

ASSOCIATION TUNISIENNE DE RÉANIMATION

الجمعية التونسية للإنعاش



FLASH INFOS MODULE HÉMODYNAMIQUE

Dr Samia AYED DELLA

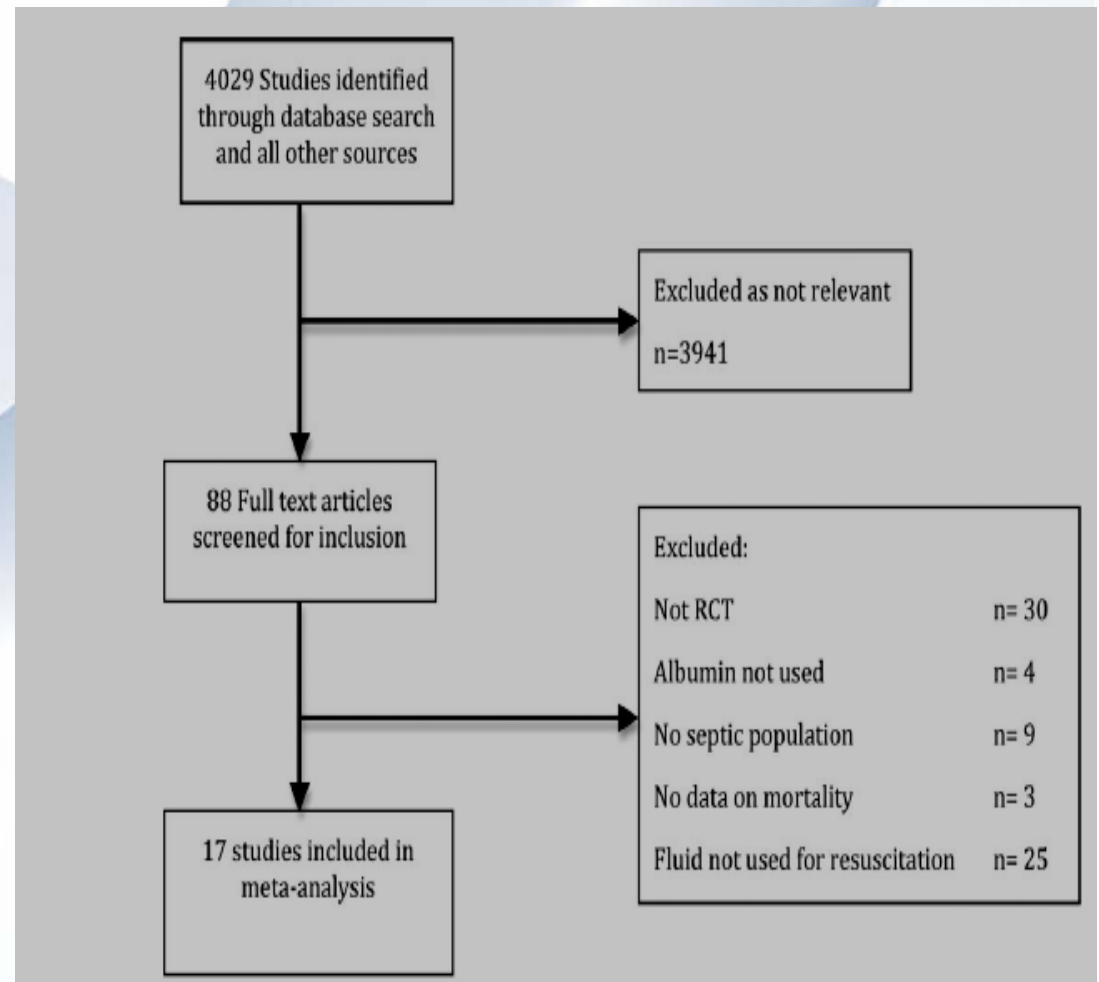
Congrès de l'ATR, Novembre 2011



The role of albumin as a resuscitation fluid for patients with sepsis: A systematic review and meta-analysis*

Anthony P. Delaney, MD, FCICM; Arina Dan, MD, FCICM; John McCaffrey, MD, FCICM; Simon Finfer, MD, FCICM
Crit Care Med 2011; 39:386 –391

- études prospectives randomisées comparant un remplissage vasculaire par des solutés contenant albumine au remplissage vasculaire par d'autres produits.
- Population: sujets septiques
- Critère de jugement principal: mortalité



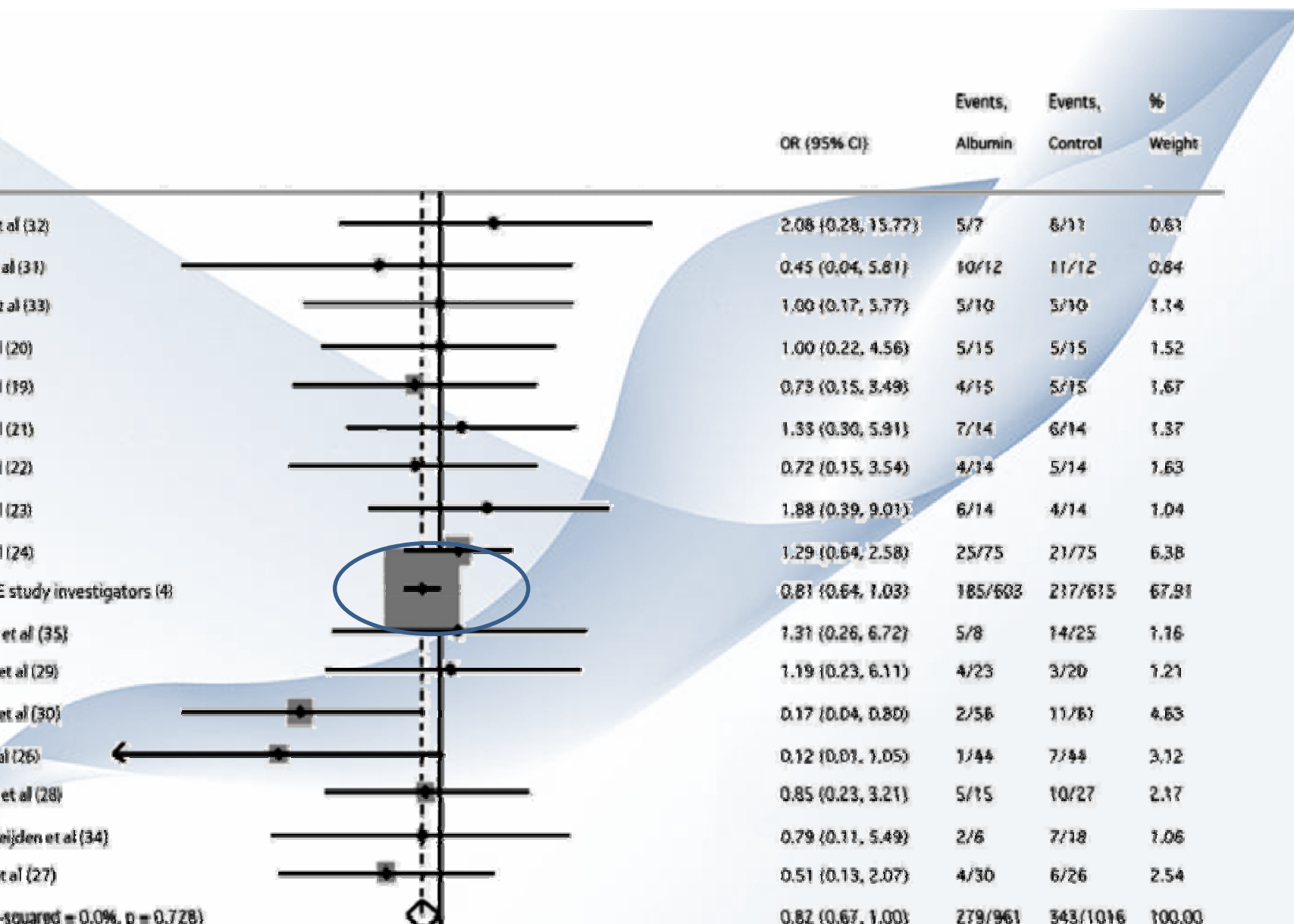


Table 3. Pooled estimates of the effect of resuscitation fluid regimens compared with albumin in patients with sepsis

Fluid	Number of Studies	Total Participants	I^2	Estimate of Odds Ratio	95% Confidence Limits	p
crystalloid	7	1441	0%	0.78	0.62–0.99	.04
arch	12	463	0%	1.04	0.7–1.54	.84
elofusine	2	100	40.1%	0.27	0.06–1.14	.08

The results of this meta-analysis suggest that resuscitation with albumin may result in lower mortality compared with resuscitation with other fluids. Until additional data are available, clinicians may consider albumin as a first line resuscitation fluid for patients with sepsis.

Fluid resuscitation in septic shock: A positive fluid balance and elevated central venous pressure are associated with increased mortality*

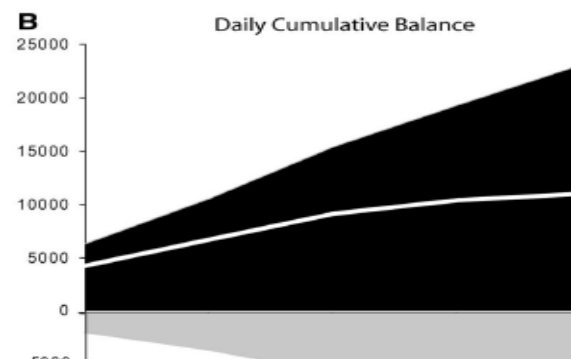
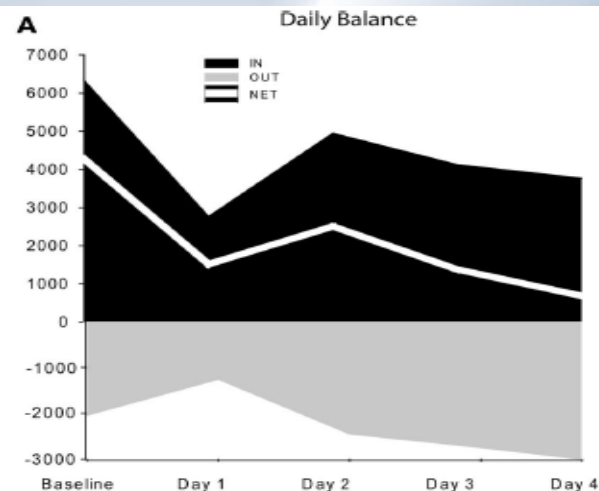
H. Boyd, MD, FRCP(C); Jason Forbes, MD; Taka-aki Nakada, MD, PhD; Keith R. Walley, MD, FRCP(C);
S. A. Russell, MD, FRCP(C)

Crit Care Med 2011; 39:259 –265

revue rétrospective de l'étude
ASST (Vasopressine in Septic
shock trial)

données recueillies:

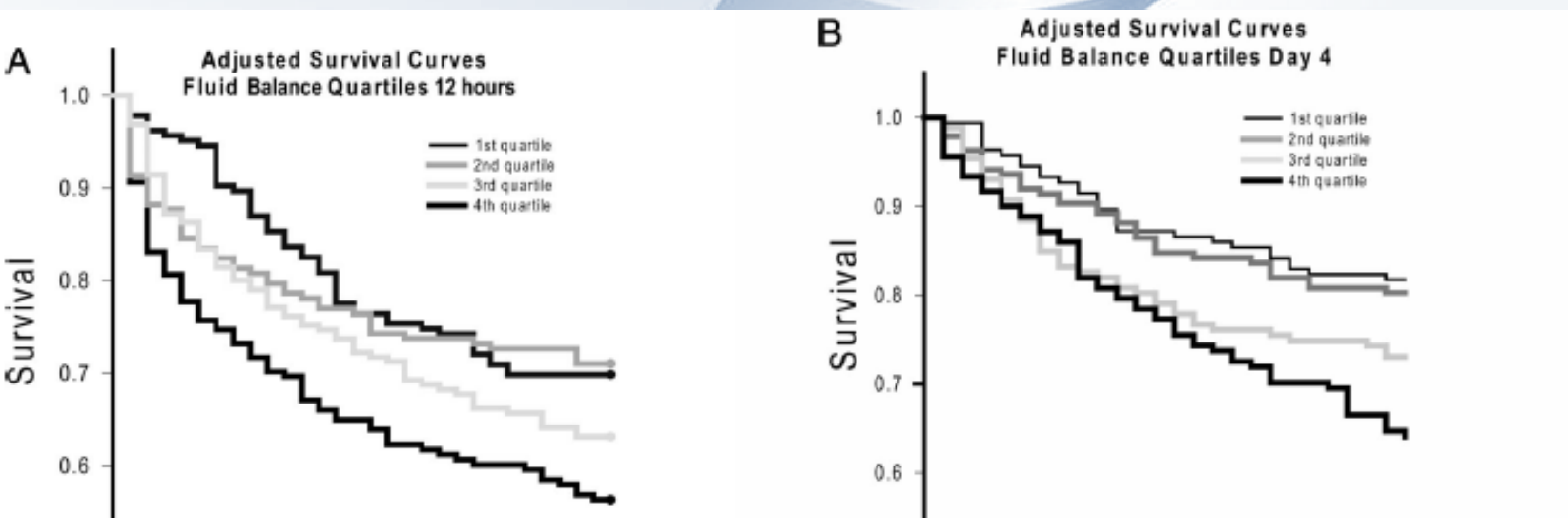
- bilan hydrique à H12,
- bilan hydrique cumulatif à J4
- PVC corrélée au bilan hydrique



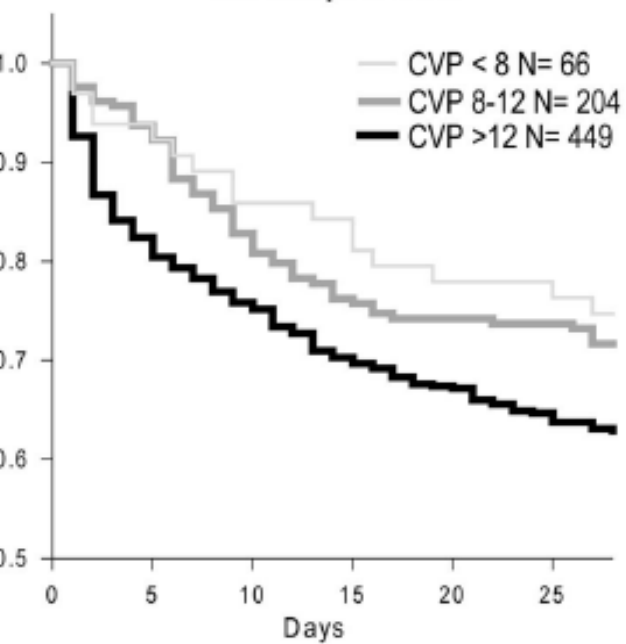
Fluid intake, urine output, and net fluid balance at 12 hrs and cumulative day 4 balance

	Quartile 1 (Dry)	Quartile 2	Quartile 3	Quartile 4 (Wet)
Intake, mL	2900 (2050–3900)	4520 (3700–5450)	6110 (5330–7360)	10,100 (8430–12,100)
Output, mL	2200 (1100–3920)	1590 (960–2560)	1180 (600–2070)	1260 (600–2400)
Net balance, mL	710 (–132–1480)	2880 (2510–3300)	4900 (4290–5530)	8150 (7110–10,100)
Day 4 Intake, mL	16,100 (12,800–19,700)	18,500 (15,700–22,500)	22,800 (19,700–26,700)	30,600 (26,200–36,000)
Day 4 Output, mL	14,600 (11,500–20,100)	11,000 (8210–14,500)	9960 (6940–12,900)	8350 (5100–12,300)
Day 4 Net balance, mL	1560 (–723–3210)	8120 (6210–9090)	13,000 (11,800–14,700)	20,500 (17,700–24,500)

Values are expressed as median (25–75%).



**Adjusted Survival Curves
CVP Groups 12 hours**



B

**Adjusted Survival Curves
CVP Groups Day 4**

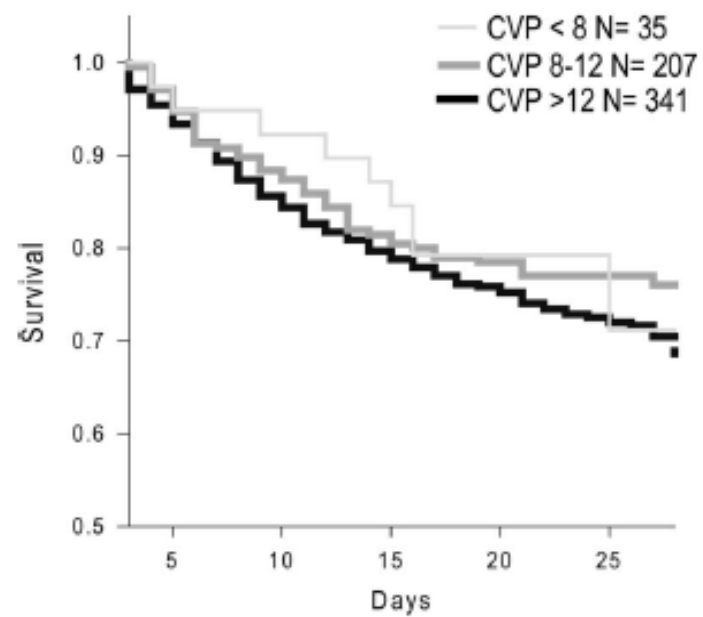


Table 4. 12-hr fluid balance: Survivors vs. nonsurvivors within CVP groups

CVP Group	Net Fluid Balance		<i>p</i>
	Survivors	Nonsurvivors	
All Patients	3444 (1861–5984) mL	4429 (2537–6560) mL	<.001
CVP <8 mm Hg	3015 (1296–4987) mL	2281 (802–5711) mL	NS
CVP 8–12 mm Hg	2727 (1227–5491) mL	3112 (1559–4809) mL	NS
CVP >12 mm Hg	3975 (2387–6614) mL	5237 (3140–7773) mL	<.001

CVP, central venous pressure; NS, nonsignificant.

Volumes are expressed as median (25–75%).

Dopamine versus norepinephrine in the treatment of septic shock: meta-analysis

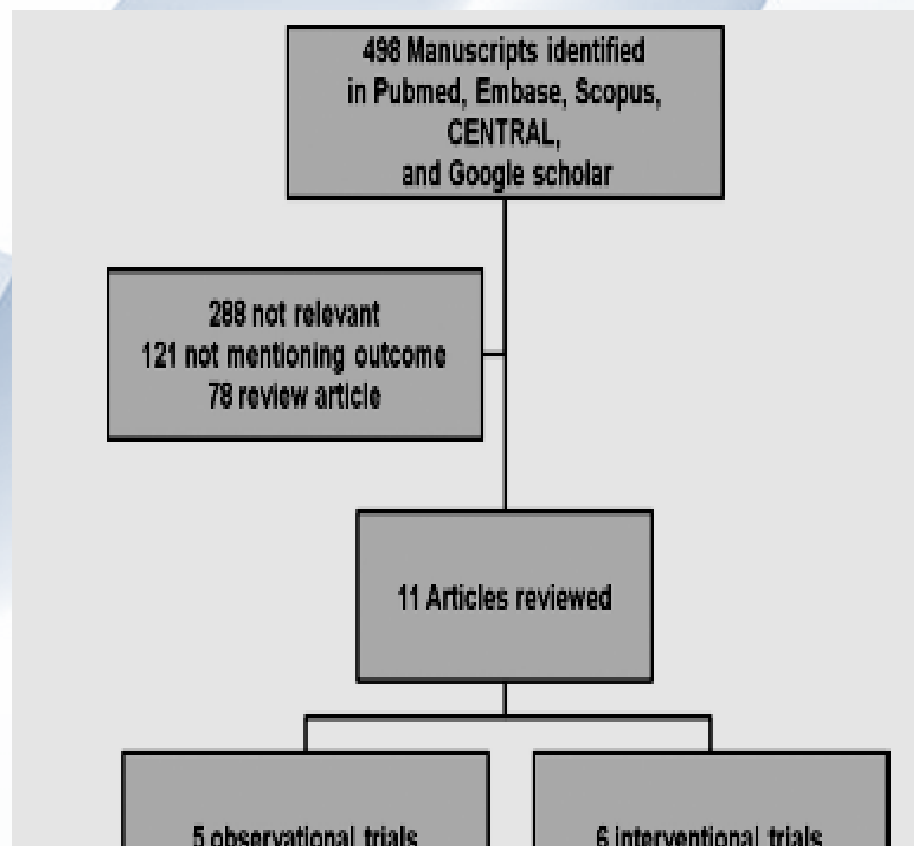
Backer, MD, PhD; Cesar Aldecoa, MD; Hassane Njimi, MSc, PhD; Jean-Louis Vincent, MD, PhD, FCCM

Crit Care Med 2012; 40:000–000

Méta-analyse des études ayant rapporté l'utilisation de la Dopamine et de la norépinephrine chez les patients en choc septique

Critère de jugement principal: Mortalité à J28

Critères de jugement secondaires: effets indésirables, durée de séjour



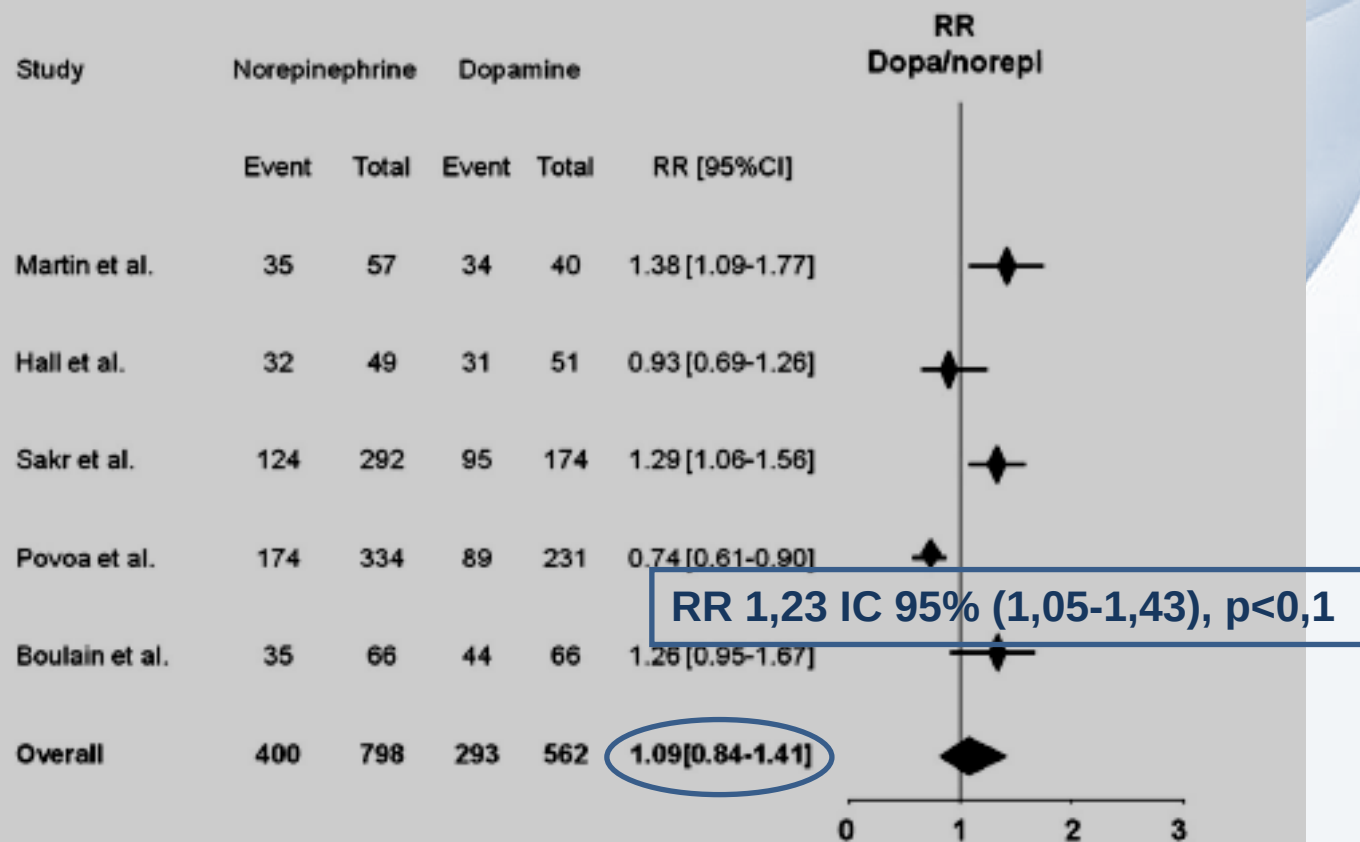


Figure 2. Forest plot of risk ratio (*RR*) of death (28 days or nearest estimate) in observational trials. The *p* value for aggregate *RR* of dopamine (*dopa*) compared to norepinephrine (*norepi*) in observational studies was .447. Relative weights of the different trials in the analysis: Martin et al (11) 20%; Hall et al (24) 18%; Sakr et al (3) 21%; Povoa et al (13) 21%; and Boulain et al (12) 19%. There was significant heterogeneity among the trials ($p < .001$, $I^2 = 70.2$; confidence interval: 50.0%-91.2%); the trial by Povoa et al (13) was

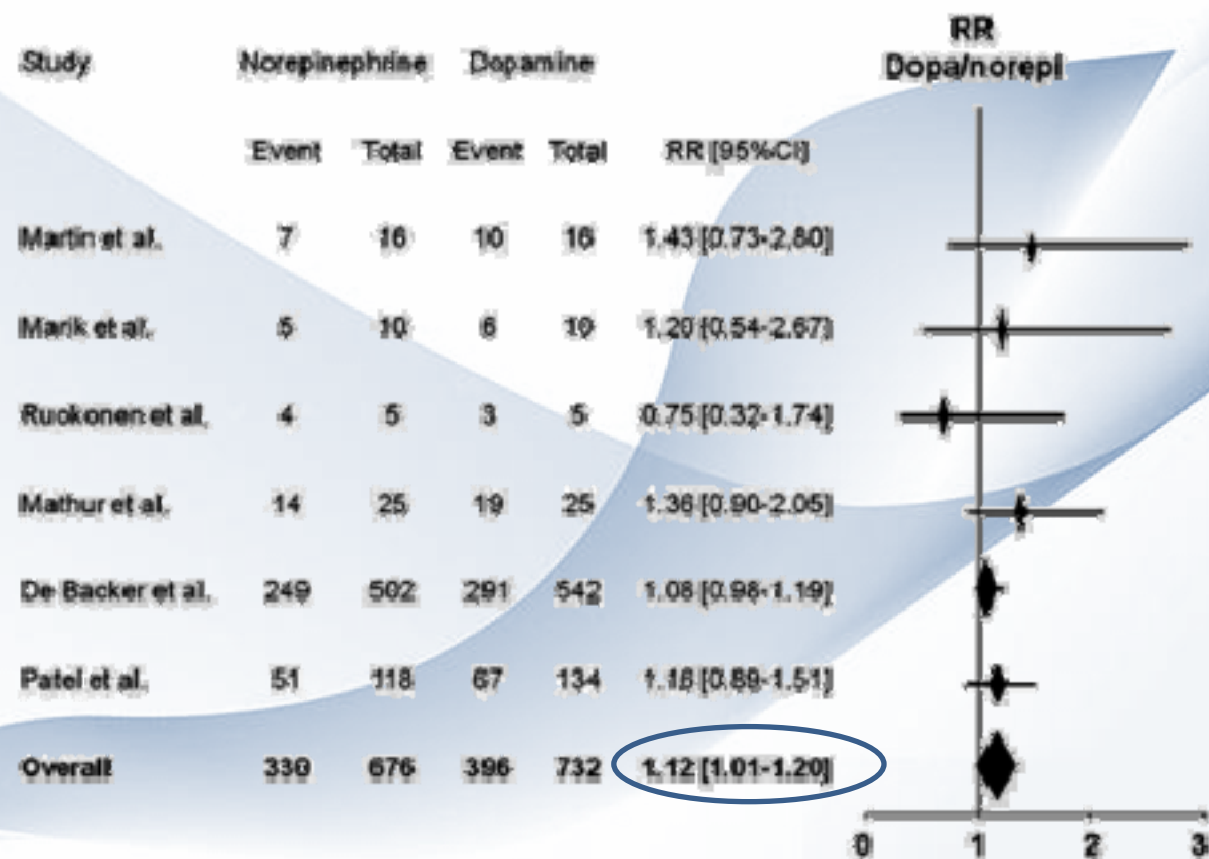


Figure 3. Forest plot of risk ratio (RR) of death (28 days or nearest estimate) in interventional trials. The *p* value for aggregate RR of dopamine (dopa) compared to norepinephrine (norepi) in interventional studies was .035. Relative weights of the different trials in the analysis: Martin et al (27) 2%; Marik et al (30) 1%; Ruokonen et al (29) 1%; Mathur et al (25) 4%; De Backer et al (15) 81%; and Patel

Passive leg-raising and end-expiratory occlusion tests performed with pulse pressure variation in patients with low respiratory system compliance

Monnet, MD, PhD; Alexandre Bleibtreu, MD; Alexis Ferre, MD; Martin Dres, MD; Rim Gharbi, MD; Jean Richard, MD; Jean-Louis Teboul, MD, PhD

Crit Care Med 2012; 40:000–000

Étude prospective

Population: 54 patients in ICA, monitored by PICCO

27 patients in SDRA: compliance 22 ± 3 ml/cmH₂O

Parameters measured: FC, PA and IC:

- avant et après levée de jambes de 1 min,
- avant et après une pause télé expiratoire de 15 secondes
- Après remplissage vasculaire de 500ml de soluté salin

	Compliance of Respiratory System ≤ 30 cmH ₂ O/mL (n = 28)				Compliance of Respiratory System > 30 cmH ₂ O/mL (n = 26)			
	Responders (n = 15)		Nonresponders (n = 13)		Responders (n = 15)		Nonresponders (n = 11)	
	Before VE	After VE	Before VE	After VE	Before VE	After VE	Before VE	After VE
ate (mean $\pm$ SD, beats/min)	79 $\pm$ 15	76 $\pm$ 14	85 $\pm$ 22	85 $\pm$ 22	96 $\pm$ 21	92 $\pm$ 20	87 $\pm$ 13	84 $\pm$ 14
ystemic arterial pressure (mean $\pm$ SD, mm Hg)	62 $\pm$ 18	81 $\pm$ 25 ^a	85 $\pm$ 24 ^b	87 $\pm$ 19	76 $\pm$ 24	90 $\pm$ 25 ^a	69 $\pm$ 17	69 $\pm$ 20
end-diastolic volume index (mean $\pm$ SD, mL/m ²)	734 $\pm$ 200	875 $\pm$ 364 ^a	746 $\pm$ 199	823 $\pm$ 282 ^a	596 $\pm$ 236	734 $\pm$ 326 ^a	696 $\pm$ 126	769 $\pm$ 157 ^a
index (mean $\pm$ SD, L/min/m ²)	3.2 $\pm$ 2.8	4.3 $\pm$ 2.7 ^a	4.2 $\pm$ 2.7	4.4 $\pm$ 2.7	3.1 $\pm$ 2.2	4.4 $\pm$ 2.1 ^a	3.6 $\pm$ 2.6	3.7 $\pm$ 2.6
e predictive value (mean $\pm$ SD, %)	8 $\pm$ 3	6 $\pm$ 3	6 $\pm$ 2	7 $\pm$ 7	18 $\pm$ 5	10 $\pm$ 4 ^a	6 $\pm$ 3 ^b	8 $\pm$ 5
s in cardiac index during passive leg-raising	28 $\pm$ 21	—	3 $\pm$ 3 ^b	—	24 $\pm$ 16	—	4 $\pm$ 9 ^b	—
n $\pm$ SD, %)								
s in cardiac index during end-expiratory	9 $\pm$ 5	—	2 $\pm$ 1 ^b	—	10 $\pm$ 9	—	2 $\pm$ 2 ^b	—
sion (mean $\pm$ SD, %)								

volume expansion.

^a $p < .05$ vs. before volume expansion; ^b $p < .05$ vs. responders.

Diagnostic ability of the pulse pressure variation and the global end-diastolic volume at baseline, of the passive leg-raising test, and of the end-occlusion test to detect a fluid-induced increase in cardiac index $\geq 15\%$

Variable	Area Under the Curve	<i>p</i> vs. 0.500	Best Cut-Off Value	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value	Youden Index
Passive leg-raising test with occlusion of the respiratory system cmH ₂ O/mL (n = 26)								
Pulse pressure variation at baseline	0.98 ± 0.03	<.0001	12%	85 (57–98)	100 (71–100)	100 (73–100)	84 (53–98)	0.85
Passive leg-raising–induced changes in CI	0.91 ± 0.06	<.0001	10%	93 (66–100)	91 (59–100)	93 (66–100)	91 (57–100)	0.84
Respiratory occlusion–induced changes in CI	0.97 ± 0.03	<.0001	5%	93 (68–99)	91 (59–100)	93 (68–100)	91 (57–98)	0.84
Global end-diastolic volume index at baseline	0.69 ± 0.11 ^a	.090	—	—	—	—	—	—
Passive leg-raising test without occlusion of respiratory system cmH ₂ O/mL (n = 28)								
Pulse pressure variation at baseline	0.69 ± 0.10	.04	4%	100 (79–100)	31 (9–61)	64 (42–82)	100 (39–61)	0.31
Passive leg-raising–induced changes in CI	0.94 ± 0.05 ^a	<.0001	10%	94 (70–100)	100 (75–100)	100 (78–100)	93 (66–100)	0.94
Respiratory occlusion–induced changes in CI	0.93 ± 0.05 ^a	<.0001	5%	93 (68–99)	92 (64–100)	93 (67–100)	92 (62–99)	0.85
Global end-diastolic volume index at baseline	0.48 ± 0.11 ^a	.980	—	—	—	—	—	—

Cardiac index.

^a0.05 vs. positive predictive value at baseline. Mean ± SD or value (95% confidence interval).