AER 2019

25ème AER : 19 & 20 novembre 2020

Que retenir de 2019 ?

Insuffisance respiratoire aiguë

laurent.papazian@ap-hm.fr

Assistance Publique
Hôpitaux de Marseille

Conflicts of interest

- Fees and/or travel expenses
  - Air Liquide Santé
  - Maquet
  - Drager
  - GE
  - Faron
  - GSK
  - Covidien
  - Janssen
  - Orion
  - Johnson & Johnson
  - Peninsula Pharma

COI

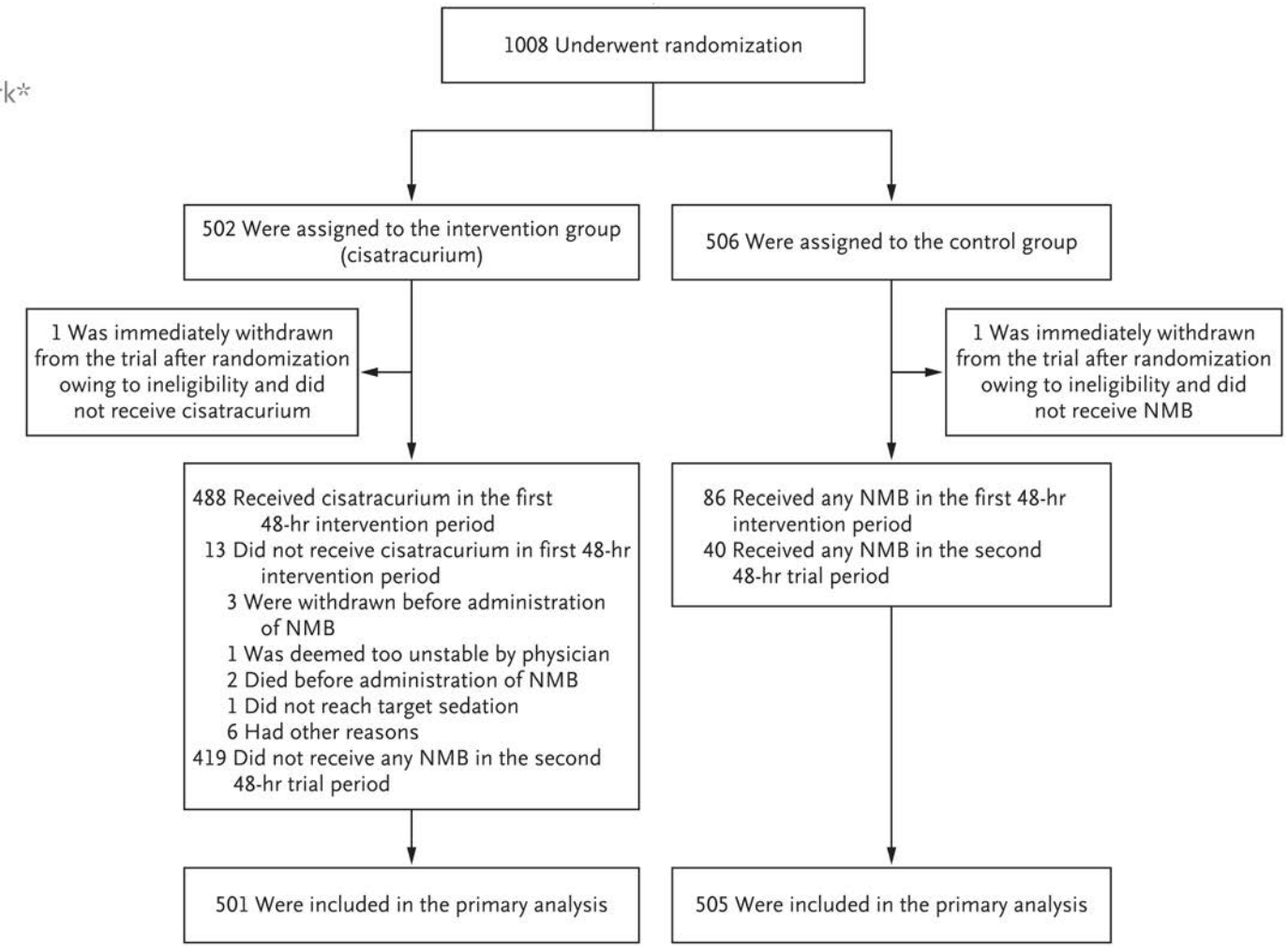
- GSK provided cisatracurium and placebo + 15k€ for ACURASYS

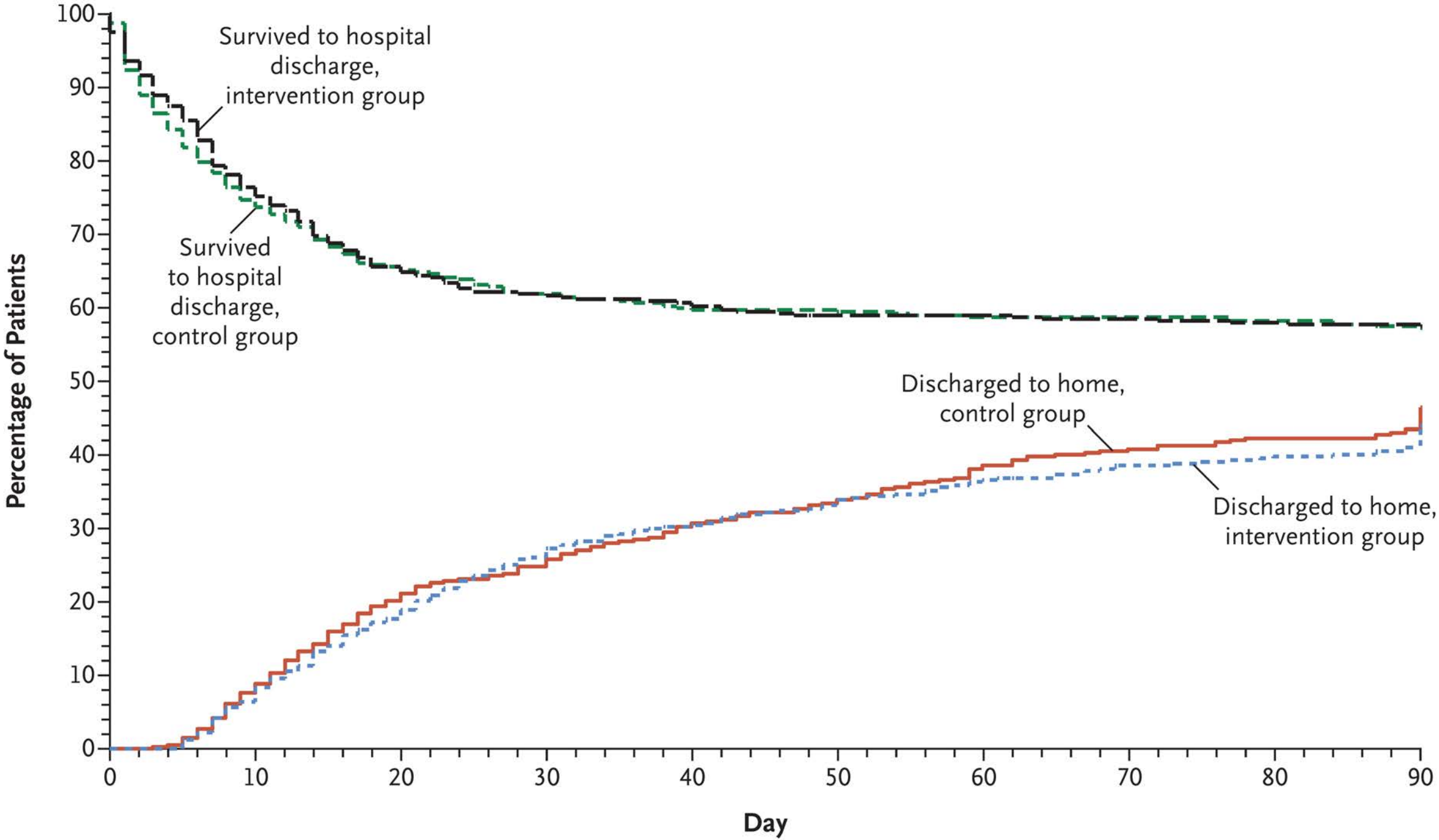
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Early Neuromuscular Blockade in the Acute Respiratory Distress Syndrome

The National Heart, Lung, and Blood Institute PETAL Clinical Trials Network*




Survived to hospital discharge, intervention group
Survived to hospital discharge, control group
Discharged to home, control group
Discharged to home, intervention group
Percentage of Patients
Day
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90

ROSE study

CLINICAL STUDY DESIGN

Design and Rationale of the Reevaluation of Systemic Early Neuromuscular Blockade Trial for Acute Respiratory Distress Syndrome

David T. Huang[1], Derek C. Angus[1], Marc Moss[2], B. Taylor Thompson[3], Niall D. Ferguson[4], Adit Ginde[2], Michelle Ng Gong[5], Stephanie Gundel[6], Douglas L. Hayden[3], R. Duncan Hite[7], Peter C. Hou[3], Catherine L. Hough[6], Theodore J. Iwashyna[8], Kathleen D. Liu[9], Daniel S. Talmor[3], and Donald M. Yealy[1]; for the Reevaluation of Systemic Early Neuromuscular Blockade Protocol Committee and the National Institutes of Health National Heart, Lung, and Blood Institute Prevention and Early Treatment of Acute Lung Injury Network Investigators*

Ann Am Thorac Soc Vol 14, No 1, pp 124–133, Jan 2017

Online Data Supplement

Design and Rationale of the Reevaluation of Systemic Early Neuromuscular Blockade (ROSE) Trial for Acute Respiratory Distress Syndrome

ACURASYS

- Median time from the diagnosis of ARDS to inclusion
  - 16 hrs (6-29)
- Median time from initiation of MV to inclusion
  - Cis 22 hrs (9-41)
  - Placebo 21 hrs (10-42)

ROSE

- Median of 7.6 hrs (3.7-15.6) after diagnosis of moderate-to-severe ARDS
- ?

Sedation/paralysis

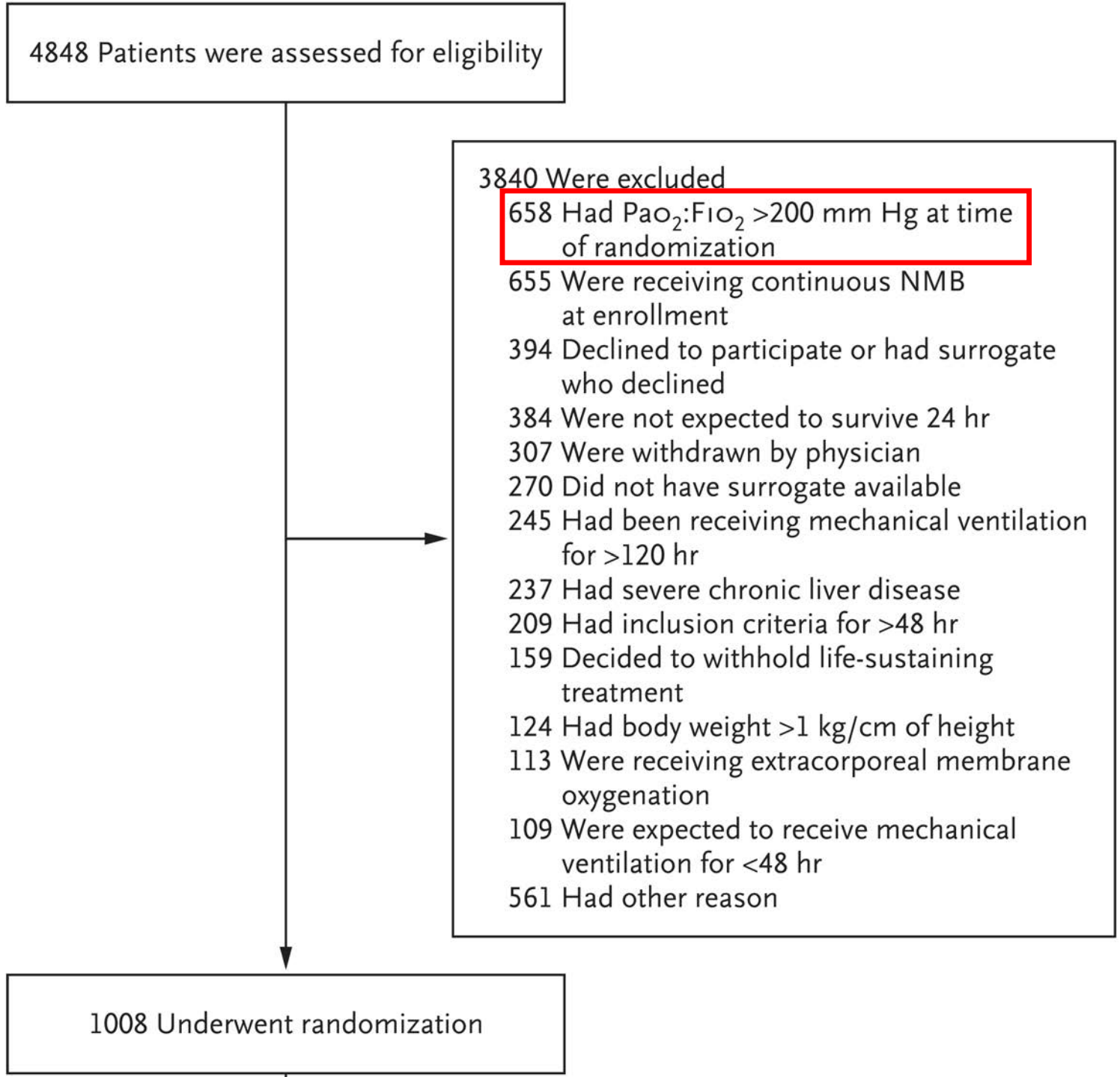
ACURASYS

1. Sedation -> Ramsay 6
2. Ventilator settings
3. Cisatracurium/placebo
4. Stop at 48 hr

ROSE

Evolution of PaO2/FiO2 ratio

	Baseline		24h		72h	
	NMBA	Control	NMBA	Control	NMBA	Control
ACURASYS	106±36	115±41	164±72	168±72	166±70	157±68
ROSE	116±38	116±40	198±78	189±77	198±75	187±76


4848 Patients were assessed for eligibility
3840 Were excluded
658 Had Pao_2:FIO_2 >200 mm Hg at time of randomization
655 Were receiving continuous NMB at enrollment
394 Declined to participate or had surrogate who declined
384 Were not expected to survive 24 hr
307 Were withdrawn by physician
270 Did not have surrogate available
245 Had been receiving mechanical ventilation for >120 hr
237 Had severe chronic liver disease
209 Had inclusion criteria for >48 hr
159 Decided to withhold life-sustaining treatment
124 Had body weight >1 kg/cm of height
113 Were receiving extracorporeal membrane oxygenation
109 Were expected to receive mechanical ventilation for <48 hr
561 Had other reason
1008 Underwent randomization

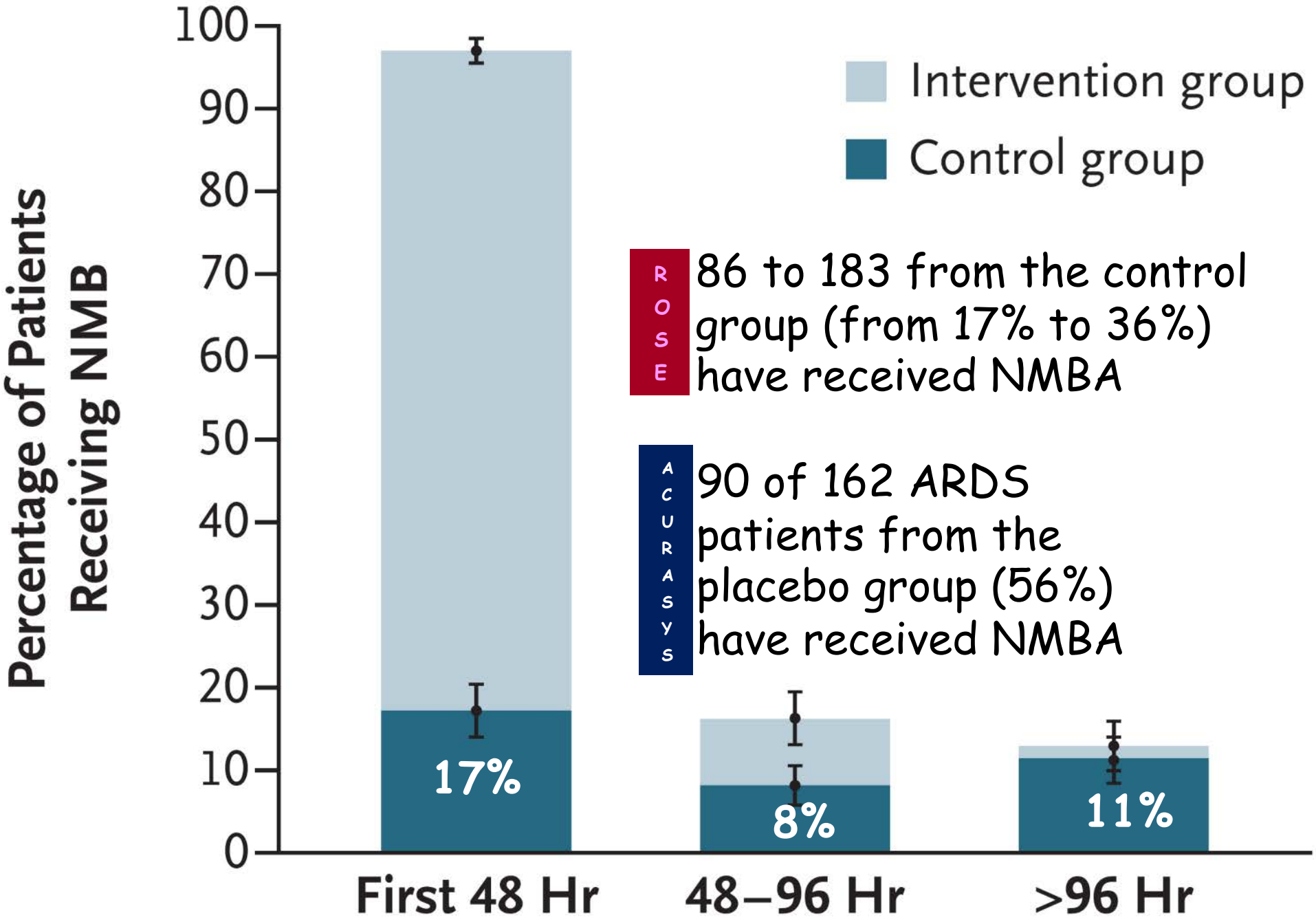
NMBA use

ACURASYS

- During the first 48 hrs
  - Open label NMBAs: according to the protocol
  - No stop
- After 48 hrs
  - protocol

ROSE

- During the first 48 hrs
  - Control group: protocol
  - Cis group: stop if $FiO_2 \leq 0.4$ and PEEP ≤ 8 / 12 hrs
- After 48 hrs
  - Control group: protocol
  - Cis group: no protocol

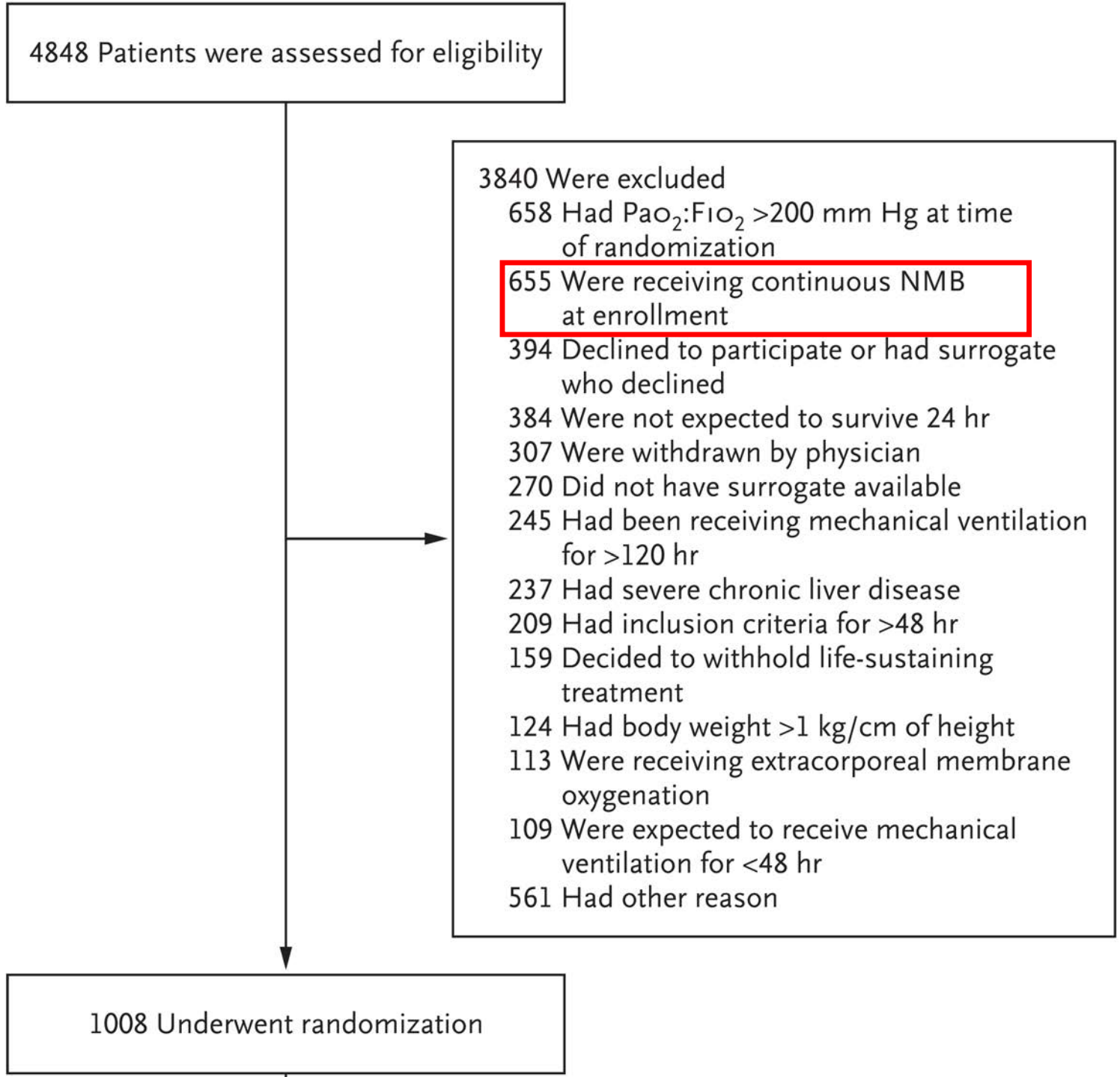


ROSE

86 to 183 from the control group (from 17% to 36%) have received NMBA

ACURASYS

90 of 162 ARDS patients from the placebo group (56%) have received NMBA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Mechanical ventilation

ACURASYS

- 30-45°
- Volume assist-control mode
- PEEP/FiO2 ARMA
- No RM
- Proning, iNO, almitrine

ROSE

- Volume or pressure-controlled
- PEEP/FiO2 ALVEOLI high PEEP
- No proning for at least 12 hrs

Mechanical ventilation

ACURASYS

- 30-45°
- Volume assist-control mode
- PEEP/FiO2 ARMA
- No RM
- Proning, iNO, almitrine

ROSE

- Volume or pressure-controlled
- PEEP/FiO2 ALVEOLI high PEEP
- No proning for at least 12 hrs

Annexe 3 : arbre décisionnel concernant le réglage de la PEEP et de la FiO2

ACURASYS protocol

FiO2 %	PEEP cmH2O
30	5
40	5
40	8
50	8
50	10
60	10
70	10
70	12
70	14
80	14
90	14
90	16
90	18
100	18
100	20
100	22
100	24

TESTER SEVRABILITE (APRES 72 h)

Before increasing FiO2 from 0.50 to 0.60, you must have a PEEP set at

- 10 cmH2O in ACURASYS
- 20 cmH2O in ROSE

3. ROSE FiO2/PEEP table

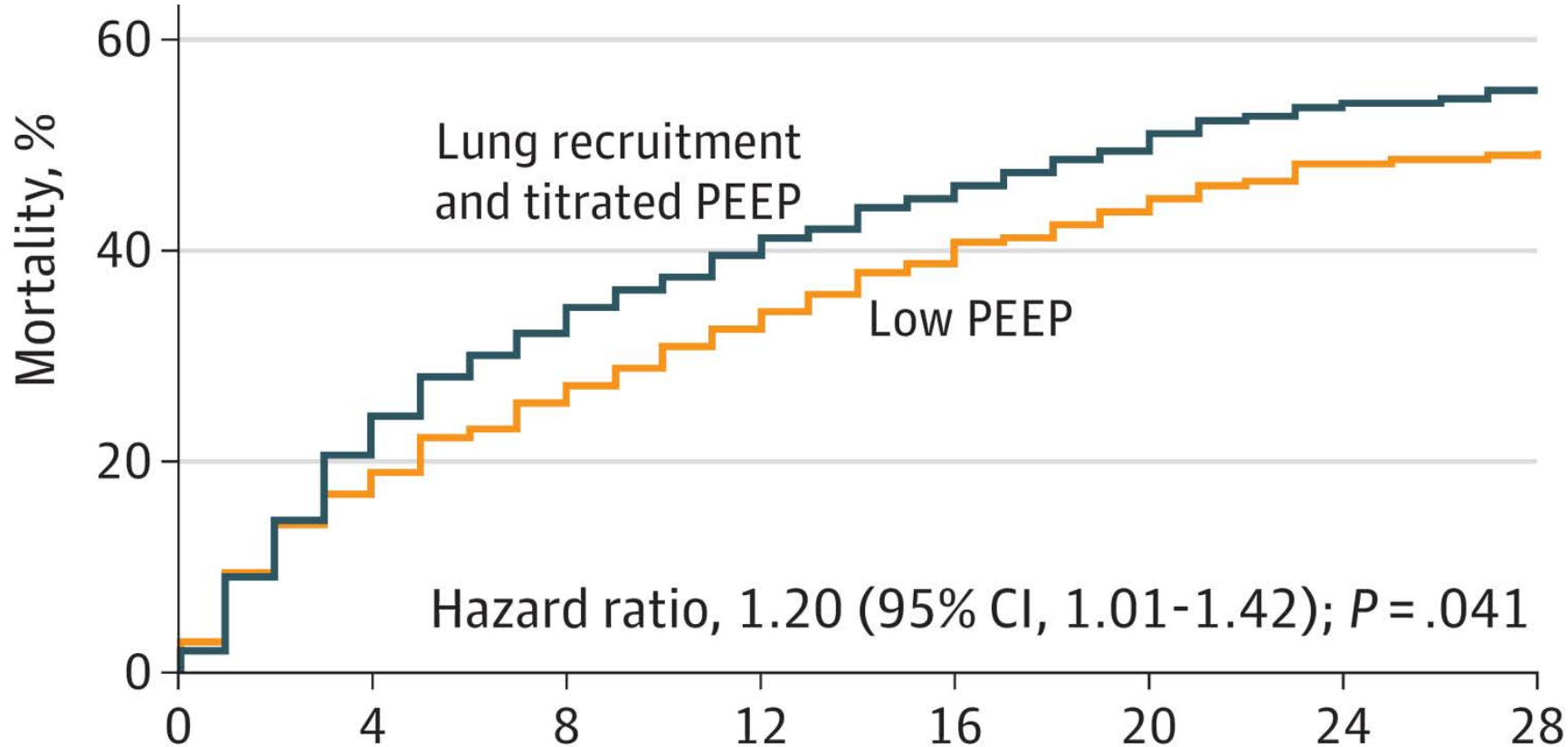
FiO_2	.30	.40	.40	.40	.40	.40	.40	.40	.50	.50	.50	.60	.70	.80	.80	.90	1.00	1.00
PEEP	5	5	6	8	10	12	14	16	16	18	20	20	20	20	22	22	22	24

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

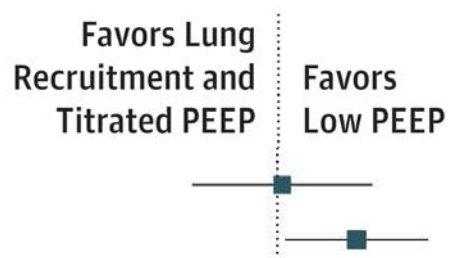
Effect of Lung Recruitment and Titrated Positive End-Expiratory Pressure (PEEP) vs Low PEEP on Mortality in Patients With Acute Respiratory Distress Syndrome

A Randomized Clinical Trial

Writing Group for the Alveolar Recruitment for Acute Respiratory Distress Syndrome Trial (ART) Investigators



Type of ARDS			
Extrapulmonary	98/188 (52.1)	102/196 (52)	1.02 (0.74-1.40)
Pulmonary	179/313 (57.2)	149/313 (47.6)	1.32 (1.03-1.69)



On inclusion

	cisatracurium	placebo
Proning, iNO/alm	18.6%	14.2%
Corticosteroids for septic shock	39.5%	45.1%

	cisatracurium	control
Proning, iNO/alm		
Corticosteroids for septic shock		

During the study period

	cisatracurium	placebo
Proning	28%	29%
Proning, iNO/alm	42%	48%
Vasopressors	92%	89%

	cisatracurium	control
Proning		
Proning, iNO/alm		
Vasopressors		

Received NMBA=44%

	NMBA n = 177 *no (%)*	Placebo n= 162 *no (%)*	*P* value
Adjunctive therapies			
Prone position	50 (28%)	47 (29%)	0.88
Inhaled nitric oxide	50 (28%)	53 (33%)	0.37
Almitrine bismesylate	6 (3%)	10 (6%)	0.23
Any of the three treatments above	75 (42%)	77 (48%)	0.34

	Day 0-2			Day 0-28		
Characteristic	**Intervention**	**Control**	**Difference (95% CI)**	**Intervention**	**Control**	**Difference (95% CI)**
Any rescue therapy	93 (18.6)	90 (17.8)	0.7 (-4.0, 5.5)	130 (25.[illegible])	125 (24.8)	1.2 (-4.2, 6.6)
Prone positioning	68 (13.6)	60 (11.9)	1.7 (-2.4, 5.8)	84 (16.8)	75 (14.9)	1.9 (-2.6, 6.4)
Inhaled epoprostenol	16 (3.2)	17 (3.4)	-0.2 (-2.4, 2.0)	26 (5.2)	27 (5.3)	-0.2 (-2.9, 2.6)
Recruitment maneuvers	14 (2.8)	16 (3.2)	-0.4 (-2.5, 1.7)	29 (5.8)	30 (5.9)	-0.2 (-3.1, 2.8)
Inhaled nitric oxide	4 (0.8)	12 (2.4)	-1.6 (-3.1, 0.0)	7 (1.4)	17 (3.4)	-2.0 (-3.8, -0.1)
ECMO	2 (0.4)	3 (0.6)	-0.2 (-1.1, 0.7)	3 (0.6)	10 (2.0)	-1.4 (-2.8, 0.0)

Weaning protocol

ACURASYS

- From day 3 when FiO2 ≤ 0.6 (PEEP 10) => PS and ↘ PEEP to 5 => SBT

- Transition from ACV to SB = PS
  - PS 20-15-10-5 to maintain RR 26-35/min and SpO2 ≥ 88%

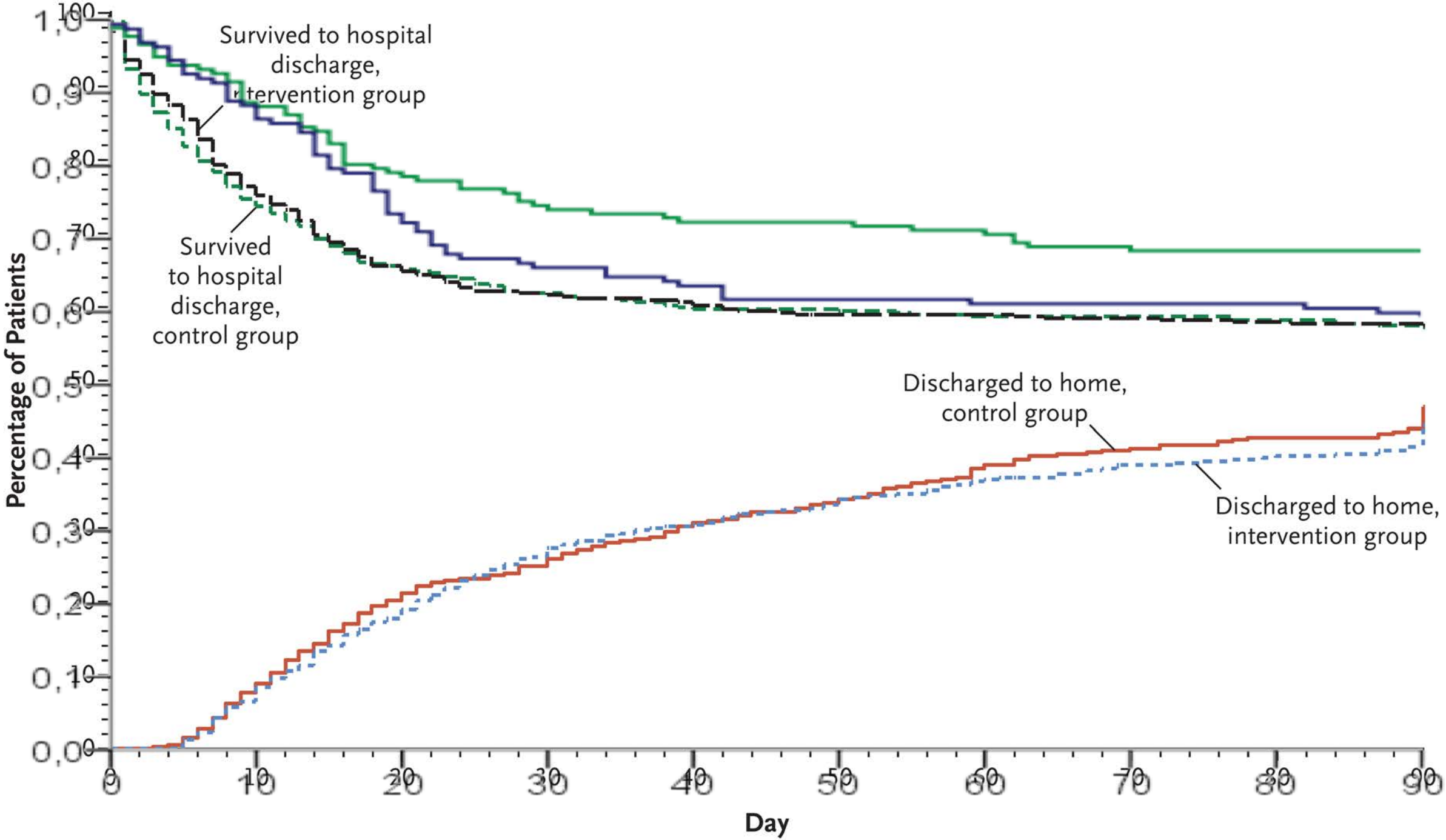
ROSE

• ACURASYS

Outcome	Cisatracurium (N=177)	Placebo (N=162)	Relative Risk with Cisatracurium (95% CI)	P Value
Death — no. (% [95% CI])				
At 28 days	42 (23.7 [18.1–30.5])	54 (33.3 [26.5–40.9])	0.71 (0.51–1.00)	0.05
In the ICU	52 (29.4 [23.2–36.5])	63 (38.9 [31.7–46.6])	0.76 (0.56–1.02)	0.06
In the hospital	57 (32.2 [25.8–39.4])	67 (41.4 [34.1–49.1])	0.78 (0.59–1.03)	0.08
No. of ventilator-free days†				
From day 1 to day 28	10.6±9.7	8.5±9.4		0.04

• ROSE

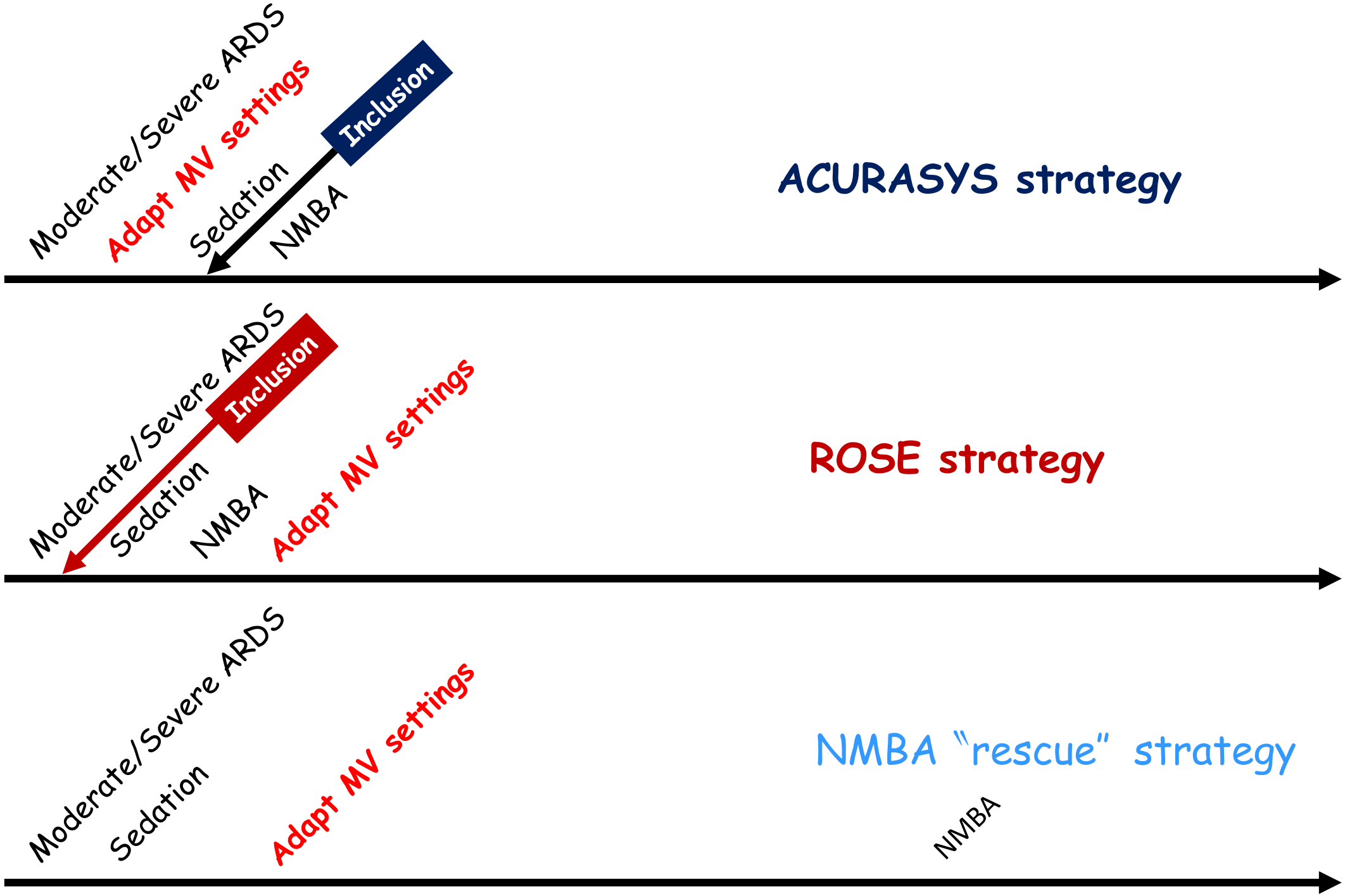
Variable	Intervention Group (N=501)	Control Group (N=505)	Between-Group Difference (95% CI)	P Value
			percentage points	
Primary end point: in-hospital death by day 90 — no. (%)†	213 (42.5±2.2)	216 (42.8±2.2)	–0.3 (–6.4 to 5.9)	0.93
Secondary end points				
In-hospital death by day 28 — no. (%)	184 (36.7)	187 (37.0)	–0.3 (–6.3 to 5.7)	
Days free of ventilation at day 28‡	9.6±10.4	9.9±10.9	–0.3 (–1.7 to 1.0)	


Survived to hospital discharge, intervention group
Survived to hospital discharge, control group
Discharged to home, control group
Discharged to home, intervention group
Percentage of Patients
Day
100
90
80
70
60
50
40
30
20
10
0
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0
10
20
30
40
50
60
70
80
90

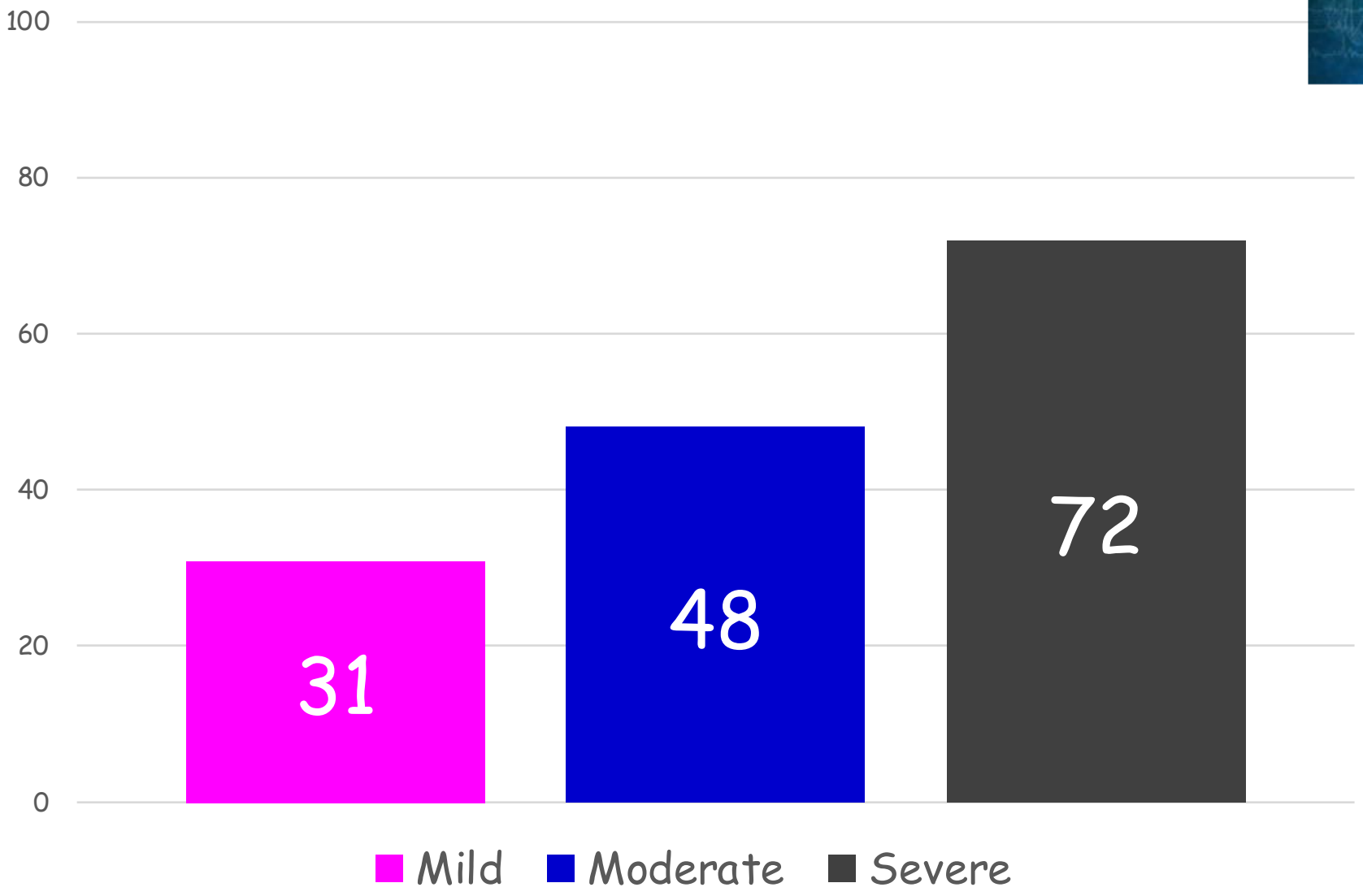
Statistics

	Active Superior		Control Superior		Probability of Stopping	
Number of Subjects	**Observed Mortality Difference Active-Control**	**P-value***	**Observed Mortality Difference Active-Control**	**P-value***	**Under the Null Hypothesis**	**Under the Alternative Hypothesis**
470	-0.146	0.00031	0.146	0.99969	0.001	0.061
938	-0.078	0.00479	0.078	0.99521	0.010	0.528
1408	-0.049	0.02361	0.049	0.97639	0.050	0.900

* = These are one sided p values for the upper and lower boundaries.


Moderate/Severe ARDS
Adapt MV settings
Sedation
NMBA
Inclusion
ACURASYS strategy
Moderate/Severe ARDS
Inclusion
Sedation
NMBA
Adapt MV settings
ROSE strategy
Moderate/Severe ARDS
Sedation
Adapt MV settings
NMBA "rescue" strategy
NMBA

LUNG SAFE - France - Curare



ACURASYS strategy

48 hrs

NMBA + ⟶ lung protection

Stop NMBA + ⟶ weaning

Table 1. Summary of the Ventilation Procedure.*

Variable
Ventilator mode: volume assist–control
Initial tidal volume: 6–8 ml/kg of predicted body weight
Plateau pressure: ≤32 cm of water
Plateau pressure limitation
ARMA PEEP/FiO2 Table «low PEEP»
iNO, almitrine, prone position
Control hypercapnia
jection of cisatracurium in a bolus of 20 mg (not to be given again if pla-teau pressure decreased by <2 cm of water because further doses would probably be futile, but permitted if the drug had its intended effect)
Procedure to correct hypercapnia when pH is <7.20 (in the following order, as needed): connect Y-piece directly to endotracheal tube, increase respi-ratory rate to a maximum of 35 cycles per min, and increase tidal volume to a maximum of 8 ml/kg
Weaning attempt: starting on day 3, if FiO2 <0.6
3rd day: ↘ PEEP
PS 20-15-10-5
SV

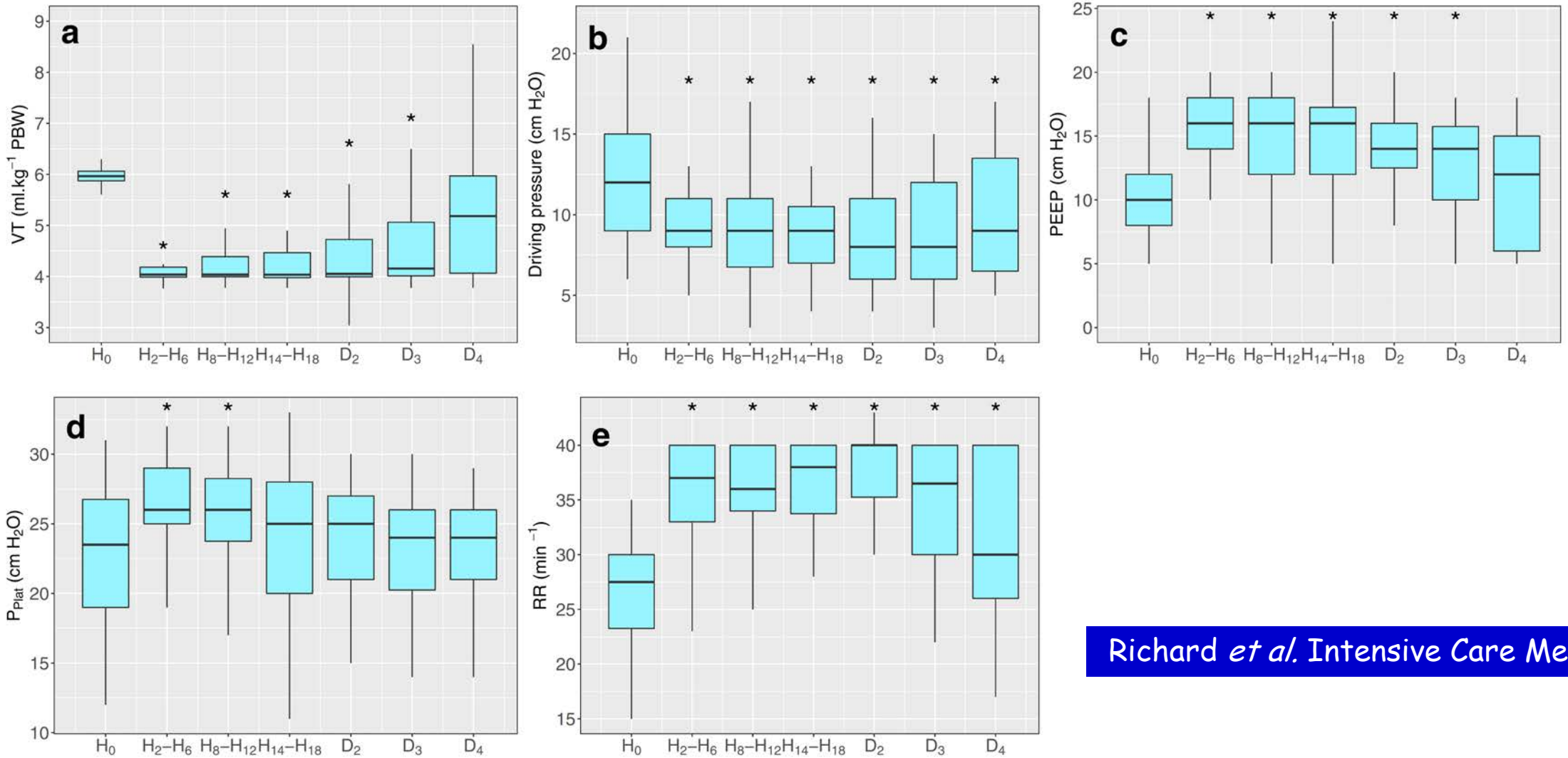
ORIGINAL

Feasibility and safety of ultra-low tidal volume ventilation without extracorporeal circulation in moderately severe and severe ARDS patients

J. C. Richard[1,2,3*], S. Marque[4], A. Gros[5], M. Muller[6], G. Prat[7], G. Beduneau[8,9], J. P. Quenot[10], J. Dellamonica[11], R. Tapponnier[12], E. Soum[13], L. Bitker[1,2,3], J. Richecoeur[14] and the REVA research network

Ventilatory mode: volume-assist control
Instrumental dead space: minimize by using a heated humidifier and a low-volume endotracheal tube connector
Initial VT: stepwise reduction by 1 $ml.kg^{-1}$ PBW steps at intervals $\leq$ 2 h down to 4 $ml.kg^{-1}$ PBW
RR: increase up to 40 min^{-1} to maintain VE constant (35 min^{-1} if intrinsic PEEP > 2 cm H_2O)
Ratio of the duration of inspiration to the duration of expiration: adjust between 1:2 and 1:4 to maintain intrinsic PEEP $\leq$ 2 cm H_2O
Ventilatory goals: plateau pressure $\leq$ 30 cm H_2O; 55 $\leq$ PaO_2 $\leq$ 80 mm Hg or 88% $\leq$ SpO_2 $\leq$ 95%; 7.20 $\leq$ pH $\leq$ 7.45
Allowable combinations of PEEP (cm of H_2O) and FiO_2: 5 and 30%, 8 and 30%, 10 and 30%, 12 and 30%, 14 and 30%, 14 and 40%, 16 and 40%, 16 and 50%, 18 and 50%, 20 and 50%, 20 and 60%, 20 and 70%, 20 and 80%, 22 and 80%, 22 and 90%, 22 and 100%, 24 and 100%
Procedure when PaO_2 < 55 mm Hg despite adjustments of FiO_2 and PEEP (in the following order as needed): (1) use PP if PaO_2/FiO_2 < 150 mm Hg with PEEP > 10 cm H_2O and FiO_2 > 60%; (2) add NMBA; (3) add iNO; (4) consider ECMO
Procedure when PaO_2 > 80 mm Hg (in the following order as needed): (1) stop iNO; (2) stop NMBA if administration > 48 h; (3) adjust FiO_2 and PEEP
Procedure when plateau pressure is > 30 cm H_2O (in the following order as needed): (1) inject a bolus of NMBA; (2) reduce VT to 4 $ml.kg^{-1}$ PBW (if pH $\geq$ 7.2); (3) decrease PEEP down to a minimum of 5 cm H_2O
Procedure when pH < 7.20 (in the following order as needed): (1) increase sedation/NMBA dose to achieve good patient–ventilator synchrony; (2) increase RR up to 40 min^{-1} (35 min^{-1} if total PEEP > 2 cm H_2O); (3) may administer IV bicarbonate; (4) increase VT by 1 $ml.kg^{-1}$ PBW step up to 8 $ml.kg^{-1}$ PBW if pH < 7.15; (5) consider ECCO2R or ECMO

Ventilatory parameters over the first 4 days following inclusion



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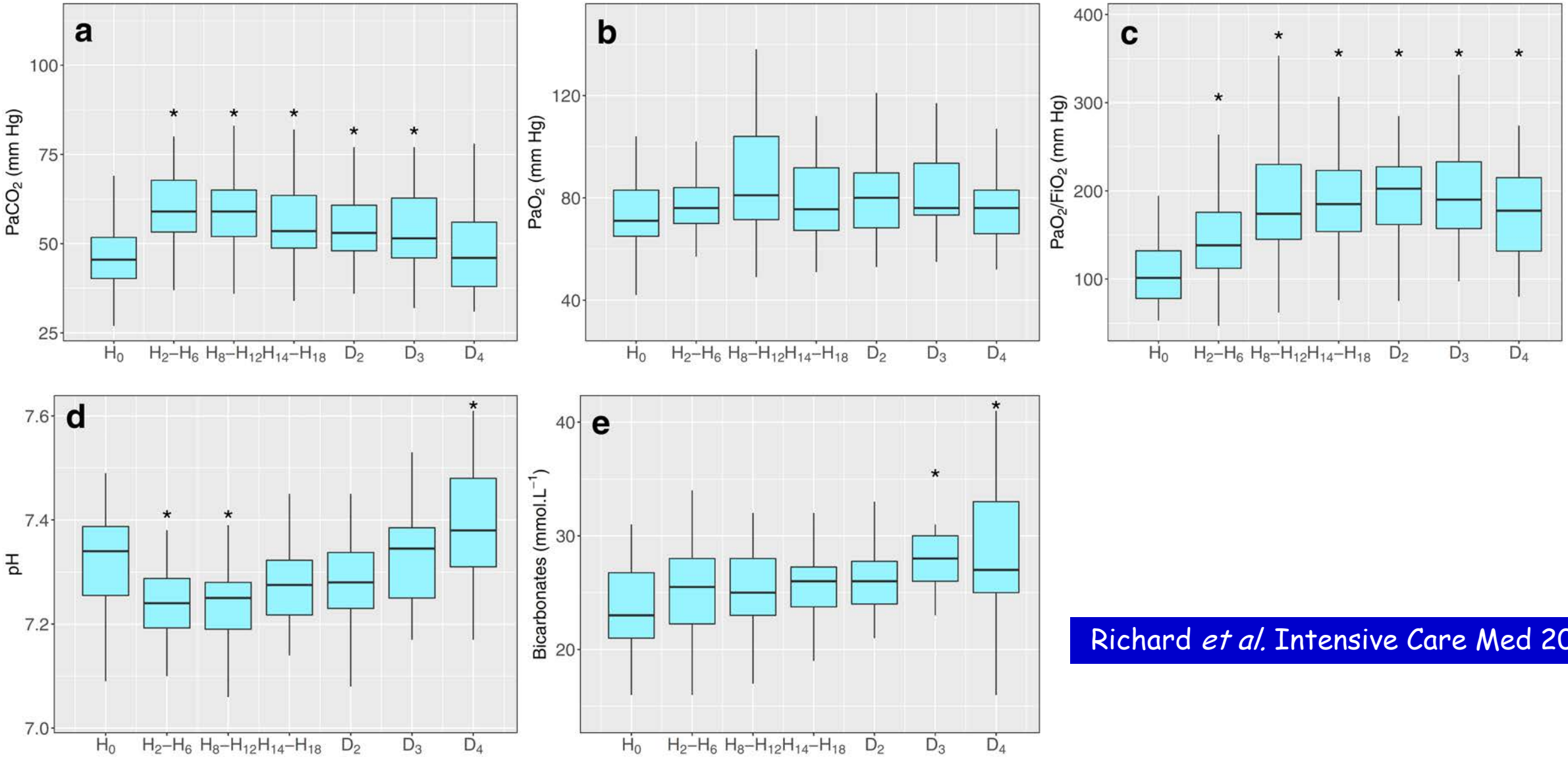
Arterial blood gas over the first 4 days following inclusion



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Online Resource 4. Physiological parameters over the first four days following inclusion.

Variables	H_0	H_2-H_6	H_8-H_{12}	H_{14}-H_{18}	D_2	D_3	D_4
Patients alive under MV	34	34	34	34	34	31	31
ΔP (cm H_2O)	12 [9-15]	9 [8-11]†	9 [7-11]†	9 [7-11]†	8 [6-11]†	8 [6-12]†	9 [7-14]†
VT (mL.kg^{-1} PBW)	6.0 [5.9-6.1]	4.0 [4.0-4.2]†	4.0 [4.0-4.4]†	4.0 [4.0-4.5]†	4.1 [4.0-4.7]†	4.2 [4.0-5.1]†	5.3 [4.1-6.2]
VT < 4.2 mL.kg^{-1} PBW	0 (0%)	26 (76%)	23 (68%)	23 (68%)	22 (65%)	16 (52%)	9 (29%)
VT < 5.25 mL.kg^{-1} PBW	2 (6%)	32 (94%)	31 (91%)	28 (82%)	30 (88%)	24 (77%)	14 (45%)
RR (min^{-1})	28 [23-30]	37 [33-40]†	36 [34-40]†	38 [34-40]†	40 [35-40]†	37 [30-40]†	30 [26-40]†
Inspiratory time (s)	0.66 [0.60-0.86]	0.50 [0.45-0.58]†	0.50 [0.40-0.56]†	0.50 [0.36-0.56]†	0.50 [0.40-0.55]†	0.50 [0.45-0.62]	0.50 [0.44-0.66]
PEEP (cm H_2O)	10 [8-12]	16 [14-18]†	16 [12-18]†	16 [12-17]†	14 [13-16]†	14 [10-16]†	12 [6-15]
PEEPi (cm H_2O)	1 [0-1]	1 [0-1]	1 [0-1]	1 [0-1]	1 [0-2]	1 [0-1]	1 [0-1]
Plateau pressure (cm H_2O)	24 [19-27]	26 [25-29]†	26 [24-29]†	25 [20-28]	25 [21-27]	24 [20-26]	24 [21-26]
pH	7.34 [7.26-7.39]	7.24 [7.19-7.29]†	7.25 [7.19-7.28]†	7.28 [7.22-7.32]	7.28 [7.23-7.34]	7.35 [7.25-7.39]	7.38 [7.31-7.48]†
$PaCO_2$ (mm Hg)	46 [40-52]	59 [53-68]†	59 [52-65]†	54 [49-64]†	53 [48-61]†	52 [46-63]†	46 [38-56]
PaO_2/FiO_2 (mm Hg)	101 [78-132]	138 [112-176]†	174 [145-230]†	185 [154-223]†	202 [162-227]†	190 [157-233]†	178 [132-215]†
Bicarbonates (mmol/L^{-1})	23 [21-27]	26 [22-28]	25 [23-28]	26 [24-27]	26 [24-28]	28 [26-30]†	27 [25-33]†
Base excess (mmol/L^{-1})	-1.8 [-5.7-1.8]	-2.5 [-5.2-0.9]	-2.7 [-5.6-0.4]	-1.6 [-3-1.3]	-1.1 [-3-1.5]	0.5 [-1.9-4.9]†	2.0 [-1.2-8.2]†
Arterial lactate (mmol.L^{-1})	1.9 [1.3-2.8]	NR	NR	NR	1.6 [1.2-2.0]	1.4 [1.1-1.6]†	1.6 [1.3-2.0]

Values are median [IQR] or count (%); † $p < 0.05$ vs. H_0.

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Adverse events	Number of episodes	Number of patients (%)
Metabolic events		
Severe mixed acidosis with pH < 7.15	16	11 (32%)
Other metabolic events	1	1 (3%)
Respiratory events		
Pneumothorax	2	2 (6%)
Refractory hypoxemia requiring ECMO	1	1 (3%)
Other	6	6 (18%)
Infectious events		
Nosocomial pneumonia	14	13 (38%)
Non-respiratory infection site	4	3 (9%)
Bacteremia	8	7 (21%)
Cardiovascular events		
Shock	5	5 (15%)
Cardiac arrest	3	3 (9%)
Acute cor pulmonale	2	2 (6%)
Supraventricular tachycardia	3	2 (6%)

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Multivariate analysis of variables associated with severe mixed acidosis

Variables	OR [$CI_{95\%}$]
Renal SOFA sub-score at inclusion (per 1 unit increase)	1.91 [1.08-3.71]
pH at inclusion (per 0.01 unit increase)	0.91 [0.80-0.99]

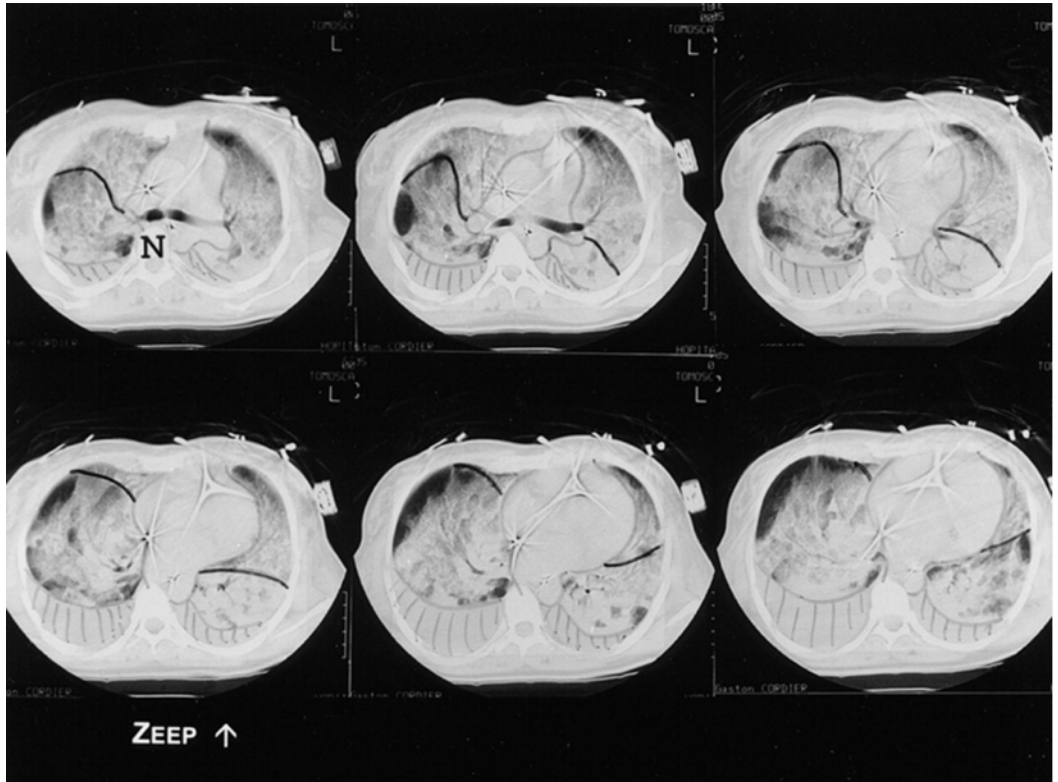
$CI_{95\%}$ = 95% confidence interval; OR = odd ratio.

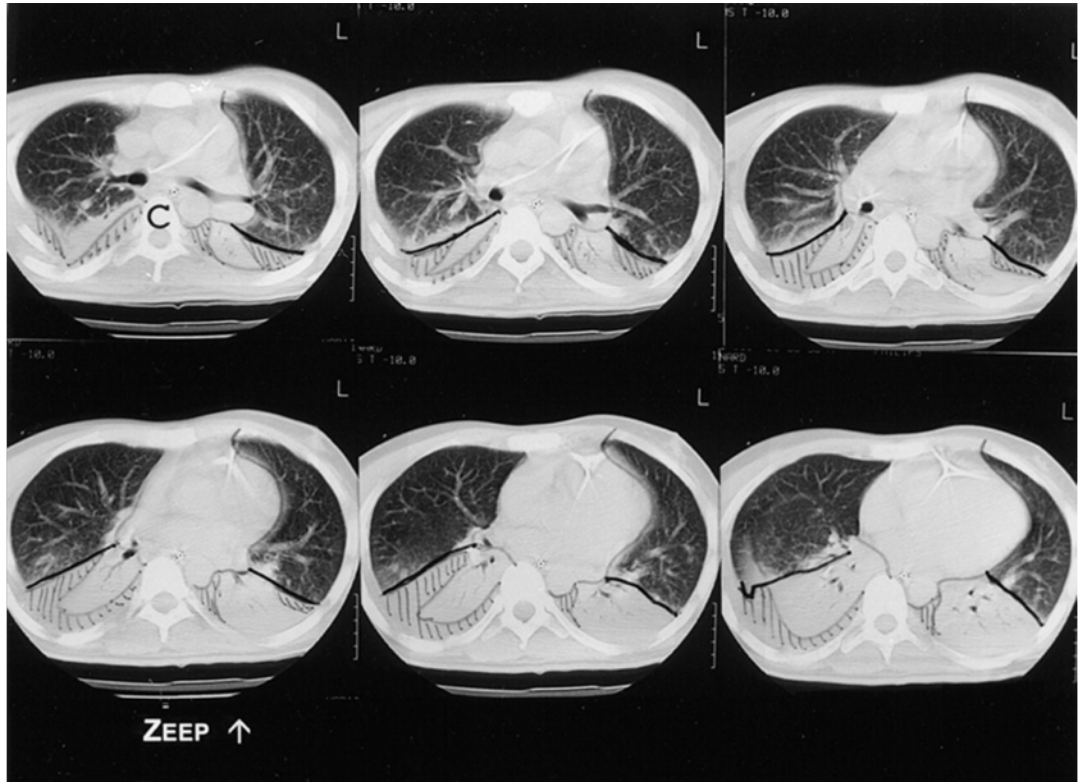
The following variables were entered into the multivariate model: tidal volume at inclusion, renal and cardiovascular SOFA sub-scores at inclusion, pH at inclusion, bicarbonates at inclusion, lactate at inclusion. Base excess was not entered into the multivariate model because of multicollinearity with pH. No significant interaction was identified between renal SOFA sub-score and pH at inclusion.

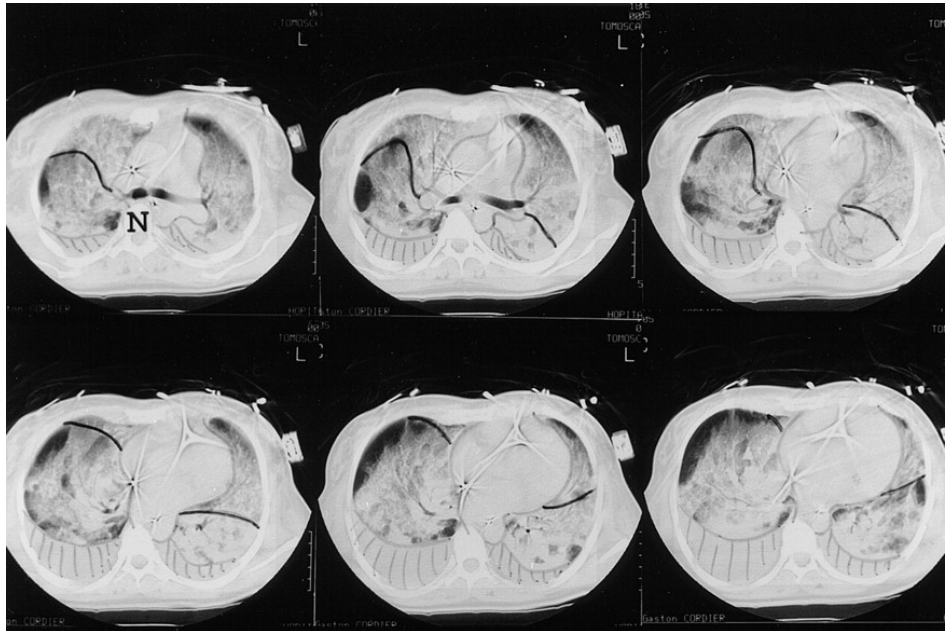
Richard *et al.* Intensive Care Med 2019

Personalised mechanical ventilation tailored to lung morphology versus low positive end-expiratory pressure for patients with acute respiratory distress syndrome in France (the LIVE study): a multicentre, single-blind, randomised controlled trial

*Jean-Michel Constantin, Matthieu Jabaudon, Jean-Yves Lefrant, Samir Jaber, Jean-Pierre Quenot, Olivier Langeron, Martine Ferrandière, Fabien Grelon, Philippe Seguin, Carole Ichai, Benoit Veber, Bertrand Souweine, Thomas Uberti, Sigismond Lasocki, François Legay, Marc Leone, Nathanael Eisenmann, Claire Dahyot-Fizelier, Hervé Dupont, Karim Asehnoune, Achille Sossou, Gérald Chanques, Laurent Muller, Jean-Etienne Bazin, Antoine Monsel, Lucile Borao, Jean-Marc Garcier, Jean-Jacques Rouby, Bruno Pereira, Emmanuel Futier, for the AZUREA Network**



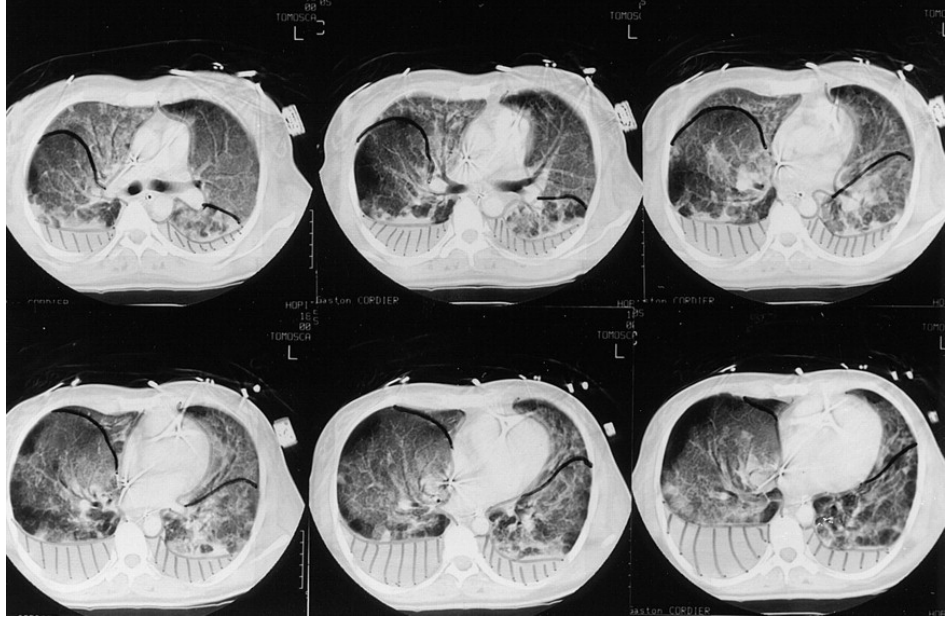


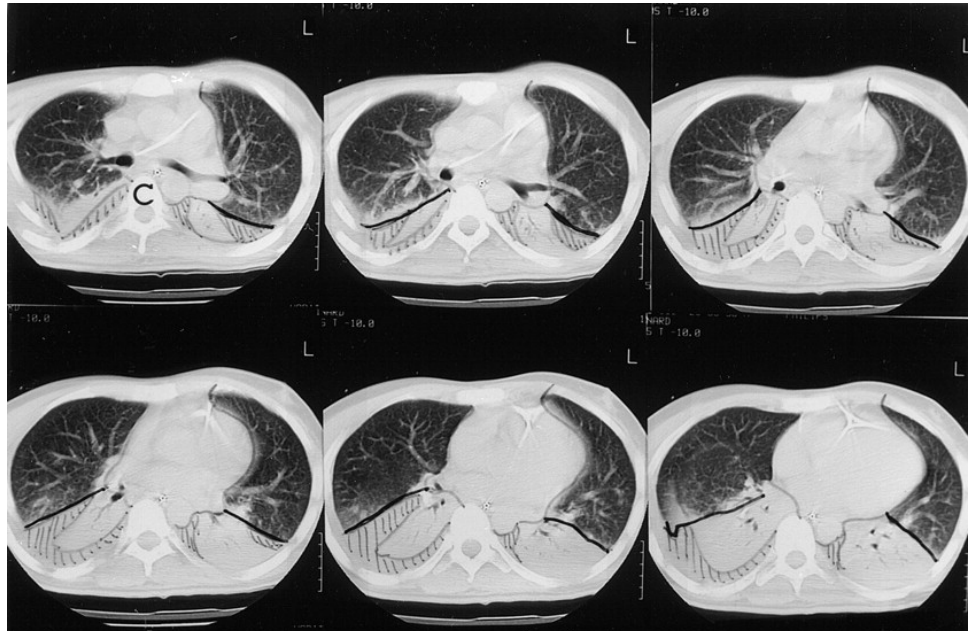


ZEEP ↑

PEEP ↓

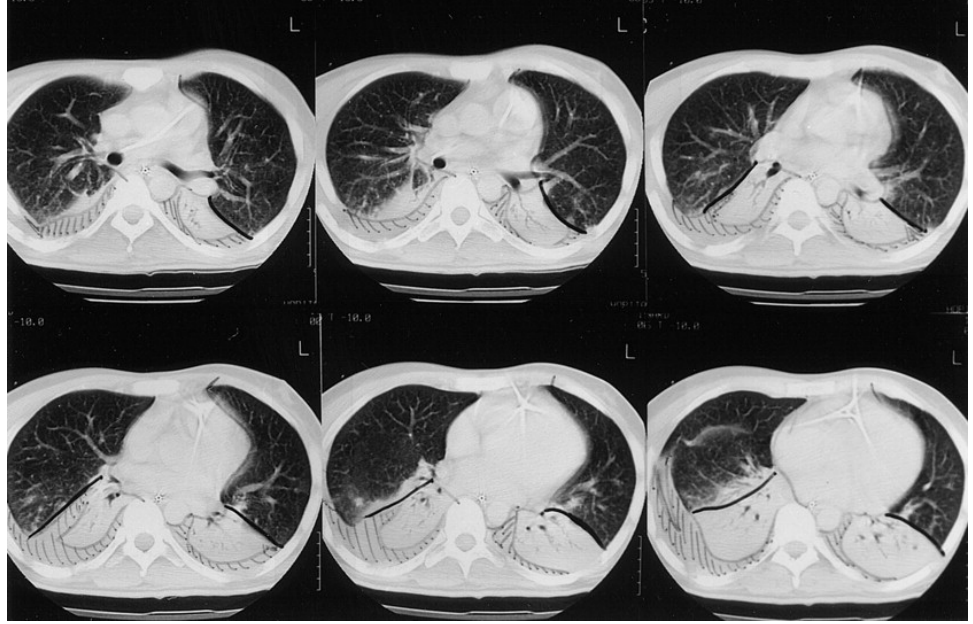
HOMOGENE: recrutement





ZEEP ↑

PEEP ↓HETEROGENE: pas/peu de recrutement



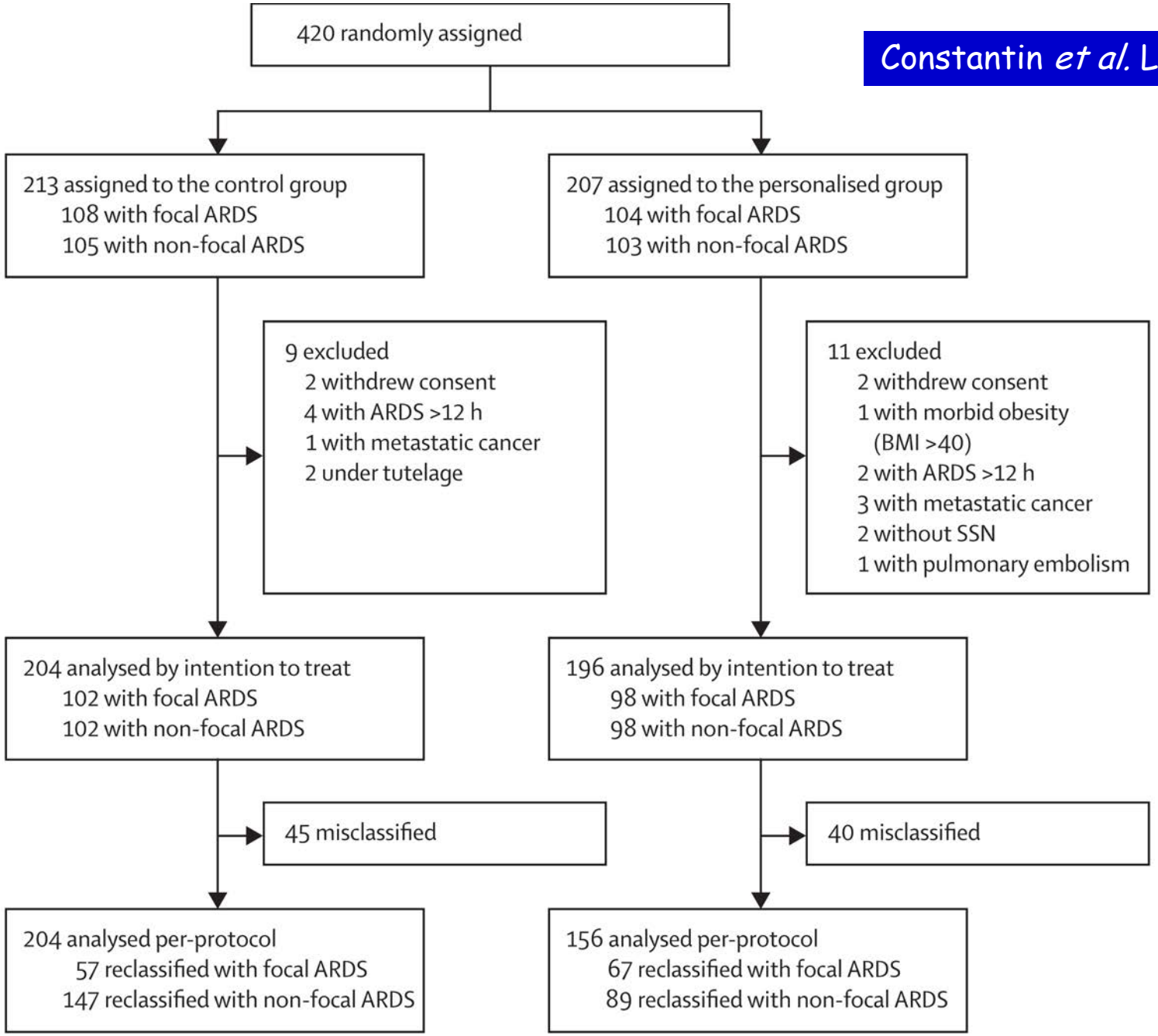
- CT scanning was used to assess lung morphology for 56 (29%) of 196 patients in the personalised group and 80 (39%) of 204 patients in the control group

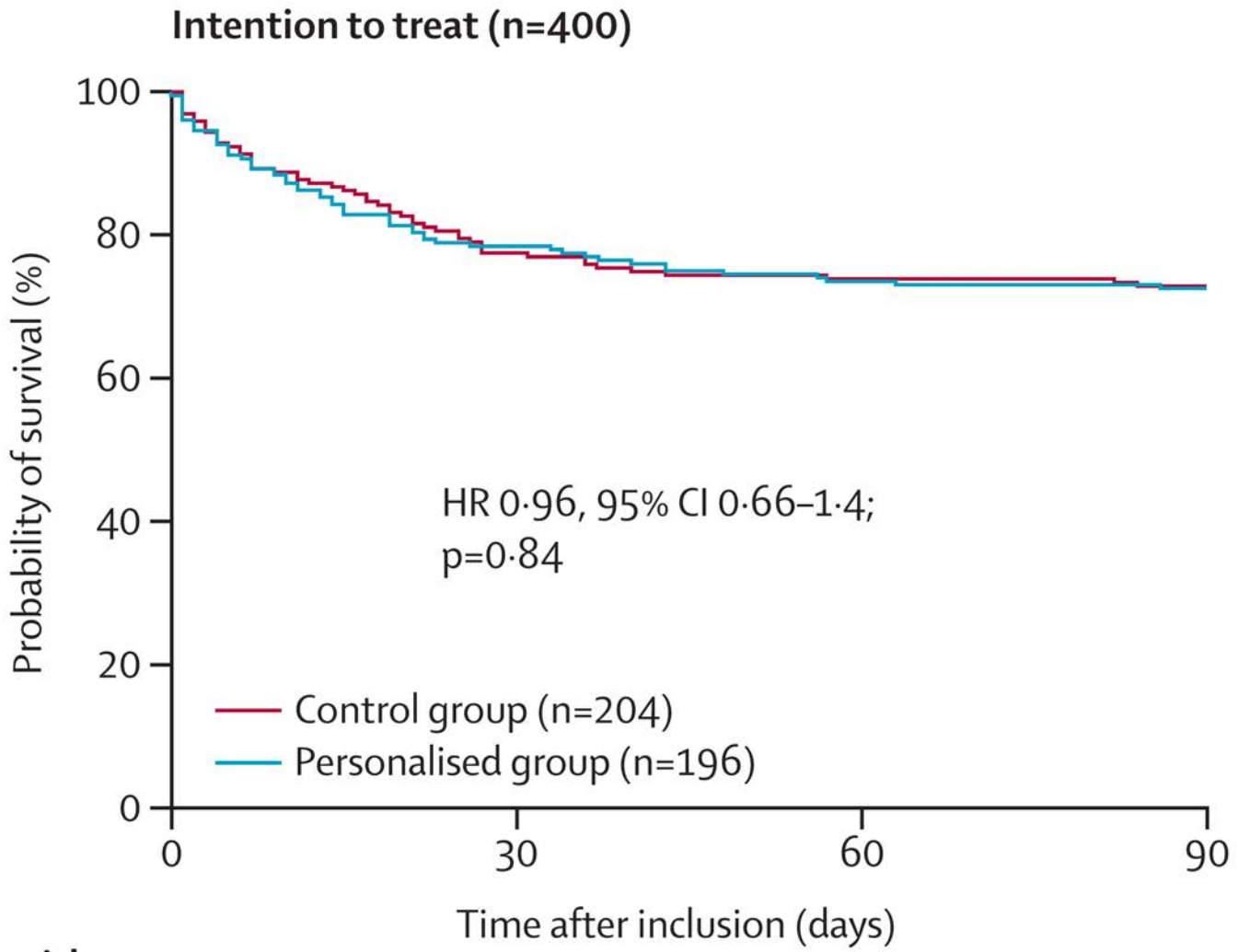
	Control group (n=204)	Personalised group (n=196)	
		Focal lung morphology	Non-focal lung morphology
Mode of ventilation	Volume control	Volume control	Volume control
Tidal volume	6 mL/kg IBW	8 mL/kg IBW	6 mL/kg IBW
PEEP	PEEP/FiO_2	5–9 cm H_2O	To reach Pplat of 30 cm H_2O
PEEP-PSV	Free	5–9 cm H_2O	≥10 cm H_2O
Recruitment manoeuvre	Rescue	Rescue	Mandatory
Prone position	Encouraged	Mandatory	Rescue

IBW=ideal body weight. PEEP=positive-end expiratory pressure. FiO_2=fraction of inspired oxygen. Pplat=end-inspiratory plateau pressure. PEEP-PSV=positive-end expiratory pressure used during pressure support ventilation.

Table 1: **Summary of ventilator settings according to lung morphology and randomisation group**

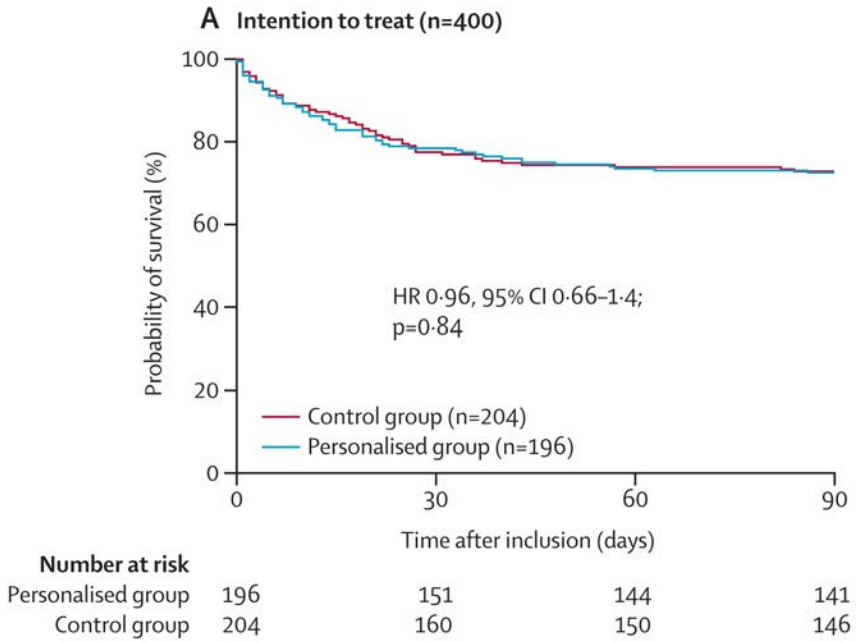
Constantin *et al.* Lancet Resp Med 2019

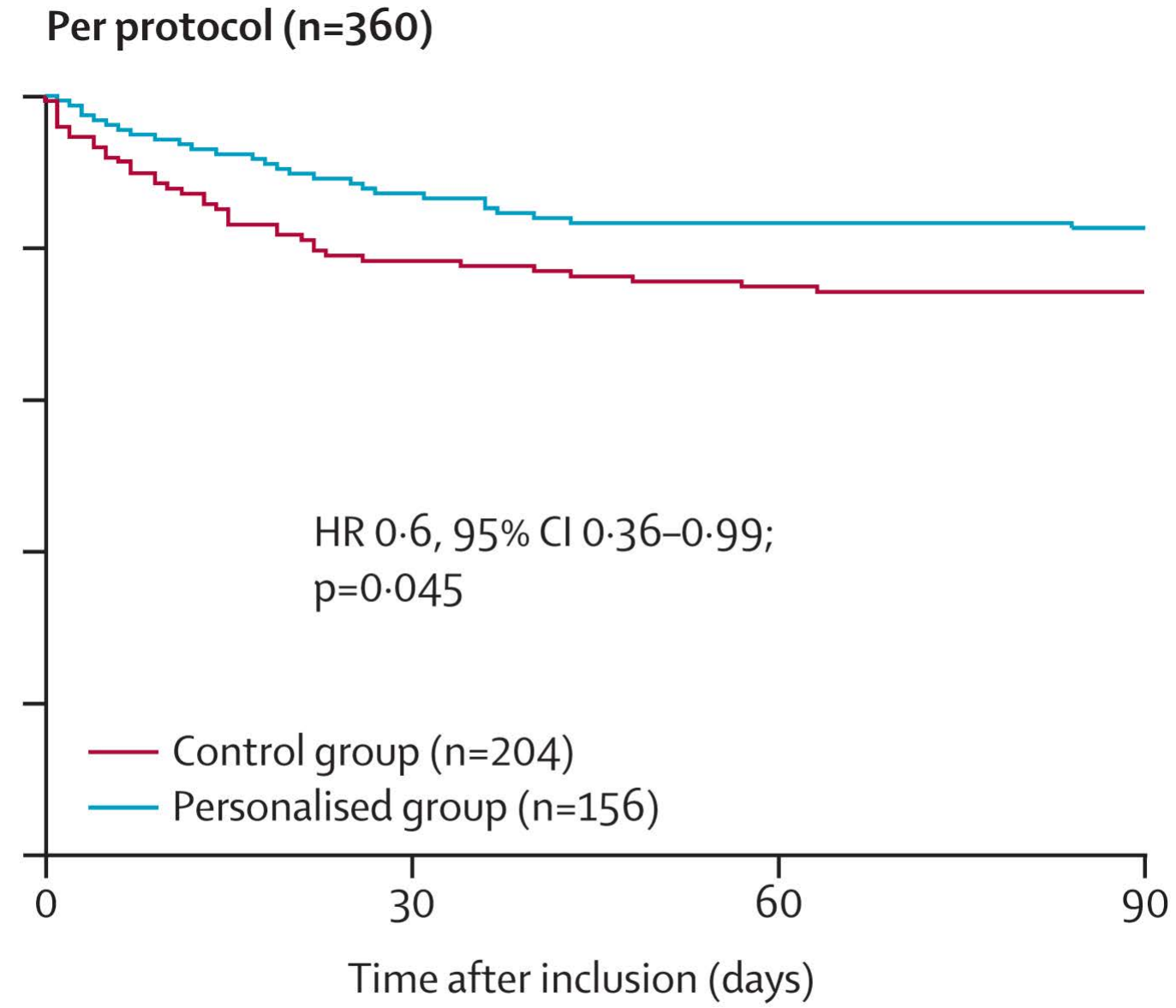




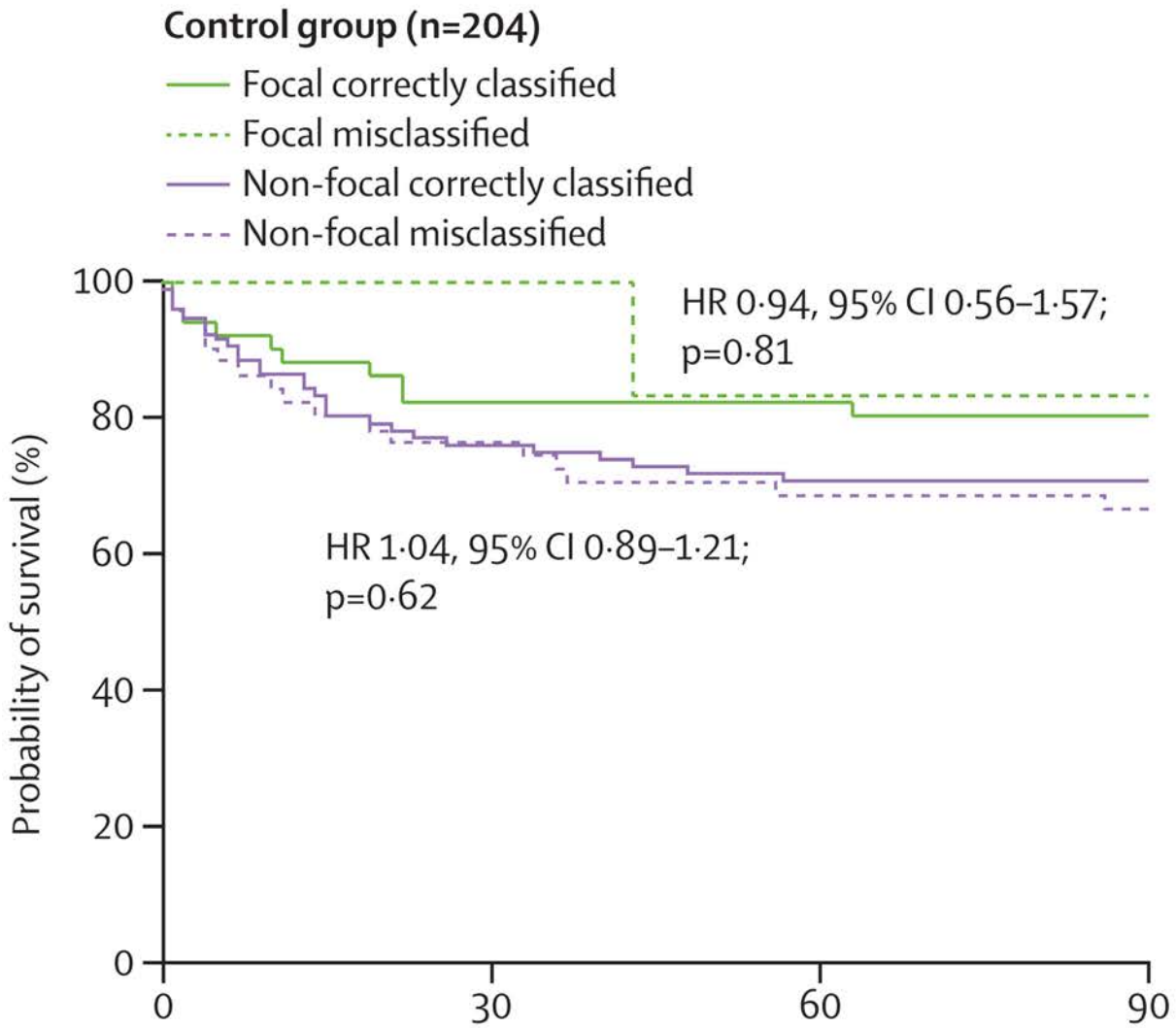
Number at risk				
Personalised group	196	151	144	141
Control group	204	160	150	146

Constantin *et al.* Lancet Resp Med 2019



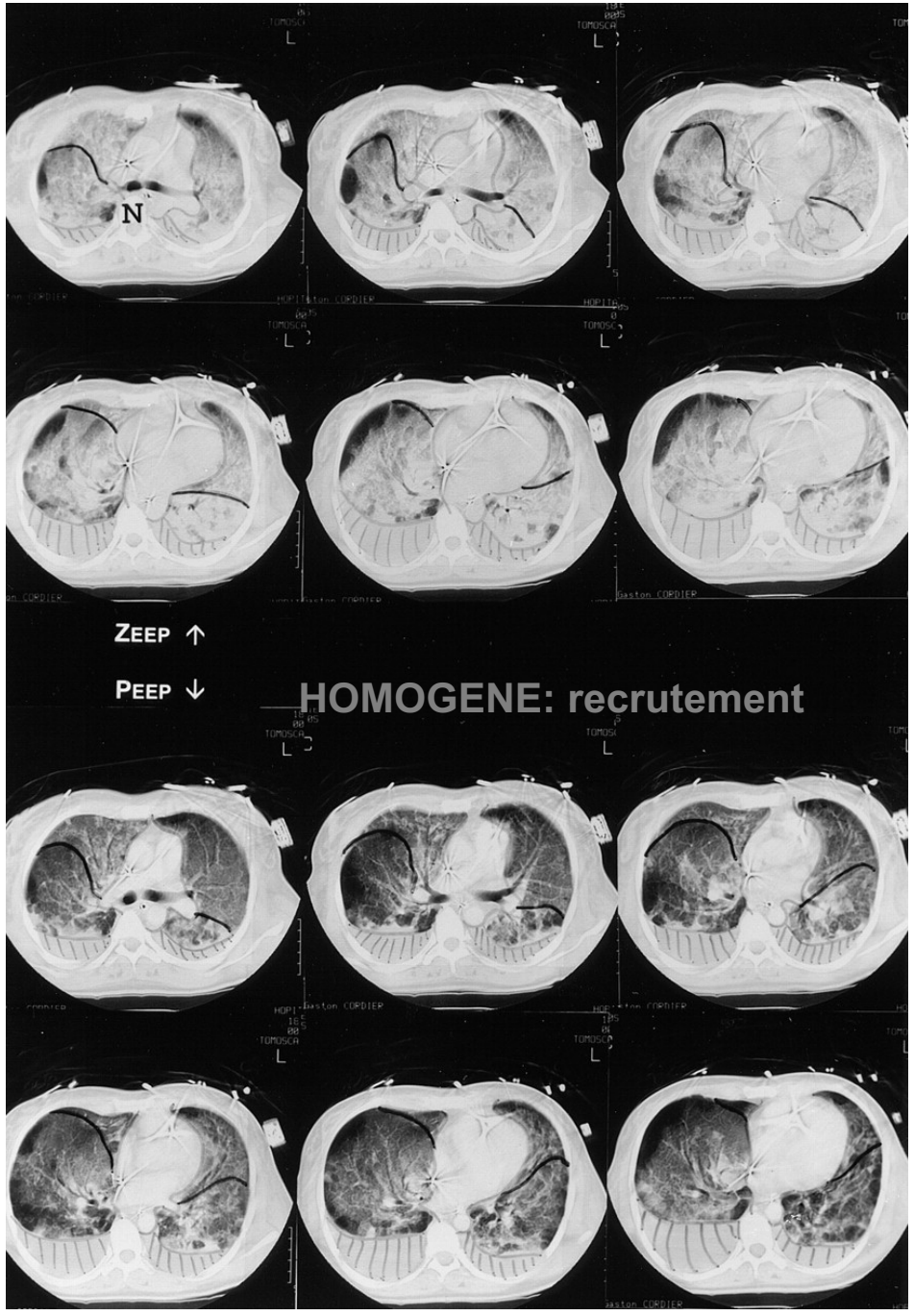


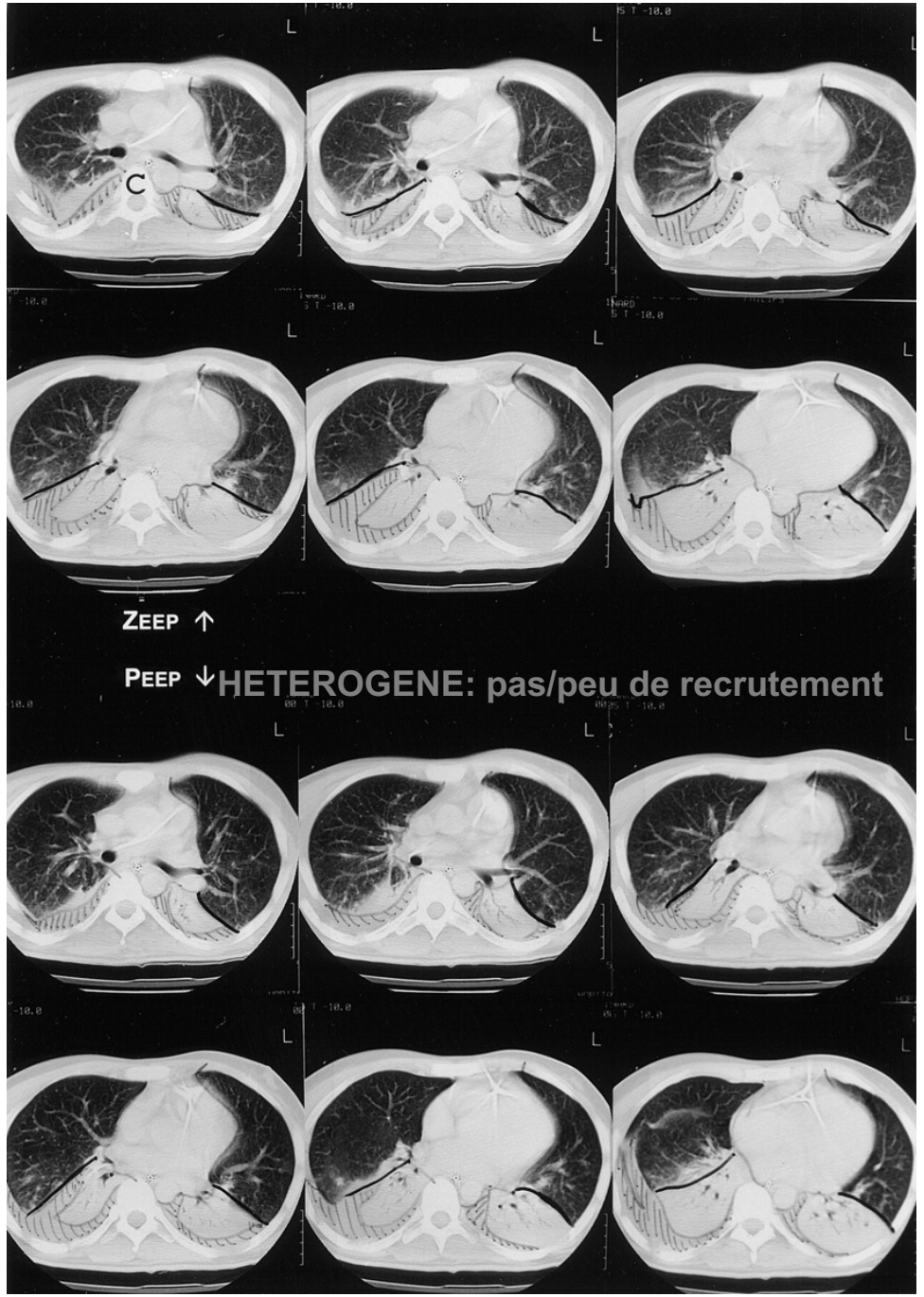
Constantin *et al.* Lancet Resp Med 2019



Constantin *et al.* Lancet Resp Med 2019

PEEP élevée 12-20...





PEEP modérée 8-10

DV très précoce

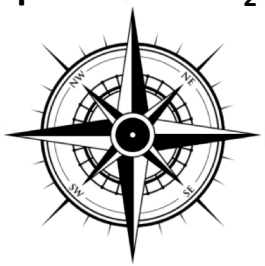
Recommandations Formalisées d'Experts

Prise en charge du SDRA de l'adulte à la phase initiale

Cécile Aubron (Brest), Laurent Brochard (Toronto), Jean-Daniel Chiche (Paris), Alain Combes (Paris), Didier Dreyfuss (Colombes), Jean-Marie Forel (Marseille), Claude Guérin (Lyon), Samir Jaber (Montpellier), Armand Mekontso-Dessap (Créteil), Alain Mercat (Angers), Laurent Papazian (Marseille), Jean-Christophe Richard (Annecy), Damien Roux (Colombes), Antoine Vieillard-Baron (Boulogne)

srlf
SOCIÉTÉ
DE RÉANIMATION
DE LANGUE FRANÇAISE

Prise en charge initiale du SDRA en 2019



Toute initiation de ventilation invasive avec sédation en réanimation

Vt autour de 6 ml/kg de poids prédit à la phase initiale en l'absence d'acidose métabolique profonde

Recherche systématique des critères diagnostiques de SDRA

SDRA confirmé

Vt autour de 6 ml/kg de poids prédit
Pplateau < 30 cmH2O
PEP > 5 cmH2O
Surveiller hypercapnie

P/F < 200 — PEP élevée si améliore oxygénation

P/F < 150 — Curarisation Décubitus ventral

P/F < 80 — Discuter ECMO VV

Sévérité SDRA

Réévaluation des réglages et de la stratégie de prise en charge au moins toutes les 24h

ECMO veino-veineuse
- ❑ Si hypoxémie réfractaire ou ventilation protectrice non applicable
- ❑ A discuter avec un centre expert

Modalités de la curarisation : IVSE
- ❑ Précocement, dans les 48h du diagnostic

Modalités du décubitus ventral (DV)
- ❑ séance ≥ 16 heures, plusieurs séances

SDRA modéré ou sévère → Test PEP élevée (> 12 cmH2O)
Utilisation PEP élevée si :
- ❑ Amélioration de l'oxygénation
- ❑ Sans dégradation significative de la compliance du système respiratoire et de l'hémodynamique
- ❑ Maintien Pplateau < 30 cmH2O, monitorage continu

Critères du SDRA
- ❑ PaO2/FiO2 ≤ 300 mmHg
- ❑ PEP ≥ 5 cmH2O
- ❑ Opacités bilatérales sur l'imagerie thoracique
- ❑ Non expliquées par défaillance ventriculaire gauche
- ❑ Évolution depuis moins de 7 jours

Traitement possible
- ➢ Monoxyde d'azote inhalé (iNO), si hypoxémie persistante en DV avant discussion de l'ECMO VV
- ➢ Ventilation spontanée après la phase aiguë avec Vt généré autour de 6 ml/kg sans dépasser 8 ml/kg

Pas de recommandation possible
- ➢ ECCO2R
- ➢ Pression motrice
- ➢ Ventilation spontanée à la phase aiguë

Probablement ne pas faire
- ➢ Manœuvres de recrutement systématiques

Ne pas faire
- ➢ HFOV