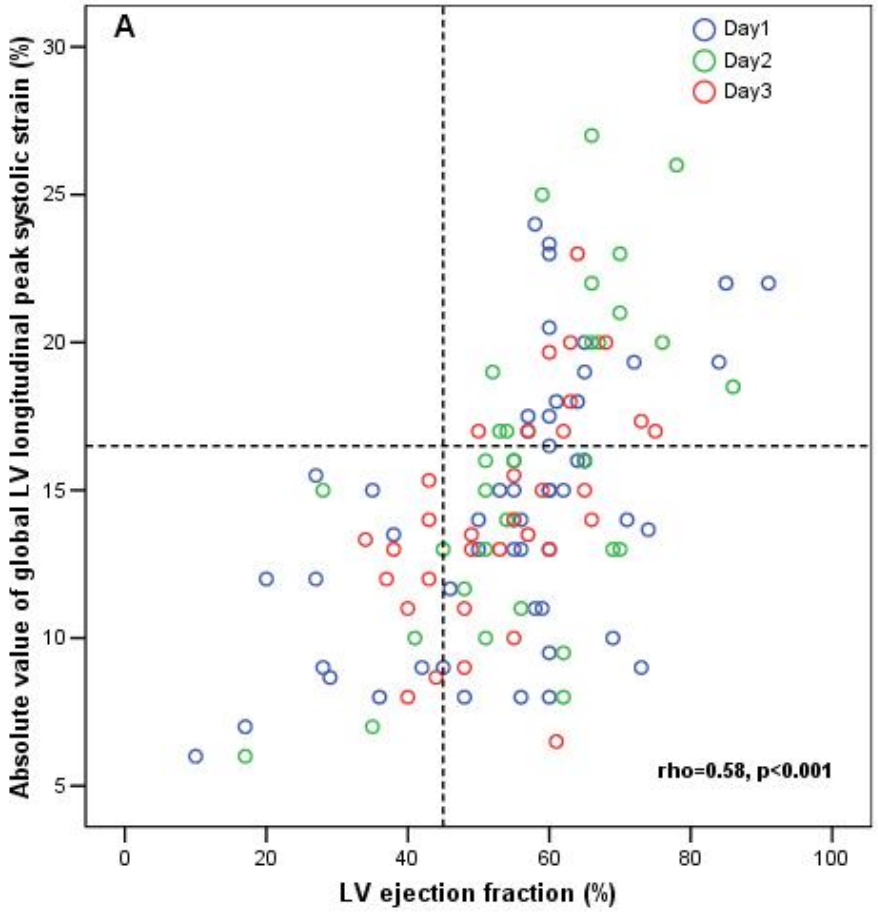


Fenton, Clin Chest Med 2016

L'écho est l'outil le plus adapté pour l'évaluation détaillée :

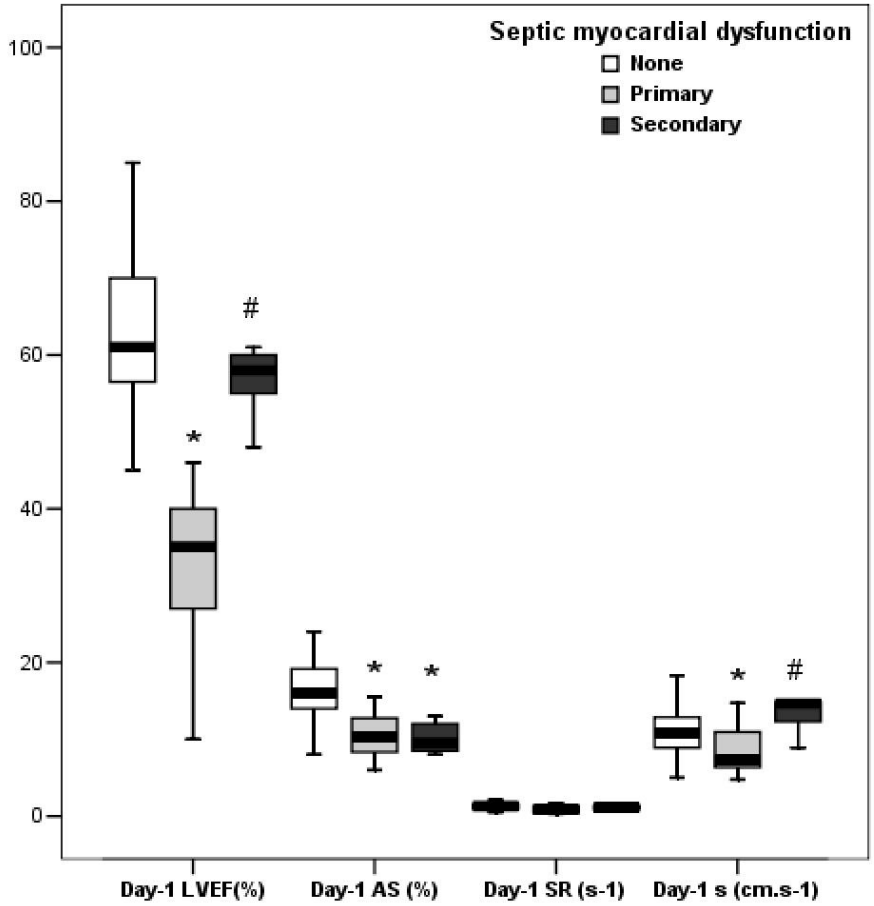
- Fonction globale
- Systole vs. Diastole
- VG vs. VD
- Influence de l'hypovolémie
- Influence de la vasoplégie
- Classification pronostique
- Optimisation thérapeutique ?

Dépression myocardique intrinsèque chez la majorité des malades



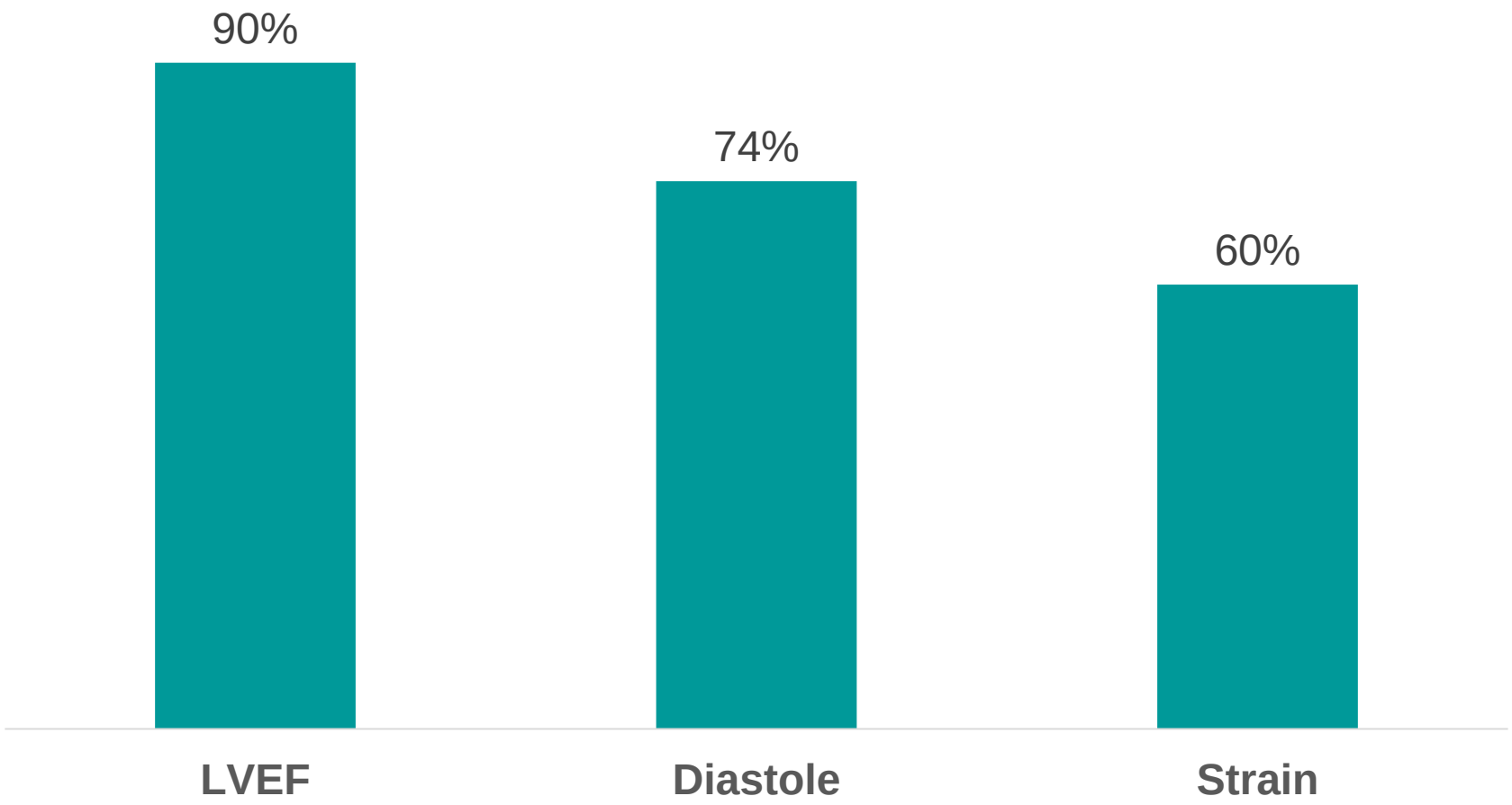
Boissier, ICM 2017

Le strain pour la détection précoce de la dysfonction systolique



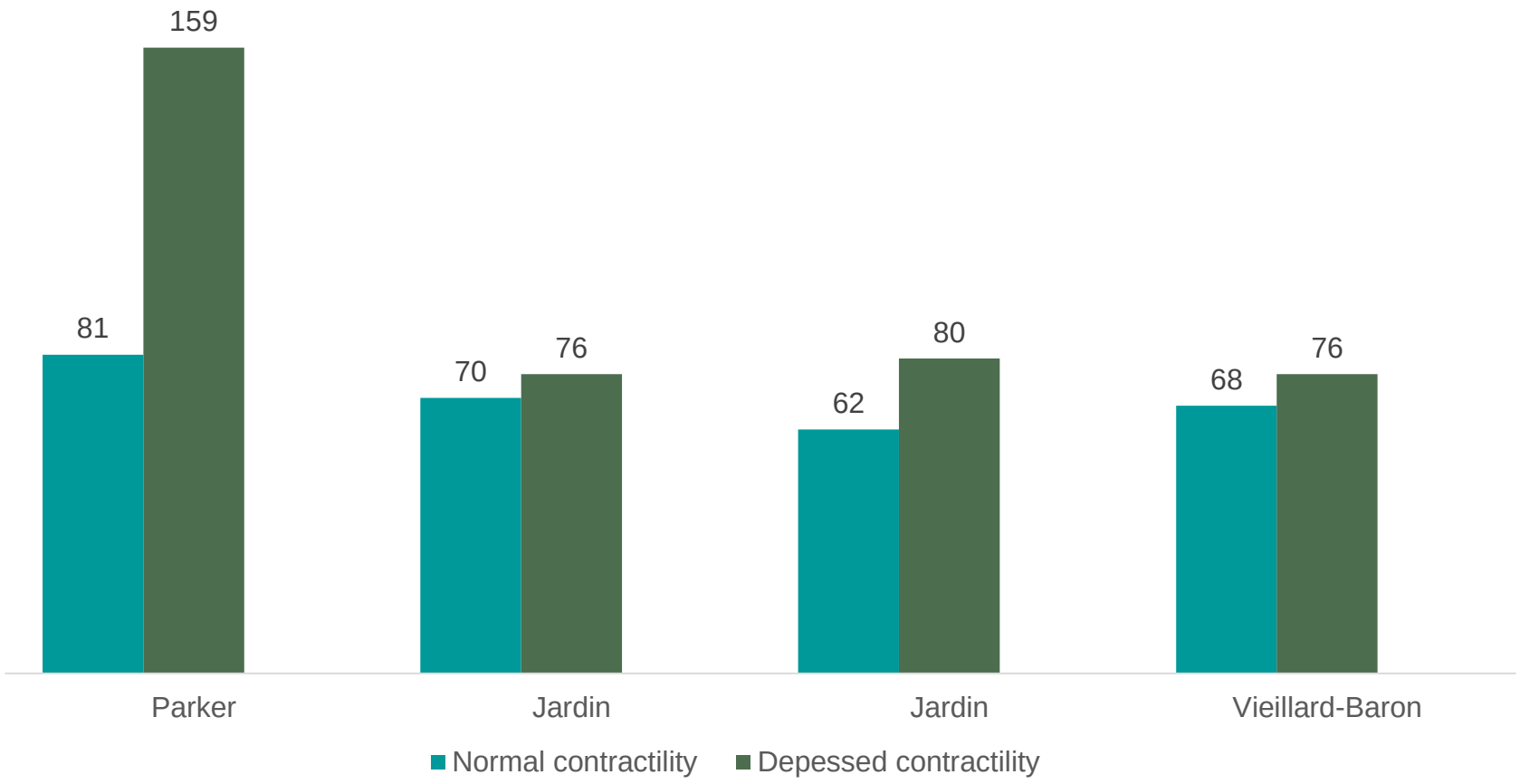
Boissier, ICM 2017

Faisabilité de l'echo au cours du choc septique



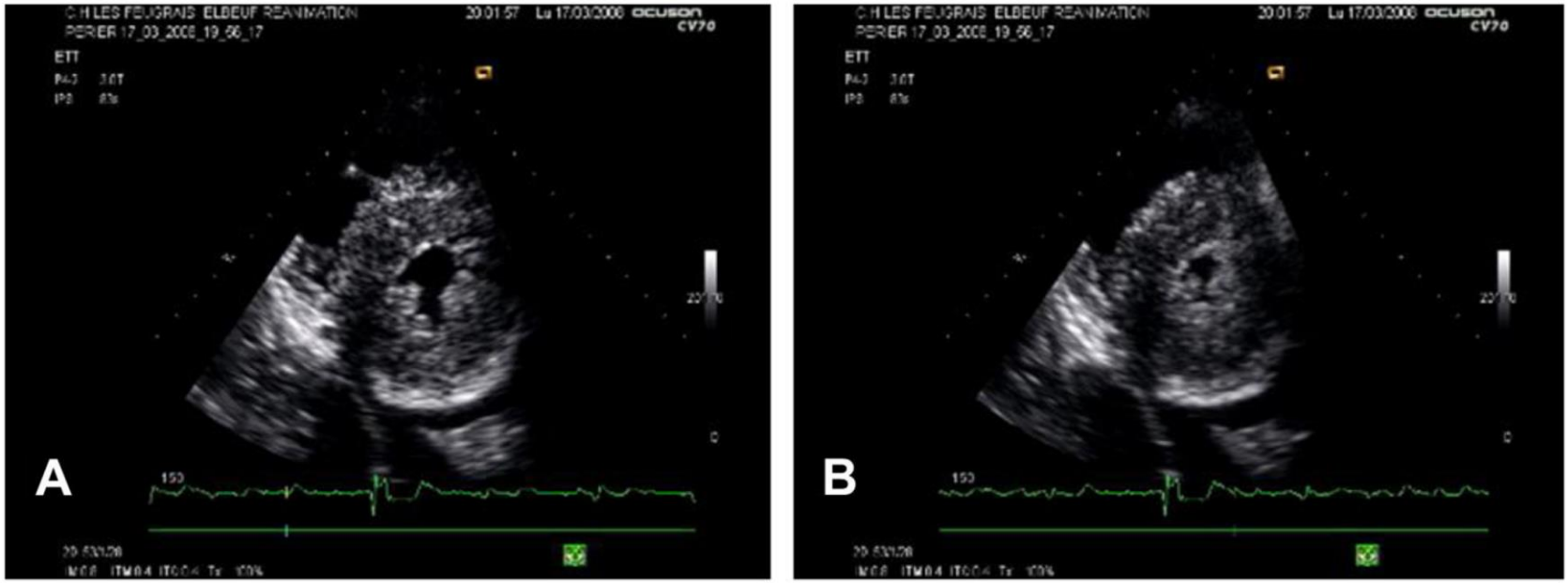
Boissier et al, ICM 2017

Dilatation (seulement) modérée du VG



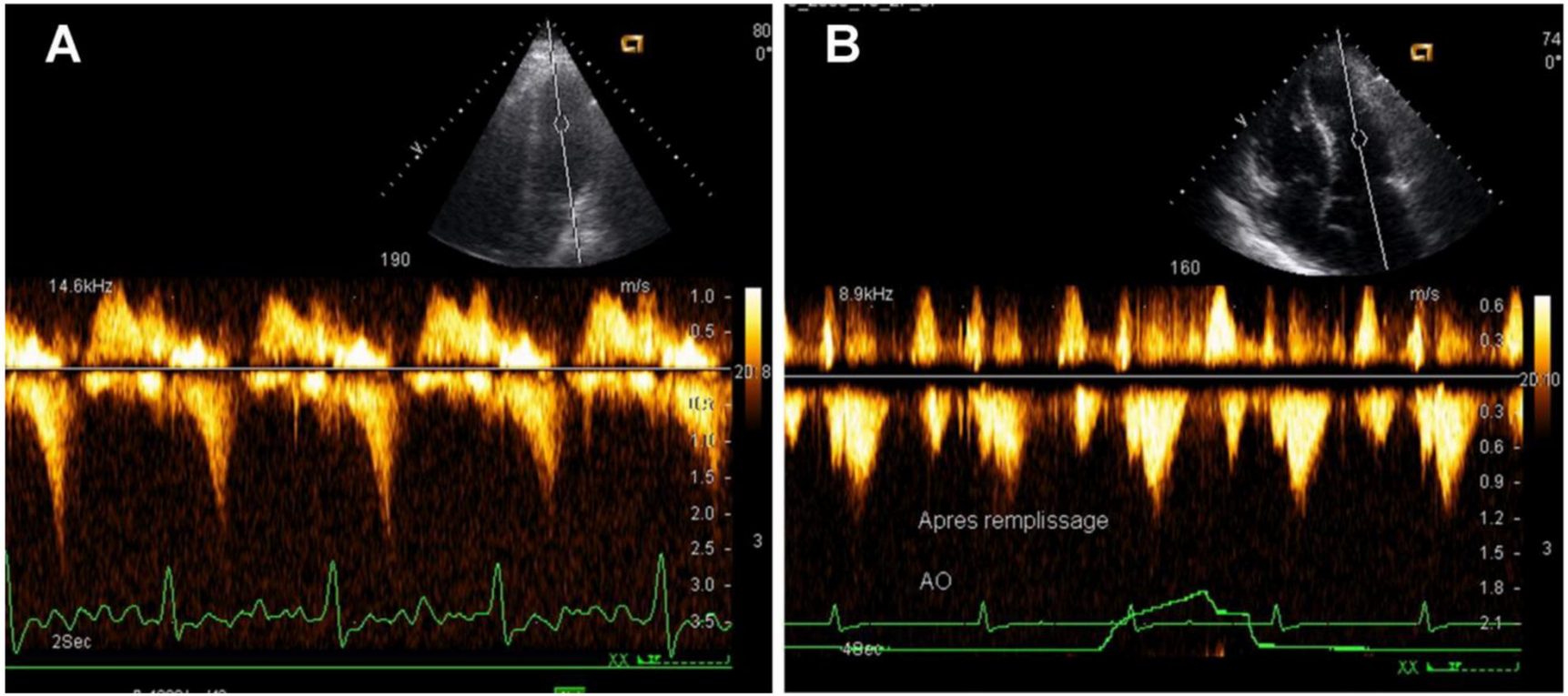
PATHOPHYSIOLOGIE
ROLE DES CONDITIONS DE CHARGE

Hypovolémie:
pseudohypertrophie et exclusion systolique



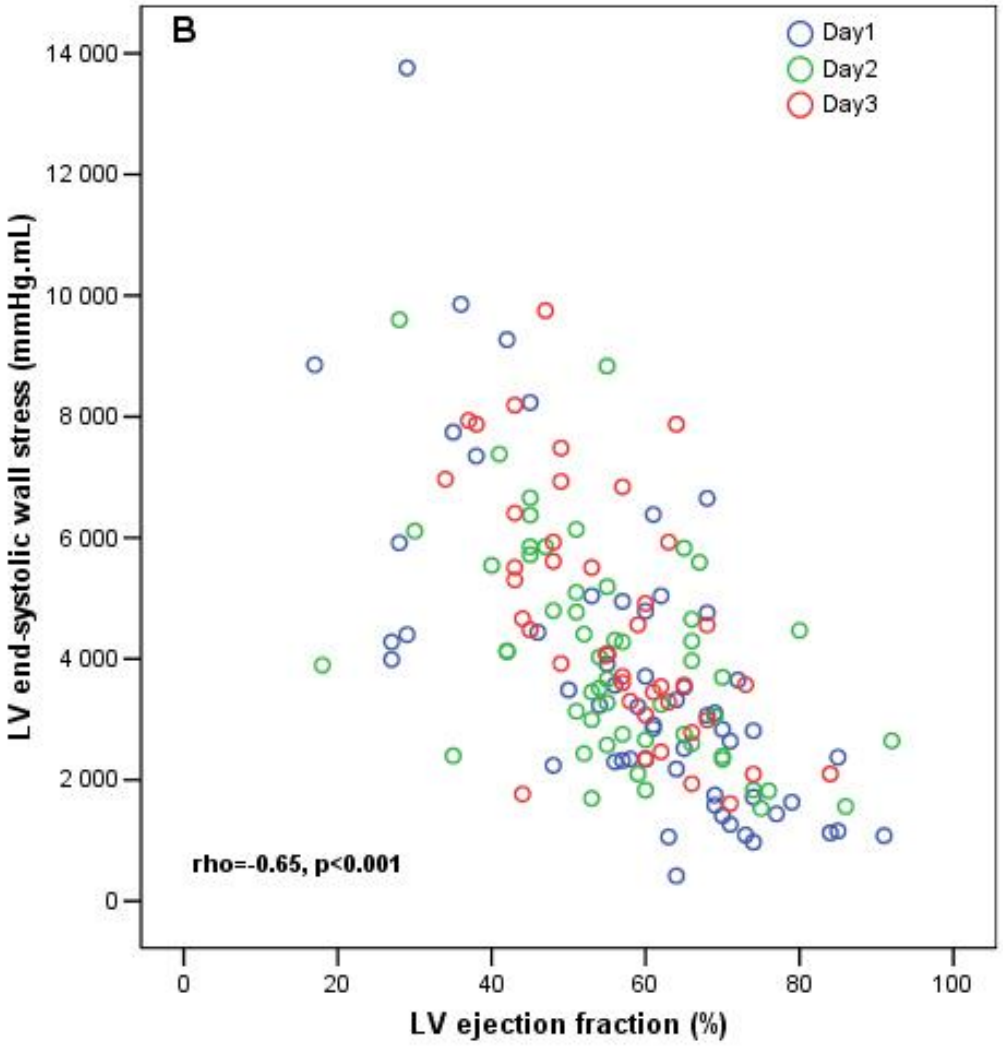
Chauvet, Crit Care 2015

Hypovolémie: obstruction intraventriculaire



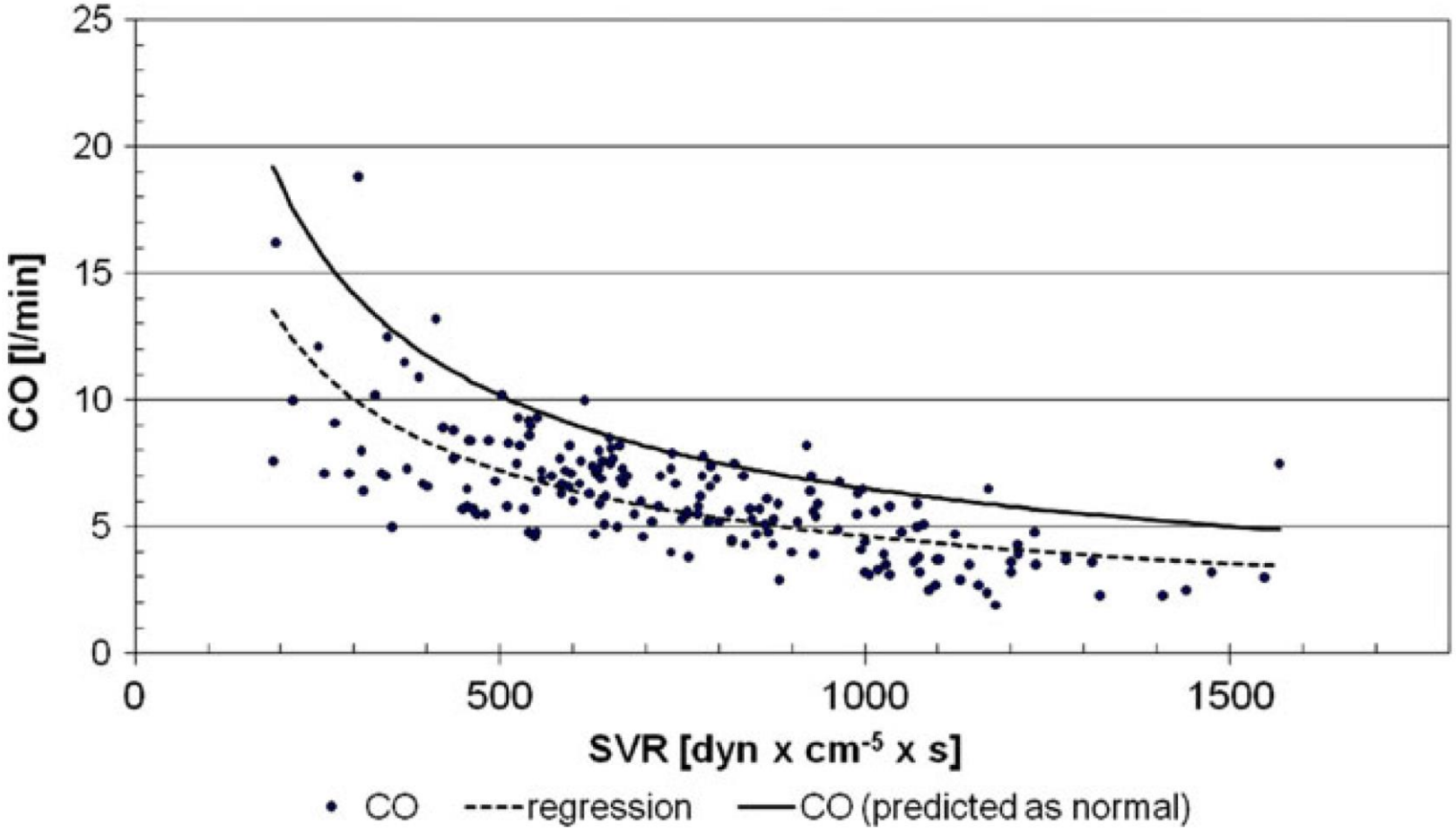
Chauvet, Crit Care 2015

Vasoplégie



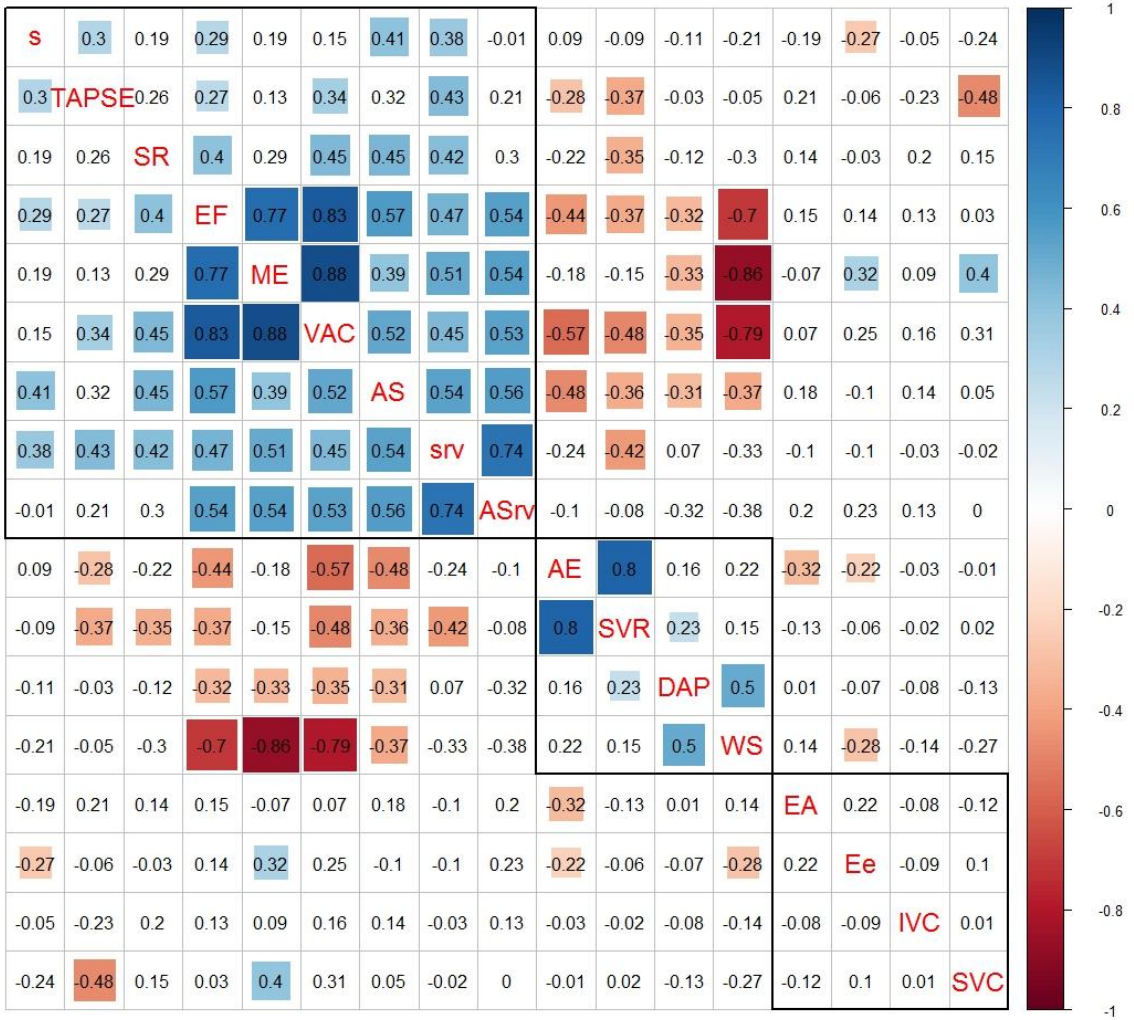
Boissier, ICM 2017

Vasoplégie



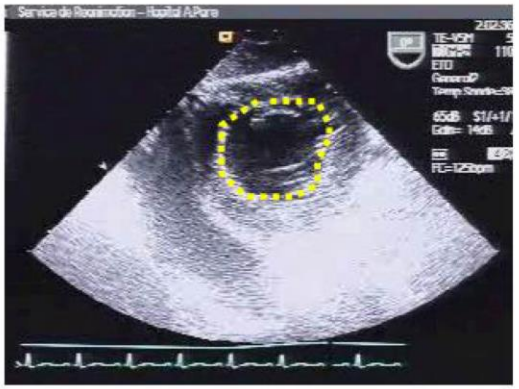
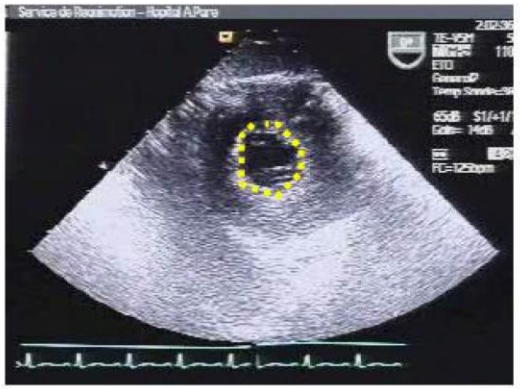
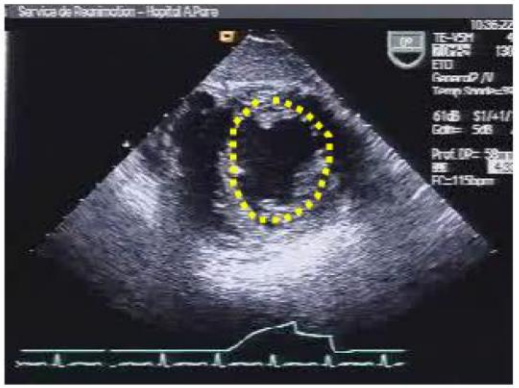
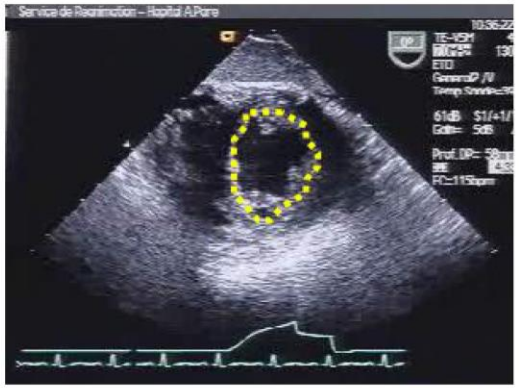
Werdan Clin Res Cardiol 2011

Cohérence physiologique



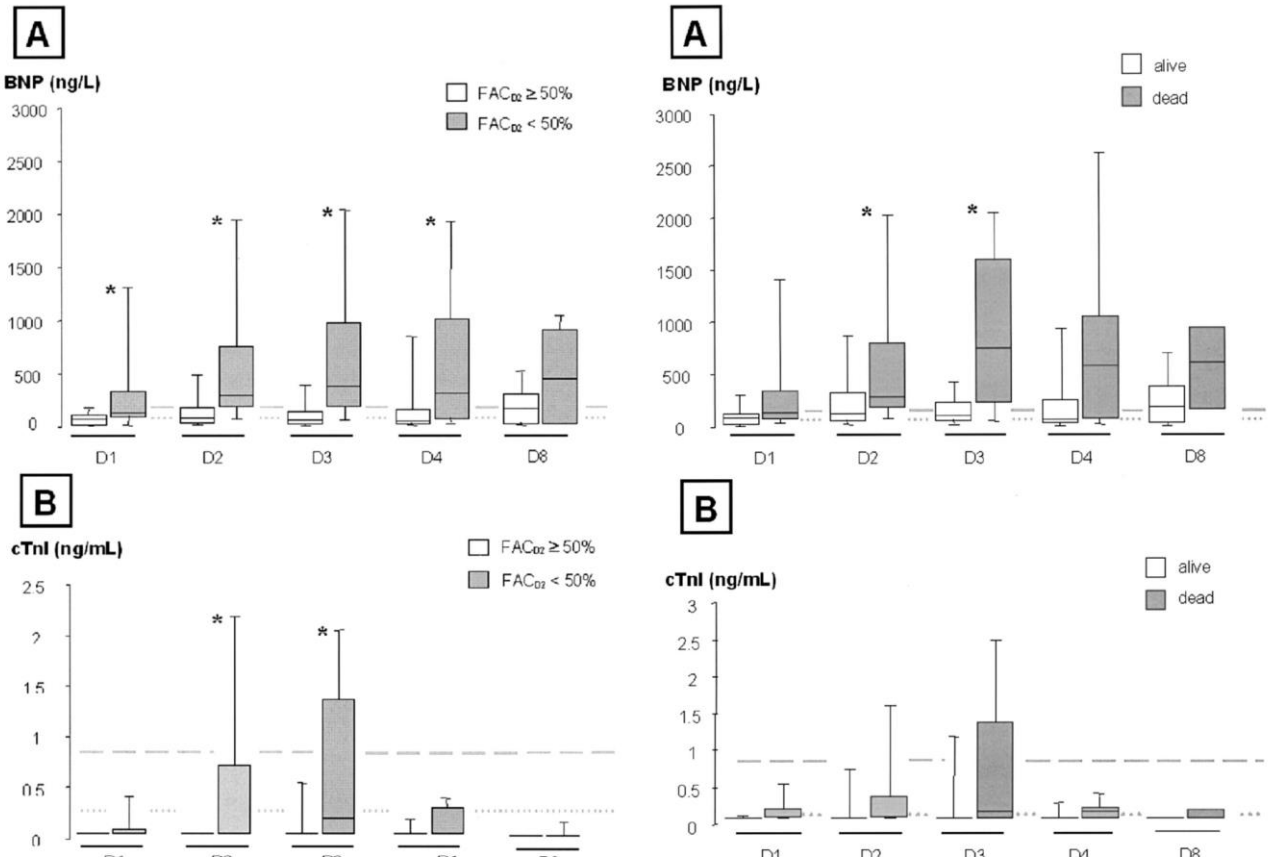
Boissier et al, ICM 2017

Manipulation de la postcharge

	Diastole	Systole
Baseline LVEF 70%		
Norepinephrine LVEF 40%		

Vieillard-Baron AIC 2011

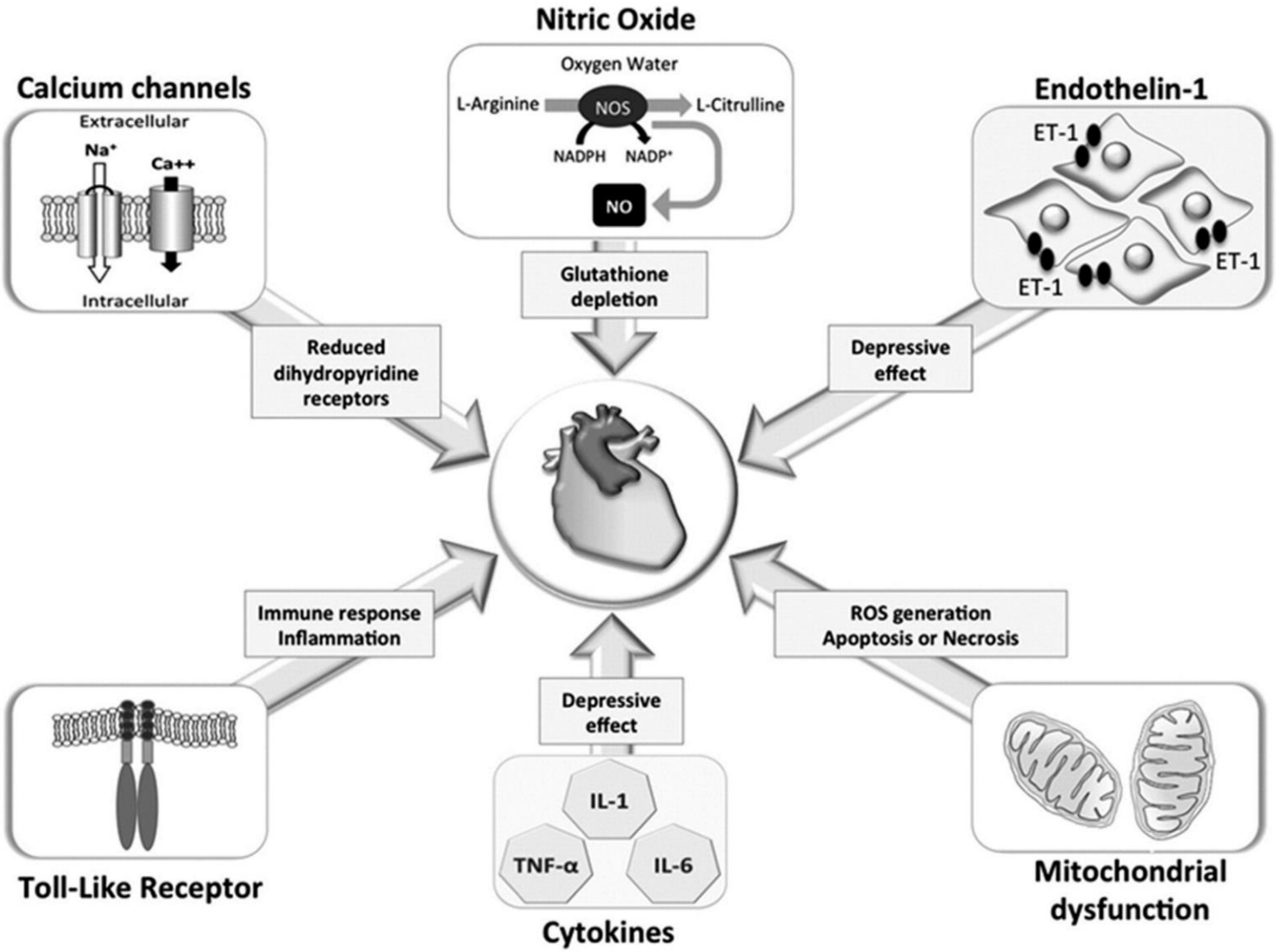
Place des biomarqueurs ?



Charpentier CCM 2004

PATHOBIOLOGIE

Mécanismes complexes



Antonucci J Crit Care 2014

IMPLICATIONS CLINIQUES

Implications cliniques complexes

- Relation complexe à la mortalité
- Rôle controversé des inotropes et des vasopresseurs
- Utilité discutable de l'optimisation du débit cardiaque

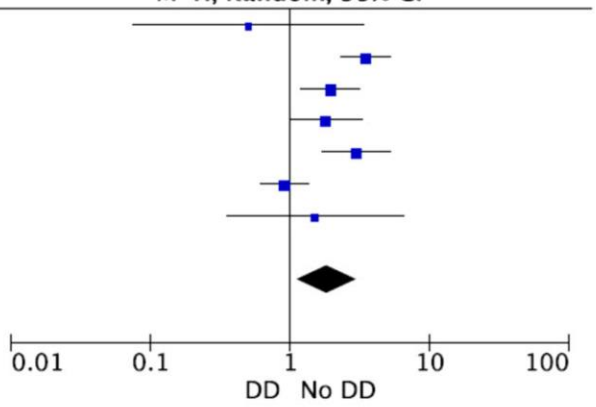
DMS et mortalité

a

Study or Subgroup	DD Events	DD Total	No DD Events	No DD Total	Weight	Risk Ratio M-H, Random, 95% CI
Ethecopar 2008	1	7	8	28	5.0%	0.50 [0.07, 3.37]
Landesberg 2012	88	143	21	119	18.6%	3.49 [2.32, 5.25]
Landesberg 2014	29	53	15	53	17.5%	1.93 [1.18, 3.17]
Mokart 2007	12	18	10	27	16.3%	1.80 [1.00, 3.25]
Moraud 2014	25	33	10	39	16.6%	2.95 [1.67, 5.22]
Pulido 2012	19	39	30	56	18.6%	0.91 [0.61, 1.36]
Sturgess 2010	4	12	2	9	7.4%	1.50 [0.35, 6.46]
Total (95% CI)		**305**		**331**	**100.0%**	**1.82 [1.12, 2.97]**
Total events	178		96			

Heterogeneity: $Tau^2 = 0.29$; $Chi^2 = 26.42$, df = 6 (P = 0.0002); $I^2 = 77\%$

Test for overall effect: Z = 2.40 (P = 0.02)

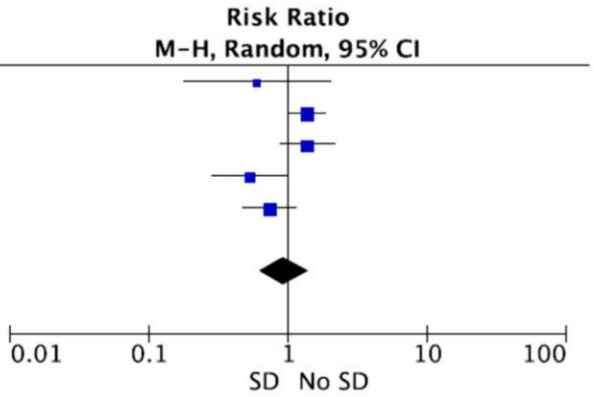


b

Study or Subgroup	SD Events	SD Total	No SD Events	No SD Total	Weight	Risk Ratio M-H, Random, 95% CI
Ethecopar 2008	3	16	6	19	8.2%	0.59 [0.18, 2.00]
Landesberg 2012	32	61	77	201	27.7%	1.37 [1.02, 1.84]
Landesberg 2014	14	27	30	79	22.9%	1.37 [0.86, 2.16]
Moraud 2014	10	39	16	33	17.9%	0.53 [0.28, 1.00]
Pulido 2012	13	29	47	77	23.4%	0.73 [0.47, 1.14]
Total (95% CI)		**172**		**409**	**100.0%**	**0.93 [0.62, 1.39]**
Total events	72		176			

Heterogeneity: $Tau^2 = 0.13$; $Chi^2 = 12.31$, df = 4 (P = 0.02); $I^2 = 68\%$

Test for overall effect: Z = 0.34 (P = 0.73)



Sanfilipo, ICM 2015

Optimisation du débit cardiaque chez des patients non sélectionnés

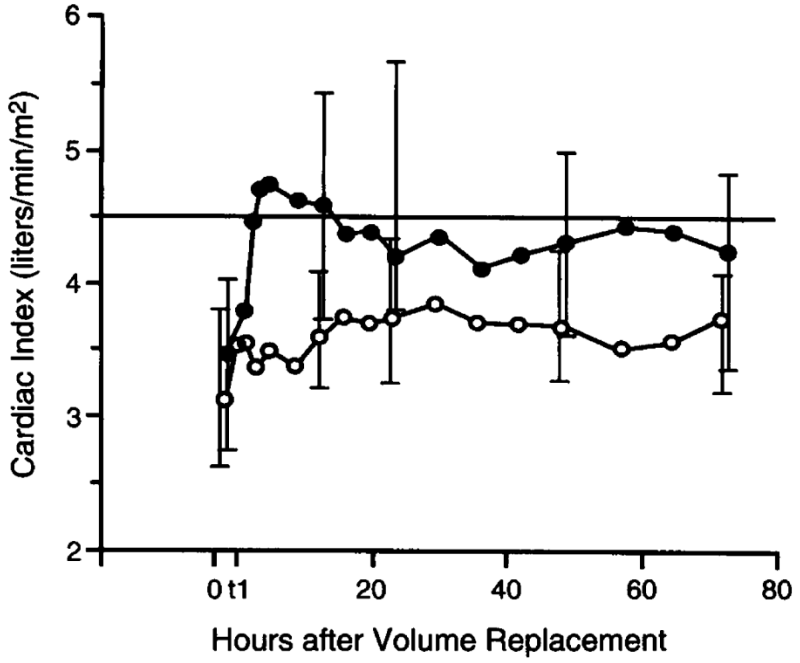


Figure 1. Median Cardiac Index in the Treatment and Control Groups.

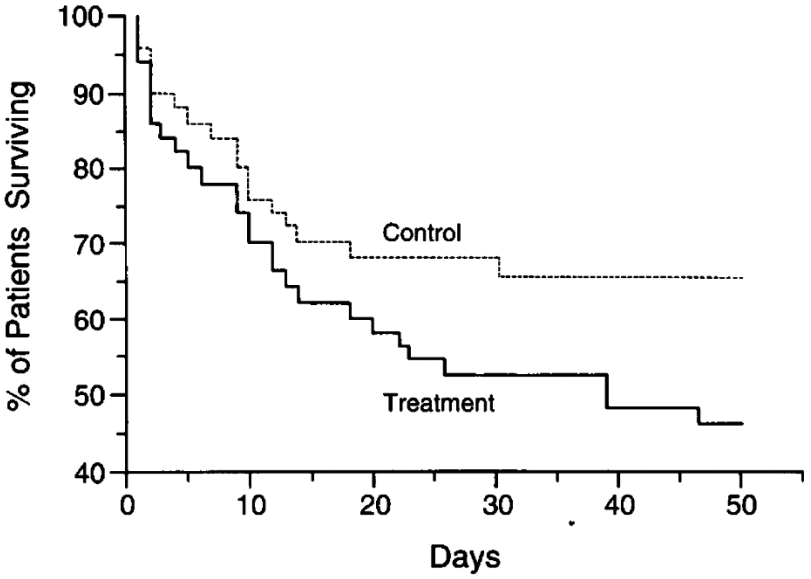


Figure 4. In-Hospital Survival of Patients in the Treatment and Control Groups.

Hayes, NEJM 1994

EGDT

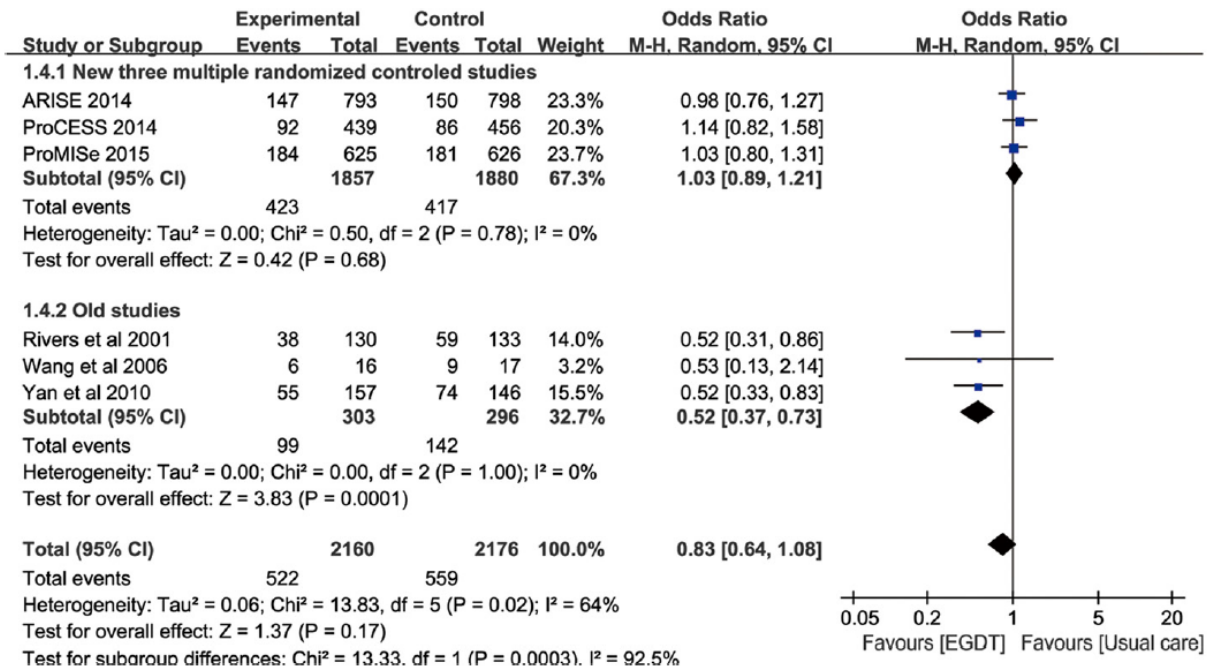
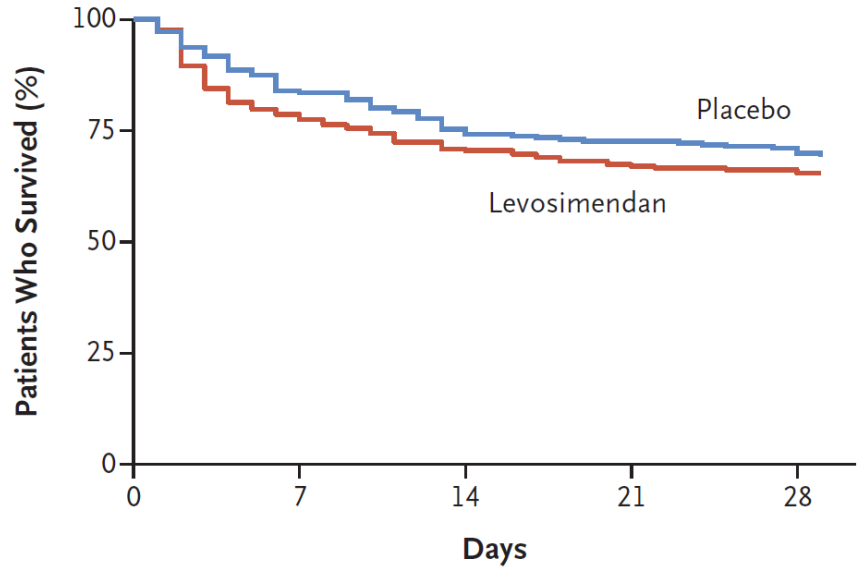


Fig. 3 Forest plot showing the effects of early goal-direced therapy on all-cause mortality in patients with severe sepsis and septic shock

Jiang, SJTR 2016

Levosimendan chez des patients non selectionnés



No. at Risk

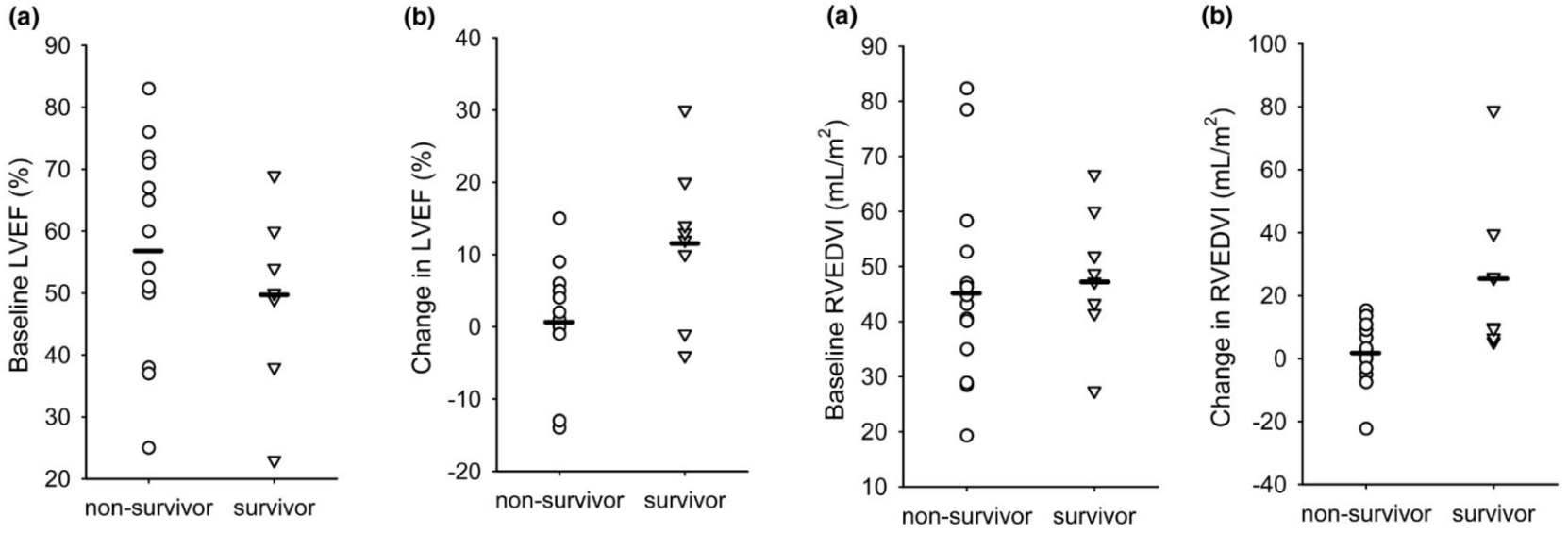
Levosimendan	258	203	183	174	171
Placebo	257	216	194	186	182

Figure 2. Kaplan–Meier Estimates of the Probability of Survival to Day 28.

The adjusted hazard ratio for death in the levosimendan group, as compared with the placebo group, was 1.24 (95% CI, 0.91 to 1.67; P=0.17).

Gordon, NEJM 2017

Dobutamine stress test



Kumar Crit Care 2008

Conclusions

- Mécanismes multiples, complexes et intriqués
- Depression de la contractilité intrinsèque chez une majorité de patients, mais la vasoplégie influence les paramètres de function systolique
- Un phénotypage cardiaque détaillé est necessaire pour la stratégie thérapeutique; role majeur de l'échocardiographie