JRUR 2024

20ème Journée de Réanimation & Urgences Respiratoires

JEUDI 11 AVRIL

Faculté des Sciences Médicales et Paramédicales - Timone, Marseille

Aix*Marseille université

Vingt ans de SDRA

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srlf

TOUS ENSEMBLE · SOINS · PROGRÈS · BIENVEILLANCE · COMPÉTENCES · HUMANITÉ · NOUS SOMMES LA RÉANIMATION

UNIVERSITÀ DI CORSICA PASQUALE PAOLI

Università di Corsica Pasquale Paoli

Conflicts of interest

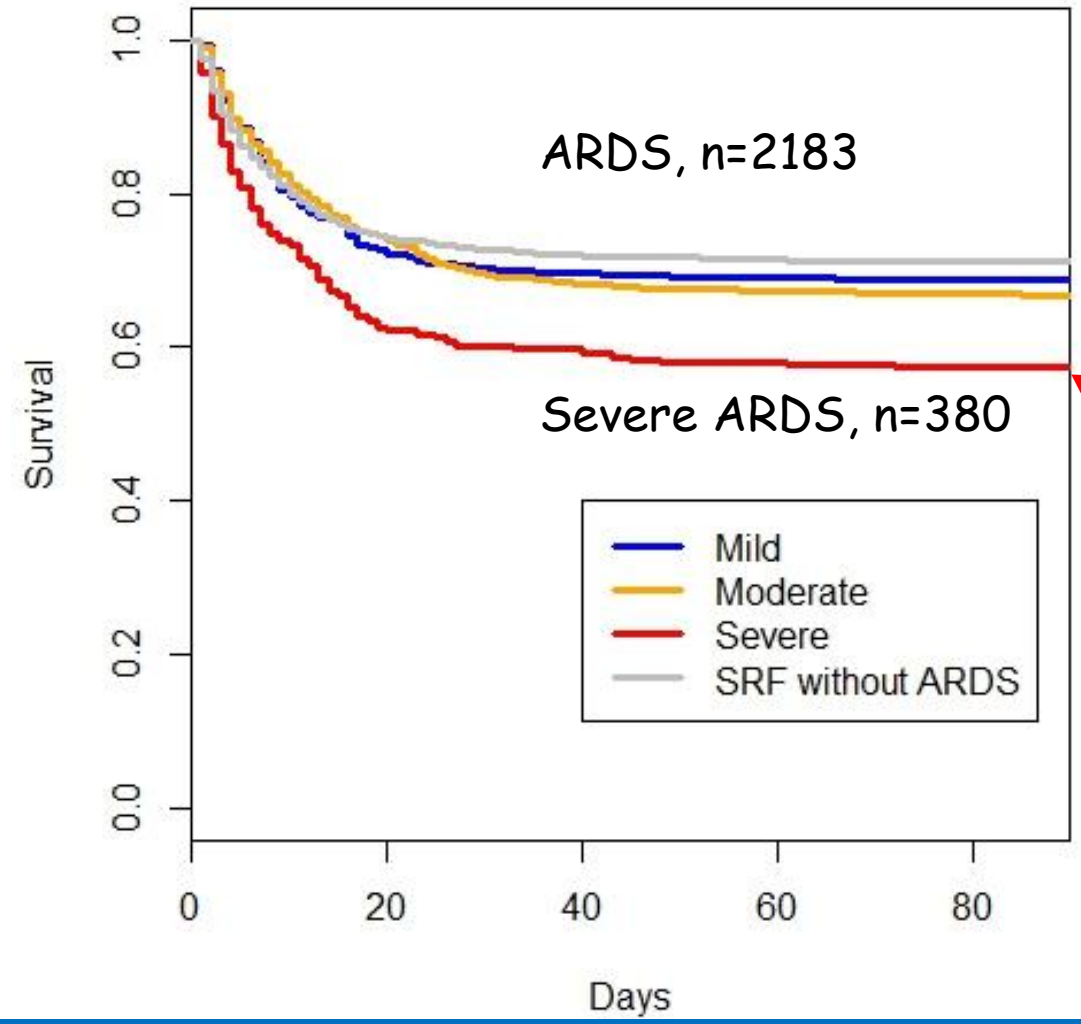
- Fees and/or travel expenses
  - Air Liquide Santé
  - Maquet
  - Drager
  - GE
  - Faron
  - GSK
  - Covidien
  - Janssen
  - Orion
  - Johnson & Johnson
  - Peninsula Pharma

Berlin definition

	Acute respiratory distress syndrome		
Timing	Within 1 week of a known clinical insult or new/worsening respiratory symptoms		
Chest imaging[a]	Bilateral opacities—not fully explained by effusions, lobar/lung collapse, or nodules		
Origin of Edema	Respiratory failure not fully explained by cardiac failure or fluid overload; Need objective assessment (e.g., echocardiography) to exclude hydrostatic edema if no risk factor present		
	Mild	Moderate	Severe
Oxygenation[b]	$200 < PaO_2/FiO_2 \leq 300$ with PEEP or CPAP ≥ 5 cmH_2O[c]	$100 < PaO_2/FiO_2 \leq 200$ with PEEP ≥ 5 cmH_2O	$PaO_2/FiO2 \leq 100$ with PEEP ≥ 5 cmH_2O

Ferguson *et al.* Intensive Care Med 2012

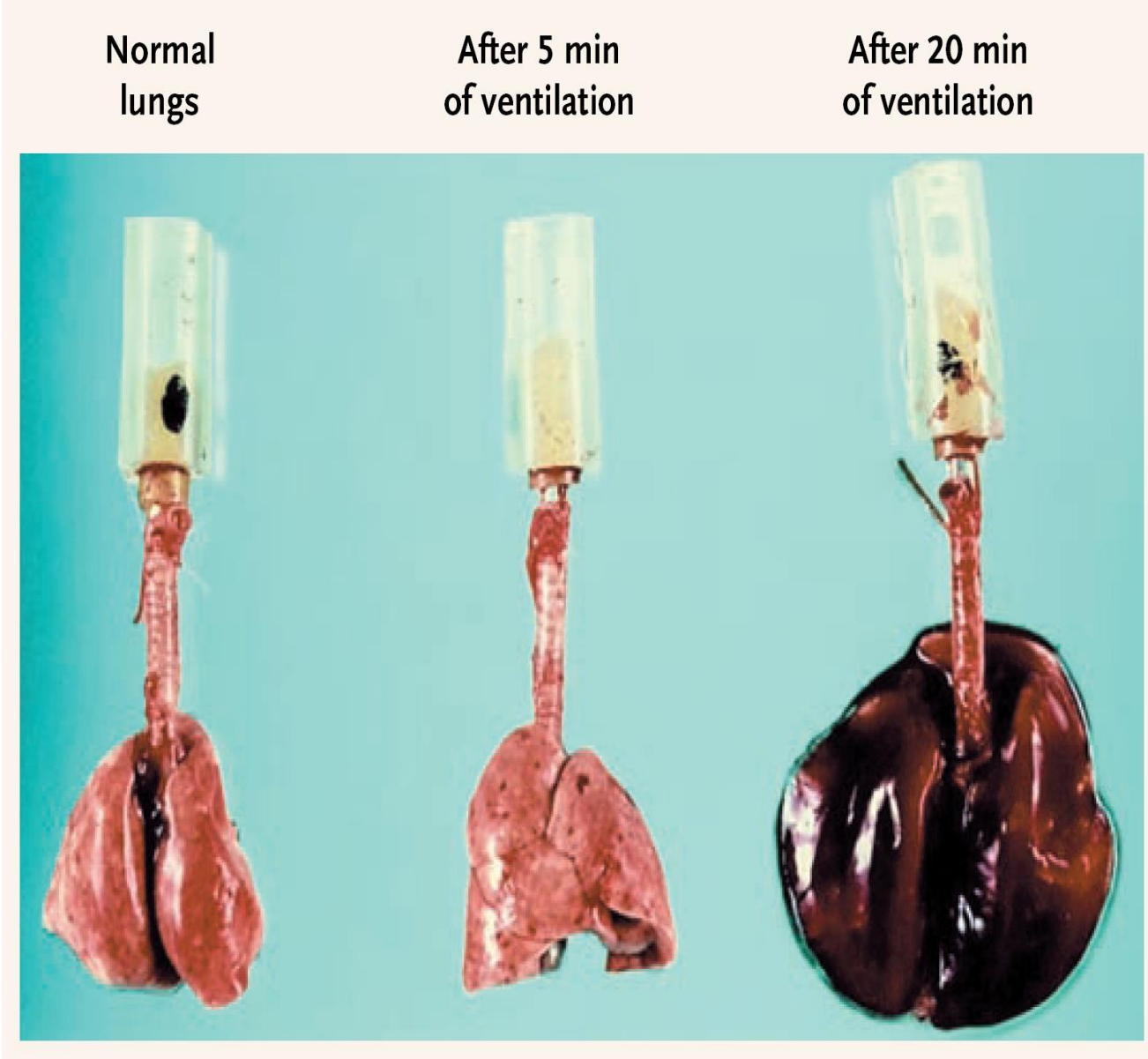
Patient Survival to Day 90



46% Mortality

VILI prevention

Dreyfuss & Saumon AJRCCM 98



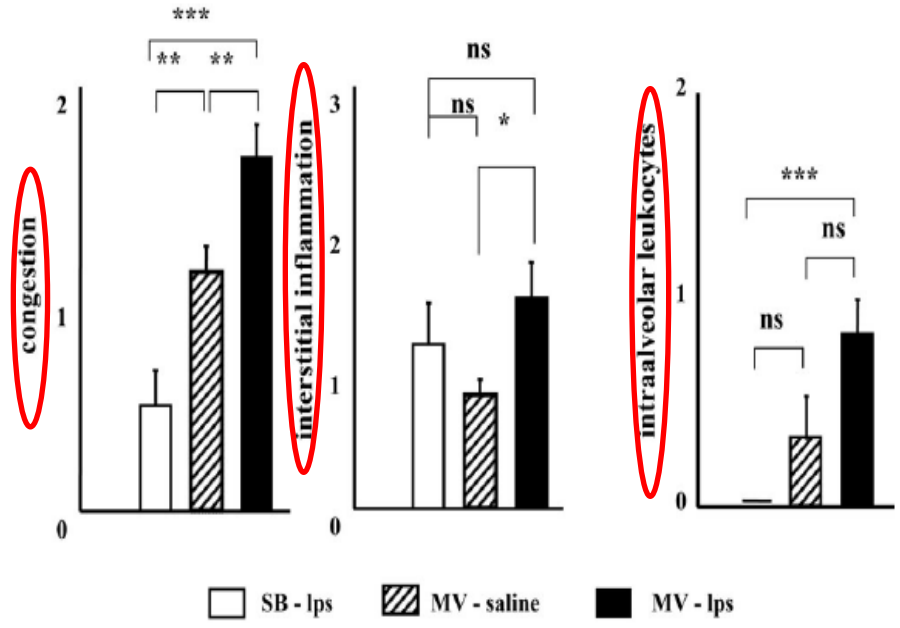
Second-hit
experimental data

- **Injured lungs**
  - ↗ edema: synergy ANTU - Vt 45 ml/kg

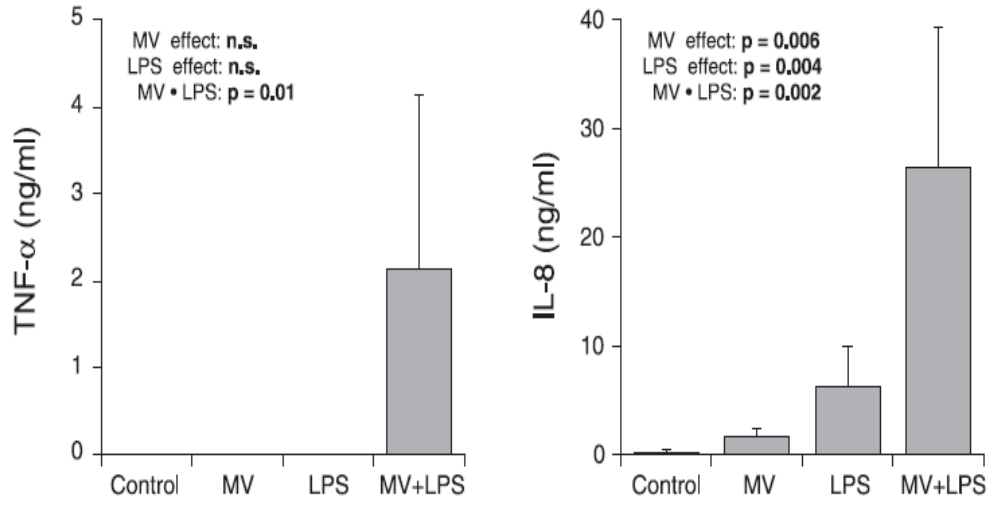
Dreyfuss *et al.* AJRCCM 95

- **Healthy lungs**
  - LPS + MV

Brégeon *et al.* Anesthesiology 2005



Altemeier *et al.* Am J Physiol 2004



Tidal volume reduction

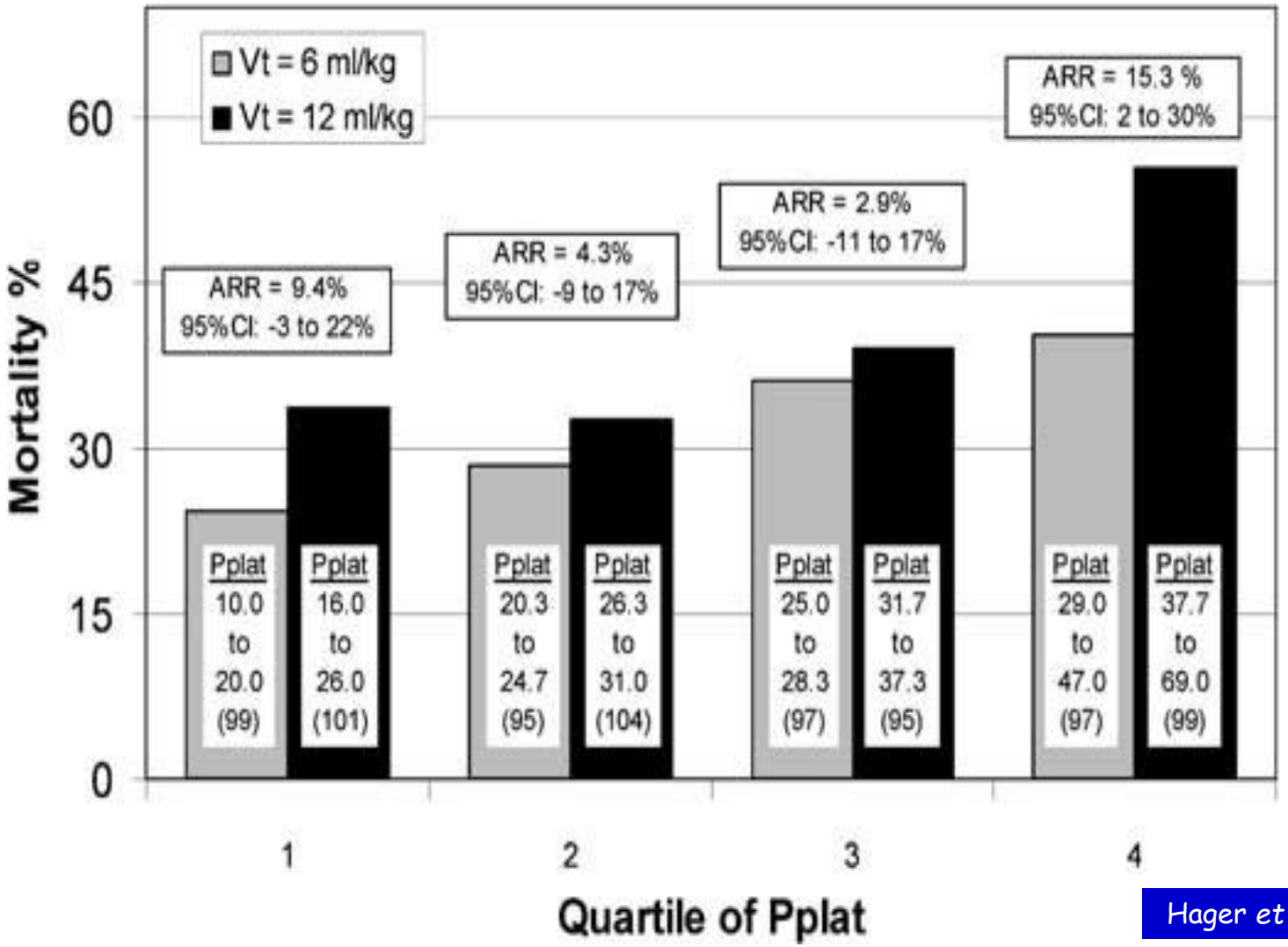
The New England Journal of Medicine

VOLUME 342 MAY 4, 2000 NUMBER 18

VENTILATION WITH LOWER TIDAL VOLUMES AS COMPARED WITH TRADITIONAL TIDAL VOLUMES FOR ACUTE LUNG INJURY AND THE ACUTE RESPIRATORY DISTRESS SYNDROME

THE ACUTE RESPIRATORY DISTRESS SYNDROME NETWORK*

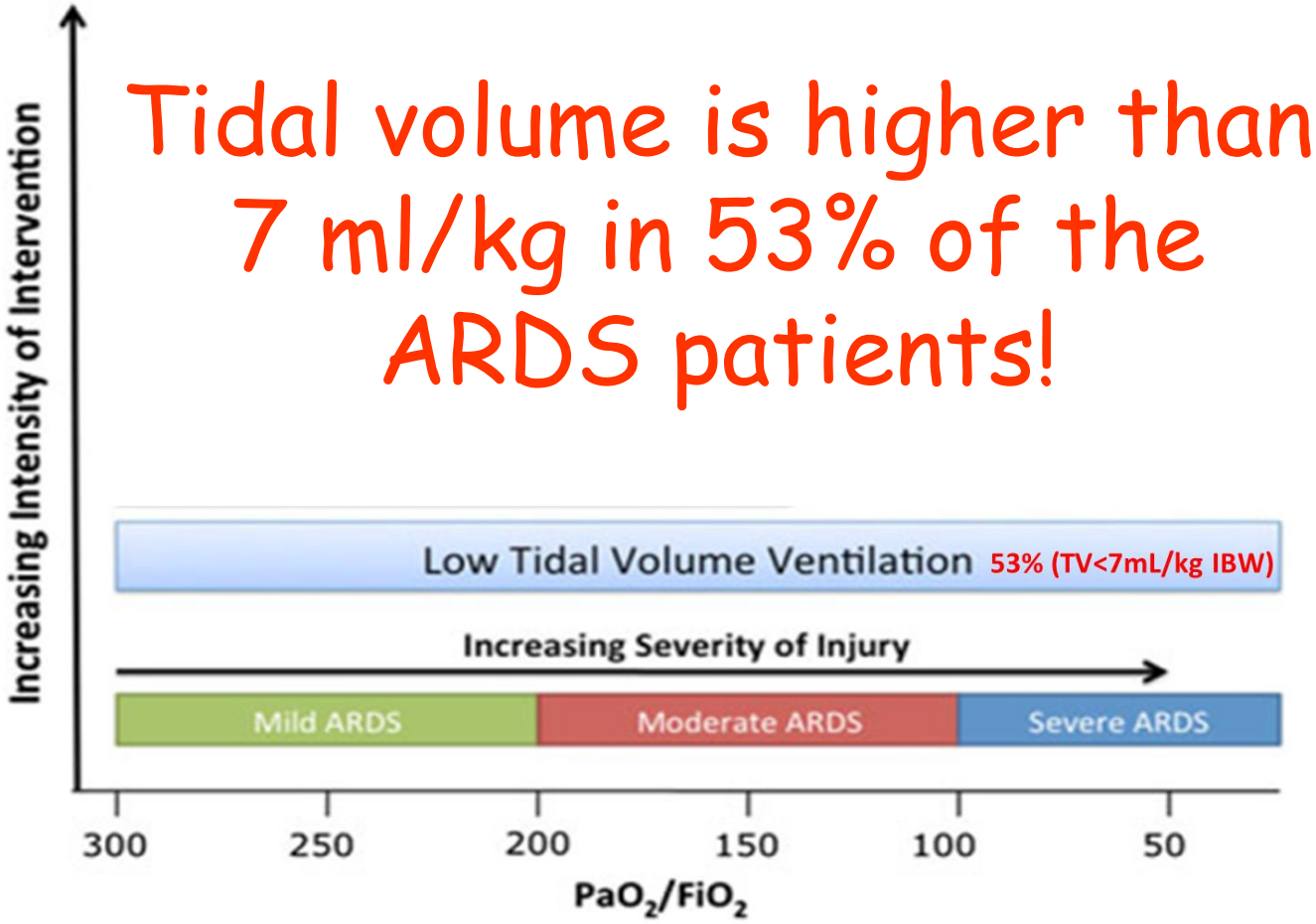
Beneficial effects



Hager et al. AJRCCM 2005

Lungsafe study

Tidal volume is higher than 7 ml/kg in 53% of the ARDS patients!

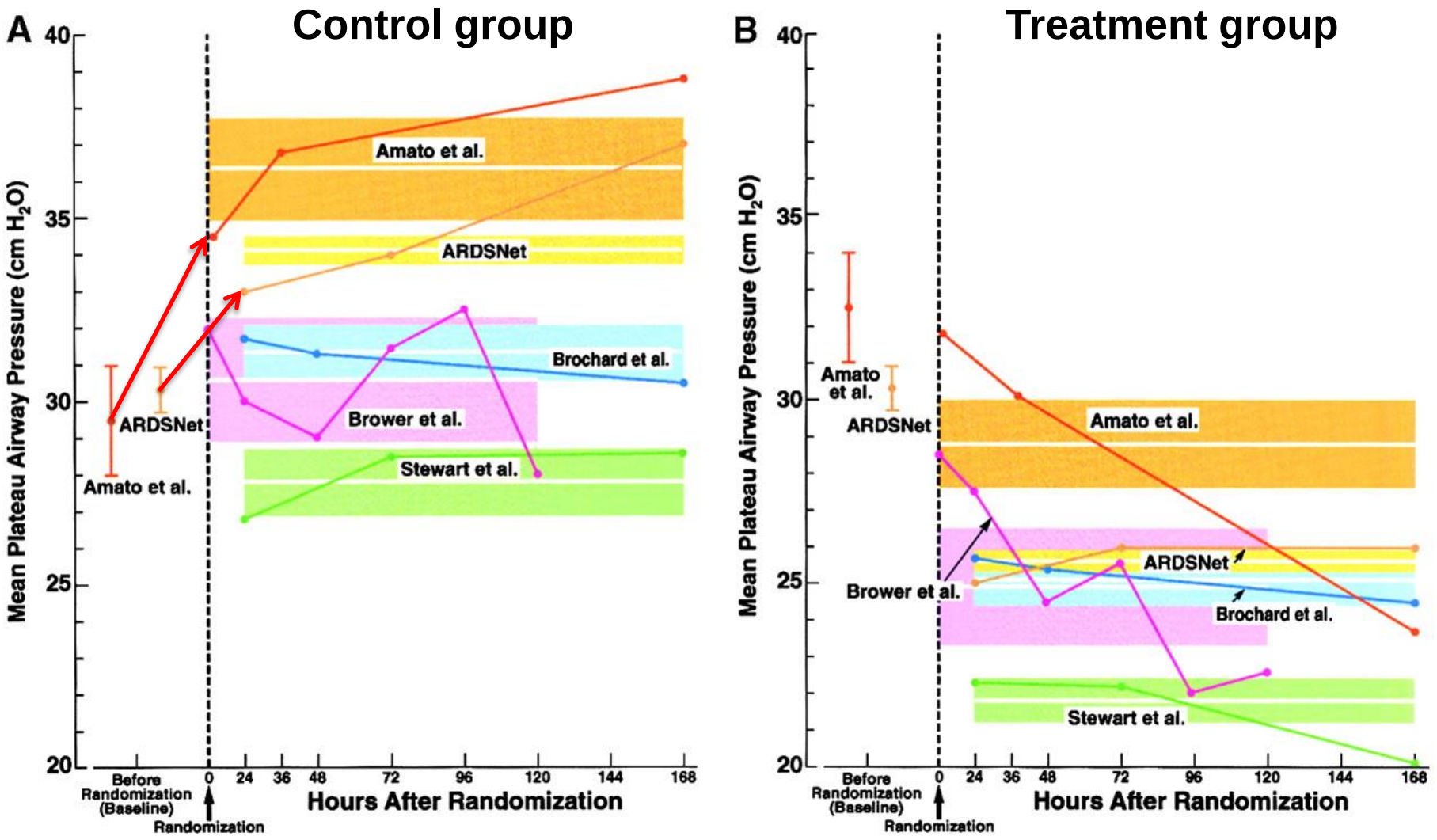




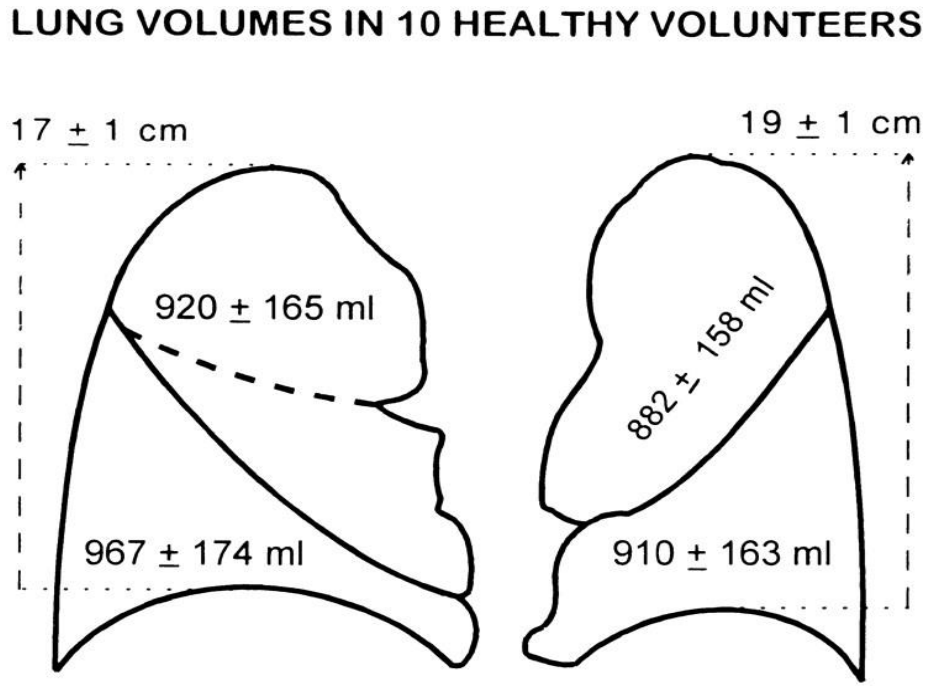


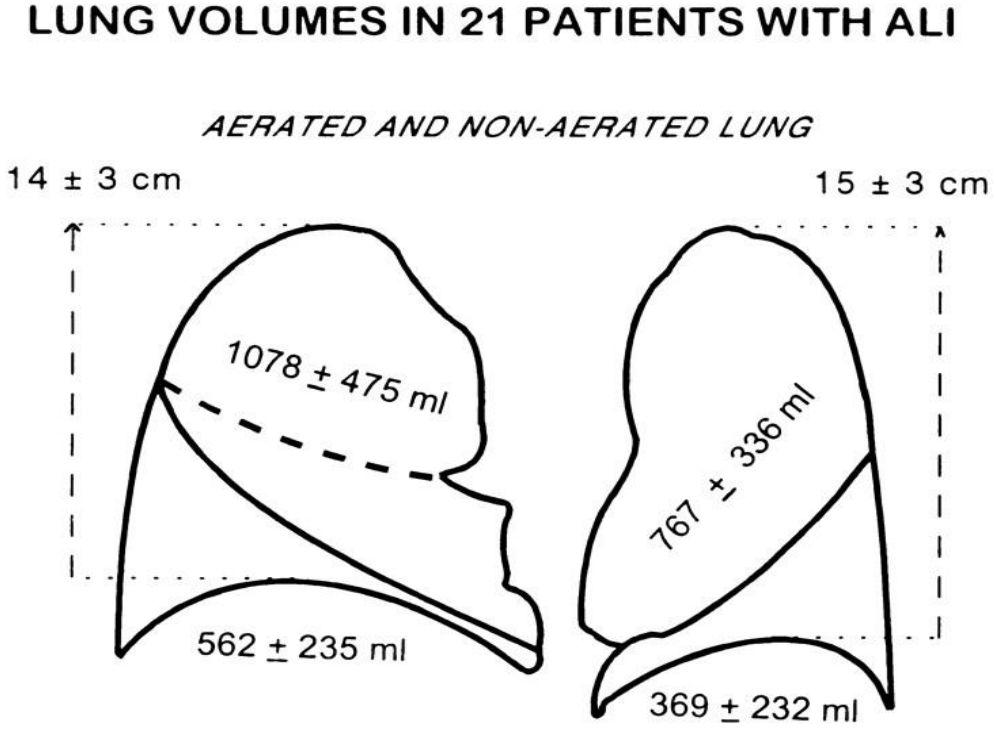
	PLV	cont	PLV	cont	PLV	cont	PLV	cont	PLV	cont
n	60	60	26	26	58	58	29	24	400	400
Vt	7.0	10.7	7.5	10.2	7.1	10.5	6.0	12.0	6.2	11.8
PEEP	8.6	7.2	9.5	8.3	10.7	10.7	16.4	8.7	9.4	8.6
Pplat	22	27	28	31	26	32	30	37	25	33

Eichacker et al. AJRCCM 2003

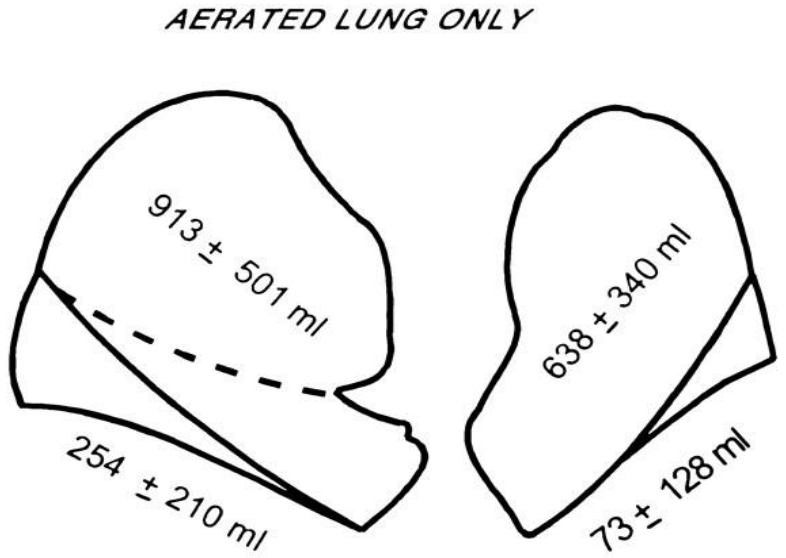


Lung volume reduction

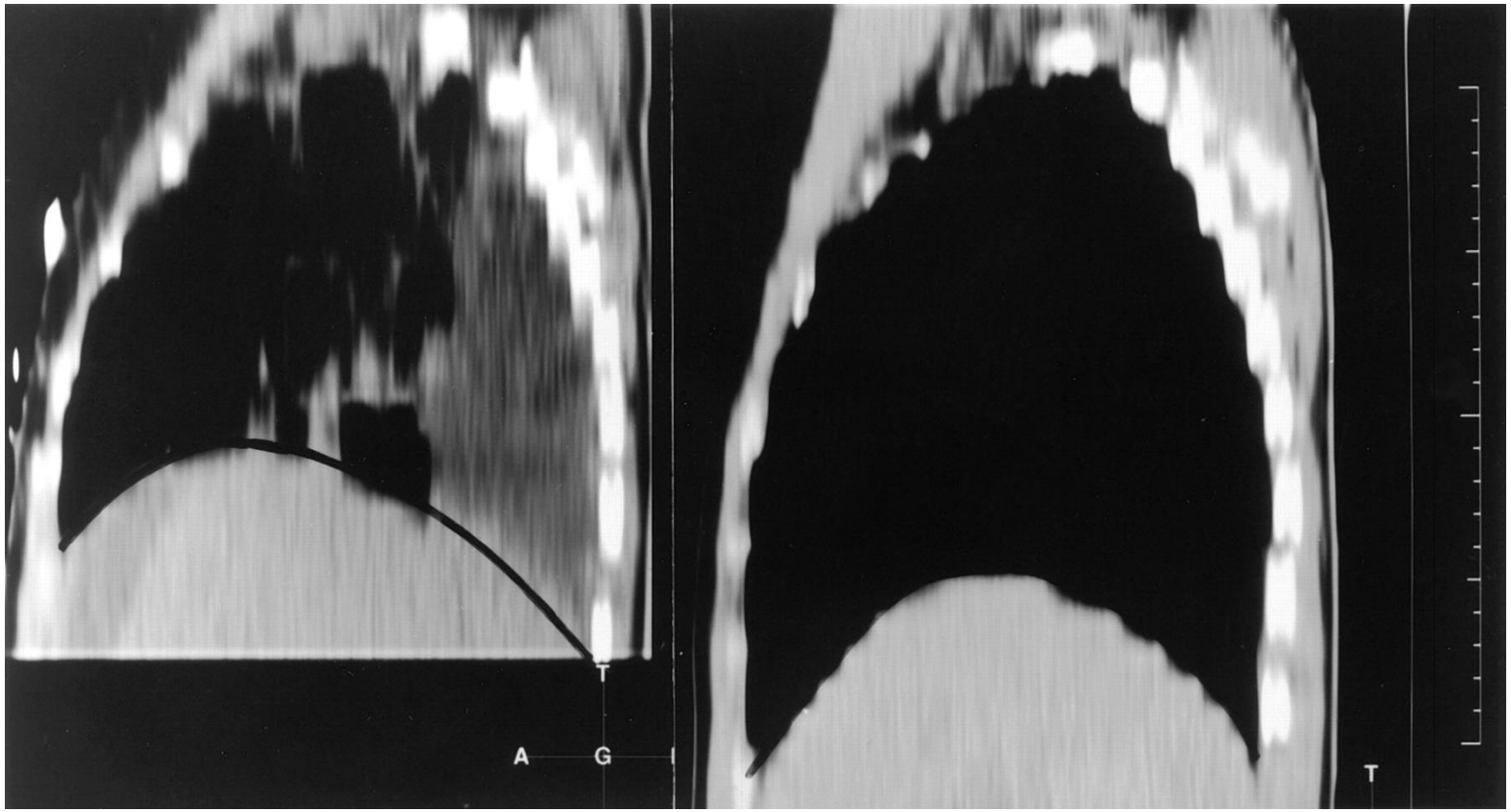




Puybasset et al. AJRCCM 98



Lung volume reduction



Puybasset et al. AJRCCM 98

Niveau de PEEP

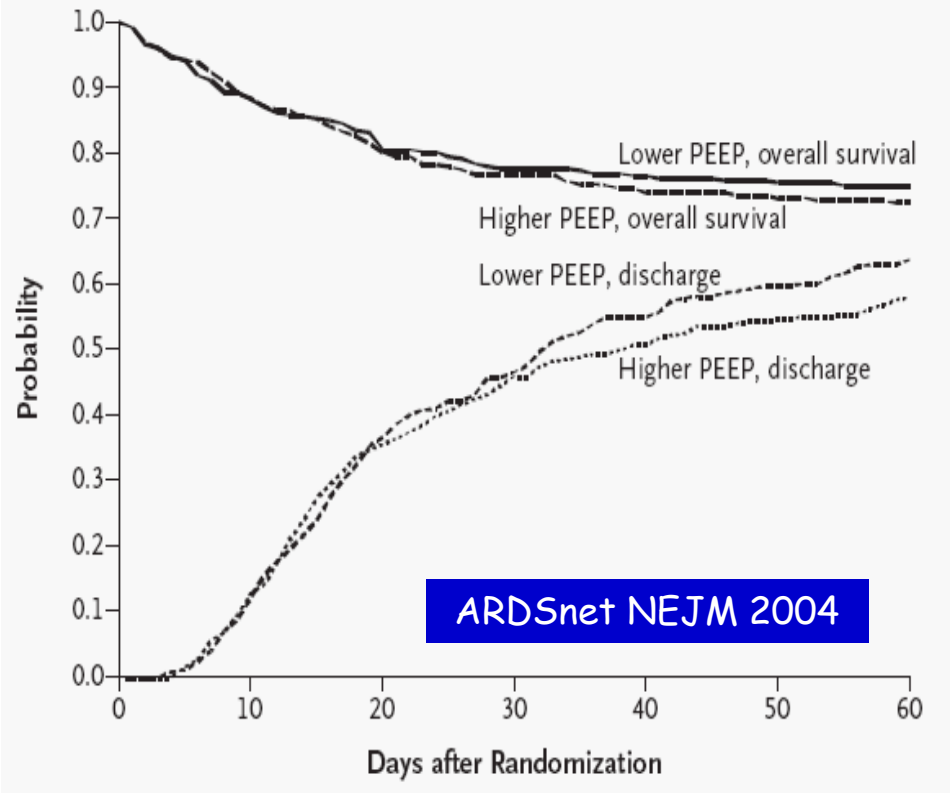
"one-size-fits-all" approach

Higher-PEEP group (before protocol changed to use higher levels of PEEP)													
FiO_2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5–0.8	0.8	0.9	1.0
PEEP	5	8	10	12	14	14	16	16	18	20	22	22	22–24
Higher-PEEP group (after protocol changed to use higher levels of PEEP)													
FiO_2	0.3	0.3	0.4	0.4	0.5	0.5	0.5–0.8	0.8	0.9	1.0			
PEEP	12	14	14	16	16	18	20	22	22	22–24			

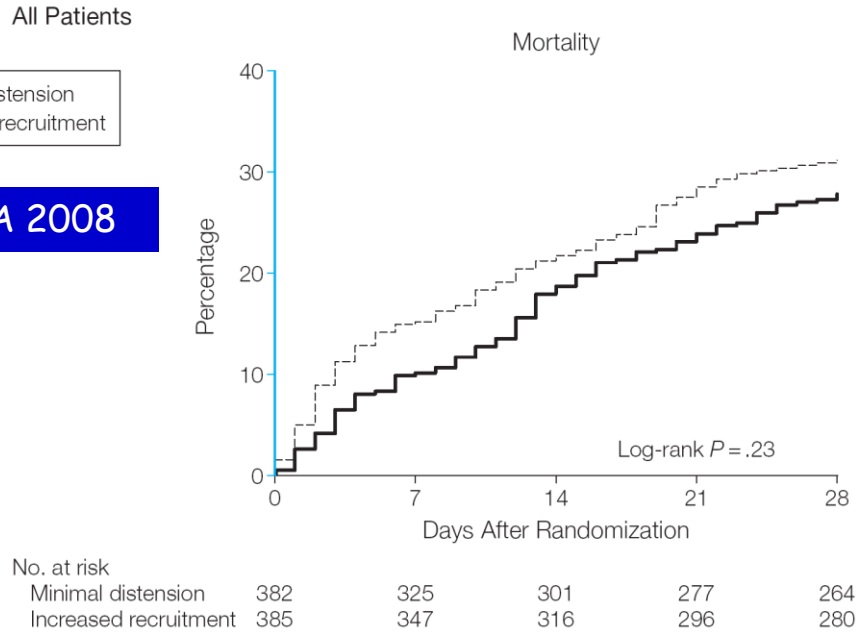
	Fraction of Inspired Oxygen (FIO_2)							
	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Control PEEP ranges, cm H_2O	5	5-8	8-10	10	10-14	14	14-18	18-24
Lung open ventilation PEEP ranges, cm H_2O								
Before protocol change	5-10	10-14	14-20	20	20	20	20	20-24
After protocol change	5-10	10-18	18-20	20	20	20-22	22	22-24

PEEP[b]	
Minimal distension group[c]	Total PEEP between 5 and 9 cm H_2O
Increased recruitment group[d]	Plateau pressure between 28 and 30 cm H_2O

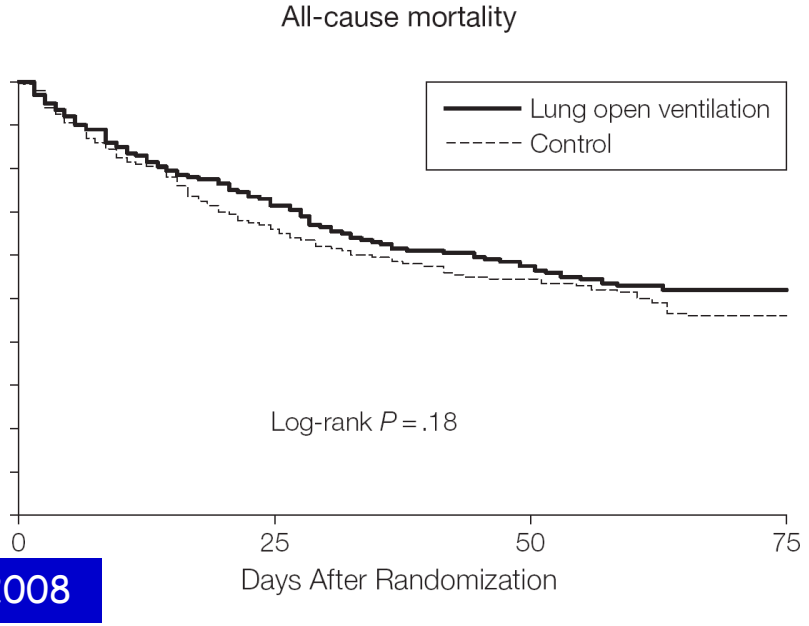
High/Low PEEP



ARDSnet NEJM 2004



Mercat *et al.* JAMA 2008



O'Meade *et al.* JAMA 2008

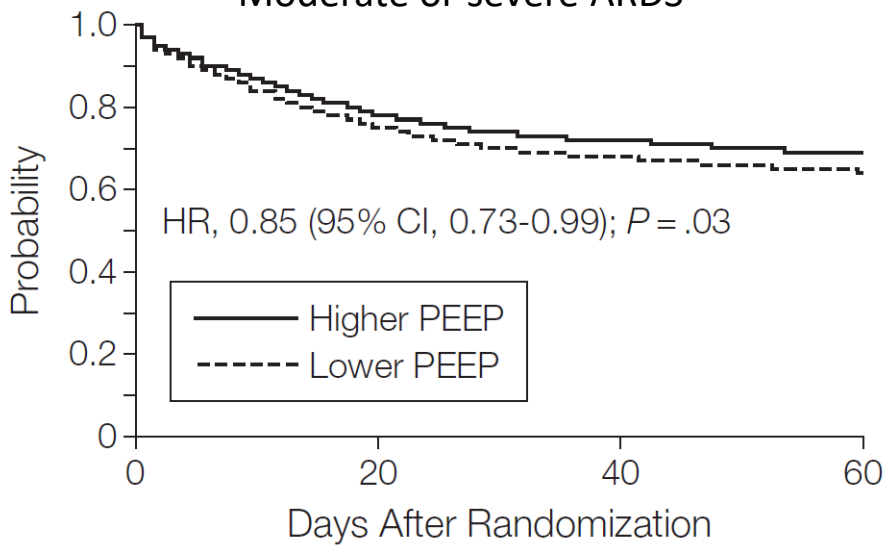
Higher vs Lower Positive End-Expiratory Pressure in Patients With Acute Lung Injury and Acute Respiratory Distress Syndrome

Systematic Review and Meta-analysis

Briel *et al.* JAMA 2010

In-hospital time to death

Moderate or severe ARDS



No. at risk

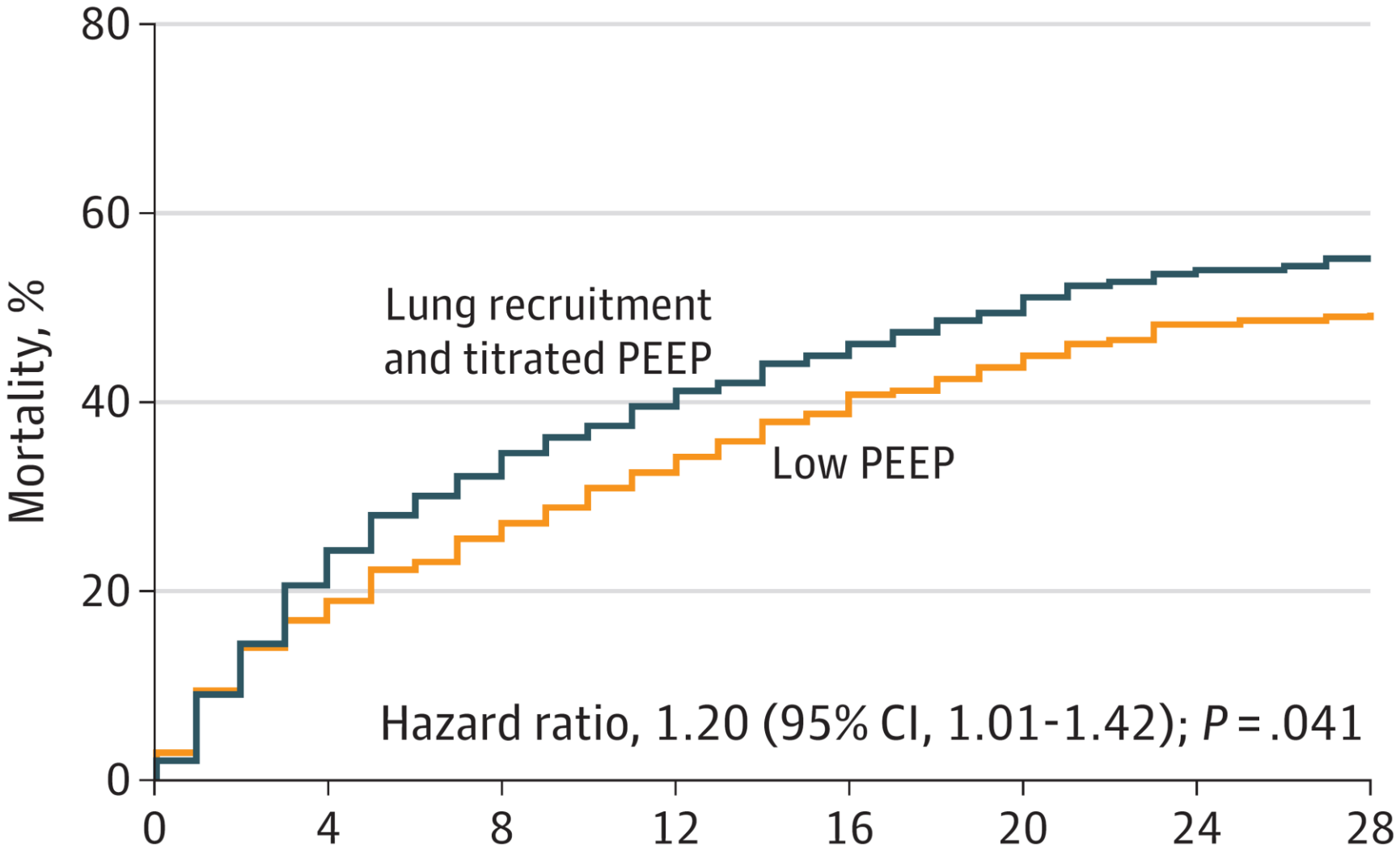
Higher PEEP	949	760	693	666	183	158	148	144
Lower PEEP	939	723	649	619	219	196	186	183

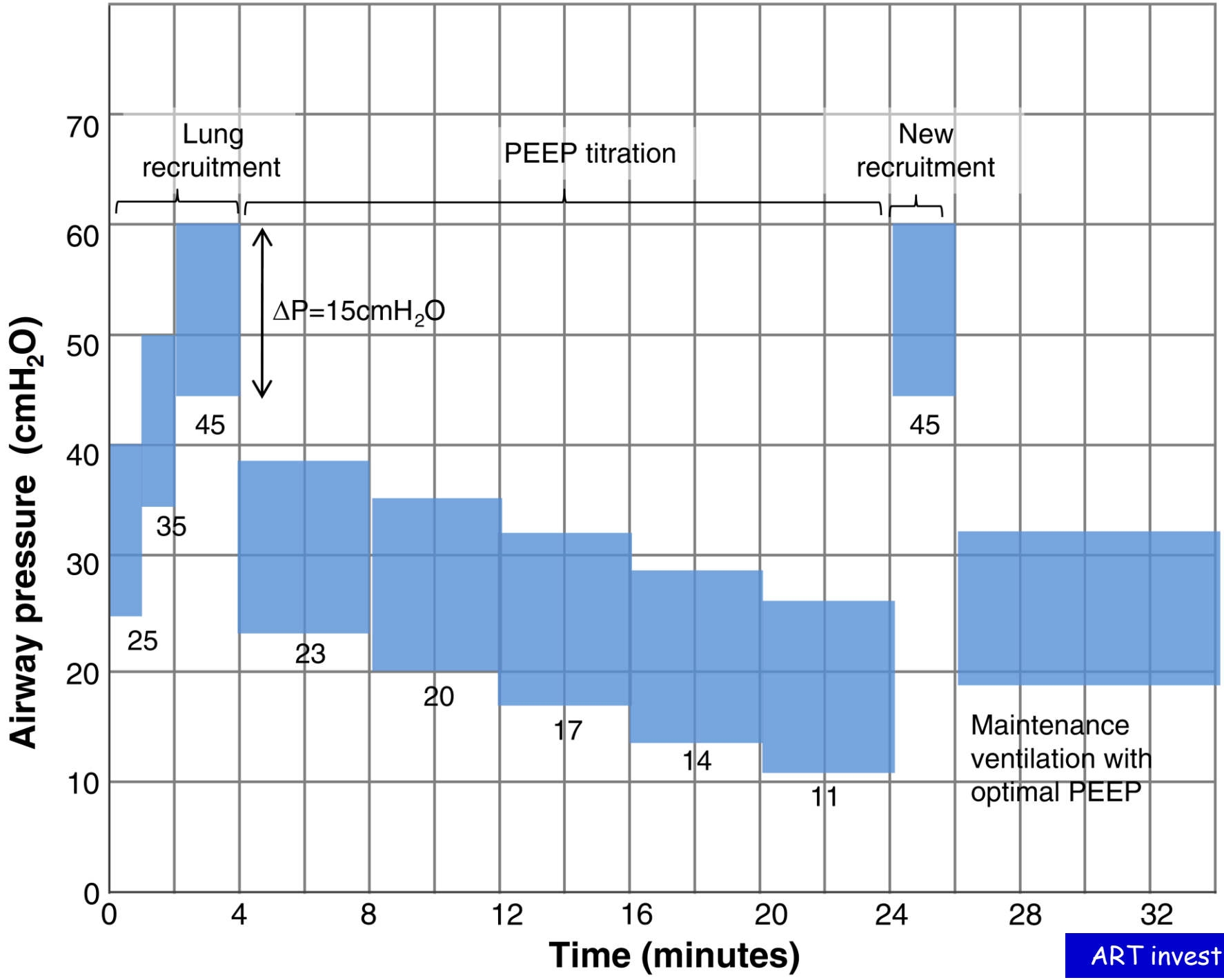
P/F ratio < 200 mmHg

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

ART investigators JAMA 2017





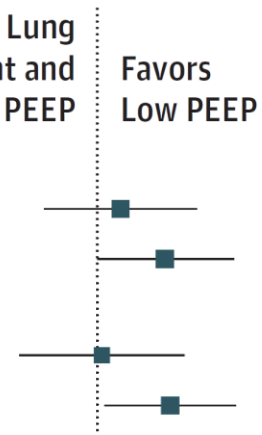
ART investigators Trials 2012

ART investigators JAMA 2017

Variable	1hour			Day 1			Day 3			Day 7		
	Lung Recruitment Maneuver with PEEP Titration Group	Control Group	P Value	Lung Recruitment Maneuver with PEEP Titration Group	Control Group	P Value	Lung Recruitment Maneuver with PEEP Titration Group	Control Group	P Value	Lung Recruitment Maneuver with PEEP Titration Group	Control Group	P Value
Tidal volume, mean (95% CI), mL/kg of predicted body weight	5.4 (5.3 to 5.5)	5.5 (5.5 to 5.6)	0.004	5.6 (5.5 to 5.7)	5.7 (5.7 to 5.8)	0.006	5.8 (5.6 to 5.9)	5.8 (5.8 to 5.9)	0.20	6.1 (6.0 to 6.3)	6.2 (6.0 to 6.3)	0.67
No. of patients	500	507		482	490		418	431		296	325	
Tidal volume > 6.5 mL/kg of predicted body weight, No. of events / total No. (%)	30/500 (6.0)	36/507 (7.1)	0.56	54/482 (11.2)	49/490 (10)	0.61	64/418 (15.3)	66/431 (15.3)	>0.99	78/296 (26.4)	85/324 (26.2)	>0.99
PEEP, mean (95% CI), cmH_2O	16.4 (16.0 to 16.7)	13.0 (12.7 to 13.3)	<0.001	16.2 (15.9 to 16.6)	12.0 (11.7 to 12.3)	<0.001	14.2 (13.8 to 14.6)	10.5 (10.2 to 10.9)	<0.001	11.6 (11.2 to 12.1)	9.6 (9.3 to 10.0)	<0.001
No. of patients	499	507		481	490		418	432		296	326	
Plateau pressure, mean (95% CI), cmH_2O	27.9 (27.5 to 28.3)	25.9 (25.5 to 26.3)	<0.001	27.9 (27.5 to 28.3)	25.4 (25.0 to 25.9)	<0.001	26.3 (25.8 to 26.9)	24.0 (23.5 to 24.6)	<0.001	24.1 (23.4 to 24.8)	23.2 (22.5 to 23.8)	0.05
No. of patients	498	503		478	488		417	431		294	325	
Plateau pressure > 30 cmH_2O, No. of events / total No. (%)	80/498 (16.1)	45/503 (8.9)	0.001	83/478 (17.4)	52/488 (10.7)	0.004	55/417 (13.2)	37/431 (8.6)	0.04	22/294 (7.5)	25/325 (7.7)	>0.99
Driving pressure, mean (95% CI), cmH_2O	11.5 (11.1 to 11.8)	13.0 (12.6 to 13.3)	<0.001	11.7 (11.3 to 12.1)	13.5 (13.1 to 13.8)	<0.001	12.1 (11.7 to 12.5)	13.5 (13.1 to 13.9)	<0.001	12.5 (12.0 to 12.9)	13.6 (13.1 to 14.1)	0.001

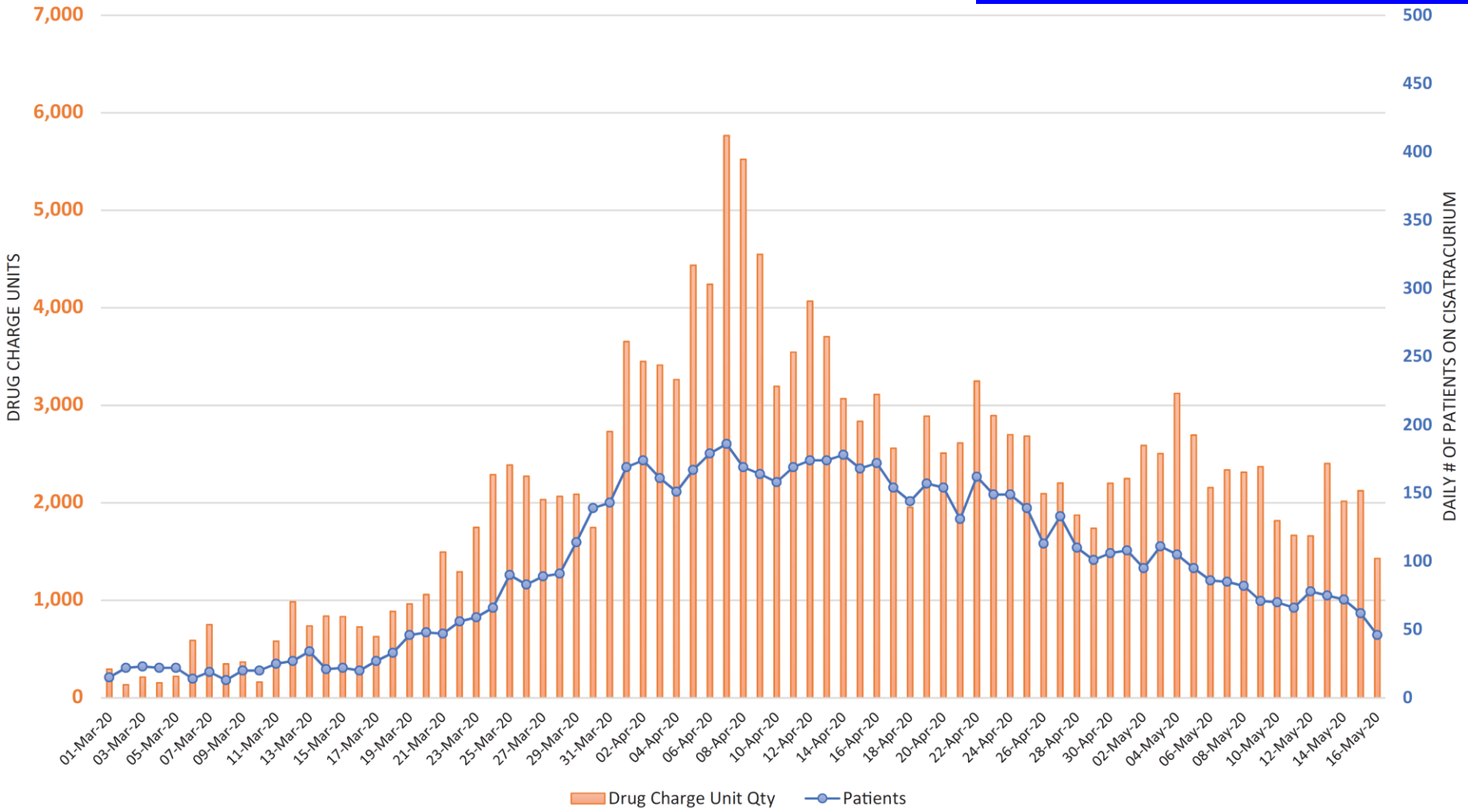
ART investigators JAMA 2017

Subgroup	No. of Deaths/Total No. (%)		Hazard Ratio (95% CI)	*P* Value for Interaction
	Lung Recruitment and Titrated PEEP (n = 501)	Low PEEP (n = 509)		
PaO_2: FIO_2				
≤100 mm Hg	117/197 (59.4)	120/214 (56.1)	1.09 (0.82-1.46)	.33
>100 mm Hg	160/304 (52.6)	131/295 (44.4)	1.30 (1.00-1.69)	
Type of ARDS				
Extrapulmonary	98/188 (52.1)	102/196 (52)	1.02 (0.74-1.40)	.15
Pulmonary	179/313 (57.2)	149/313 (47.6)	1.32 (1.03-1.69)	

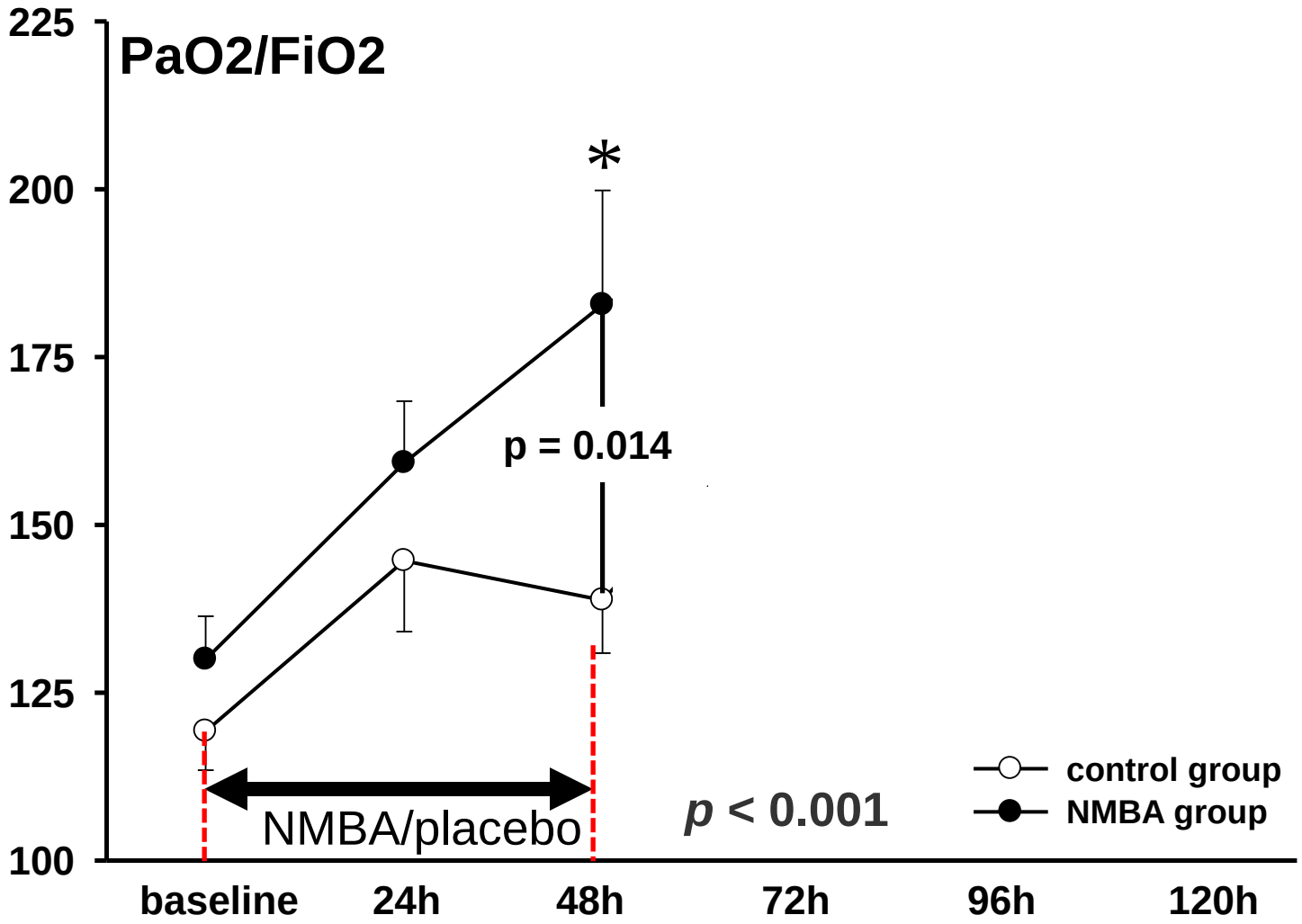


Daily count of patients who received cisatracurium and corresponding net charge-unit quantities from March 1 through May 16, 2020

Dabestani *et al.* Am J Health Syst Pharm 2020

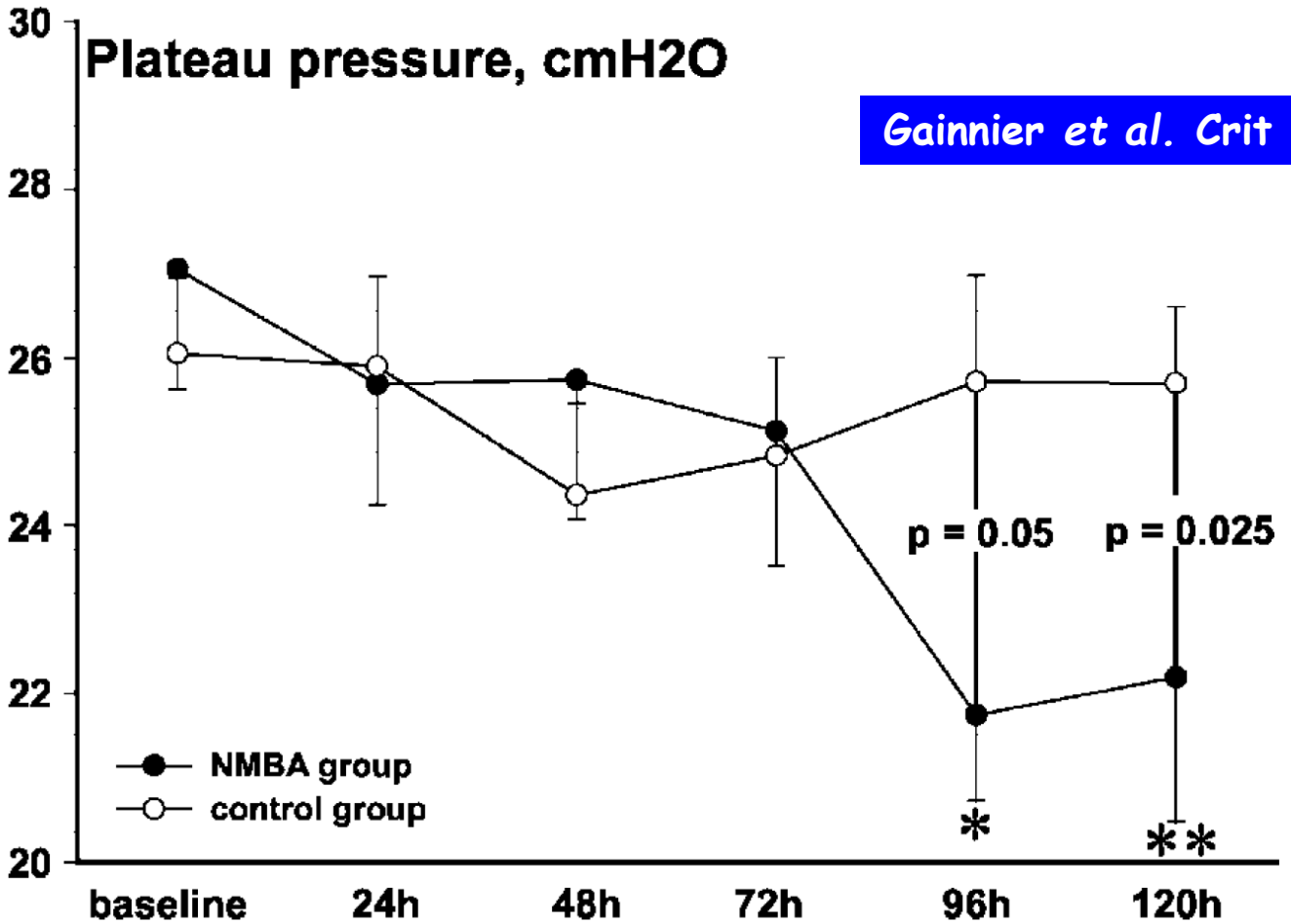


Effect of cisatracurium on oxygenation



4 ICUs – 56 patients

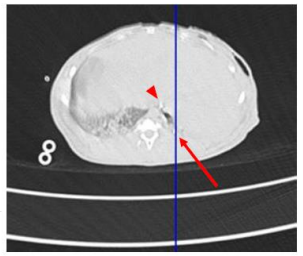
Gainnier et al. Crit Care Med 2004

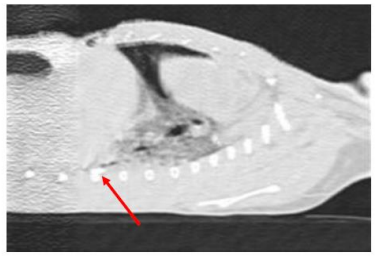


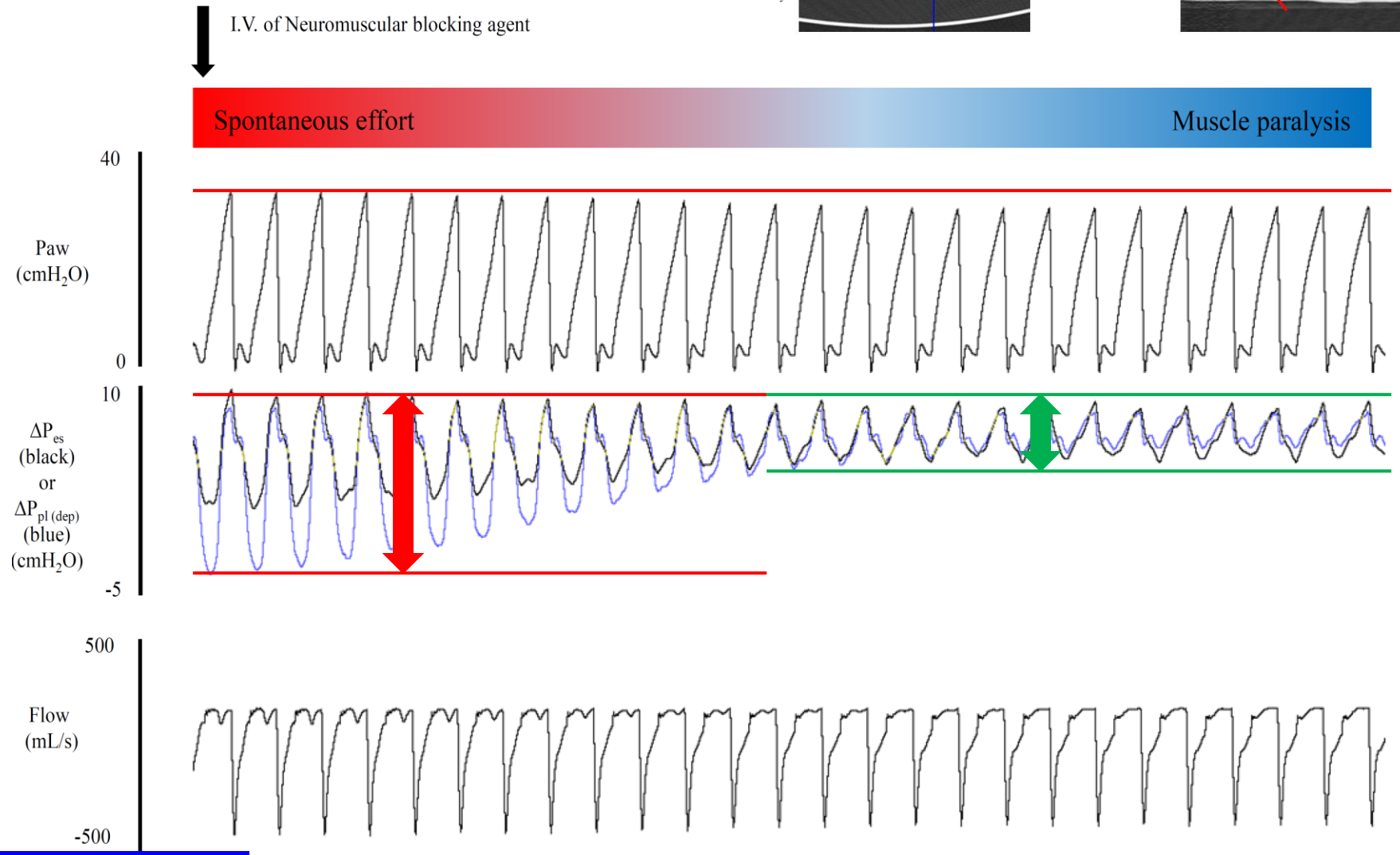
Gainnier *et al.* Crit Care Med 2004

VT, mL/kg IBW	NMBA	7.1 ± 1.1	7.0 ± 1.1	7.0 ± 1.0	7.2 ± 1.0	7.5 ± 1.8	7.0 ± 2.3
	Control	7.5 ± 1.9	7.4 ± 1.4	7.6 ± 1.5	7.4 ± 1.6	7.8 ± 1.9	7.7 ± 1.4

Regional lung stress



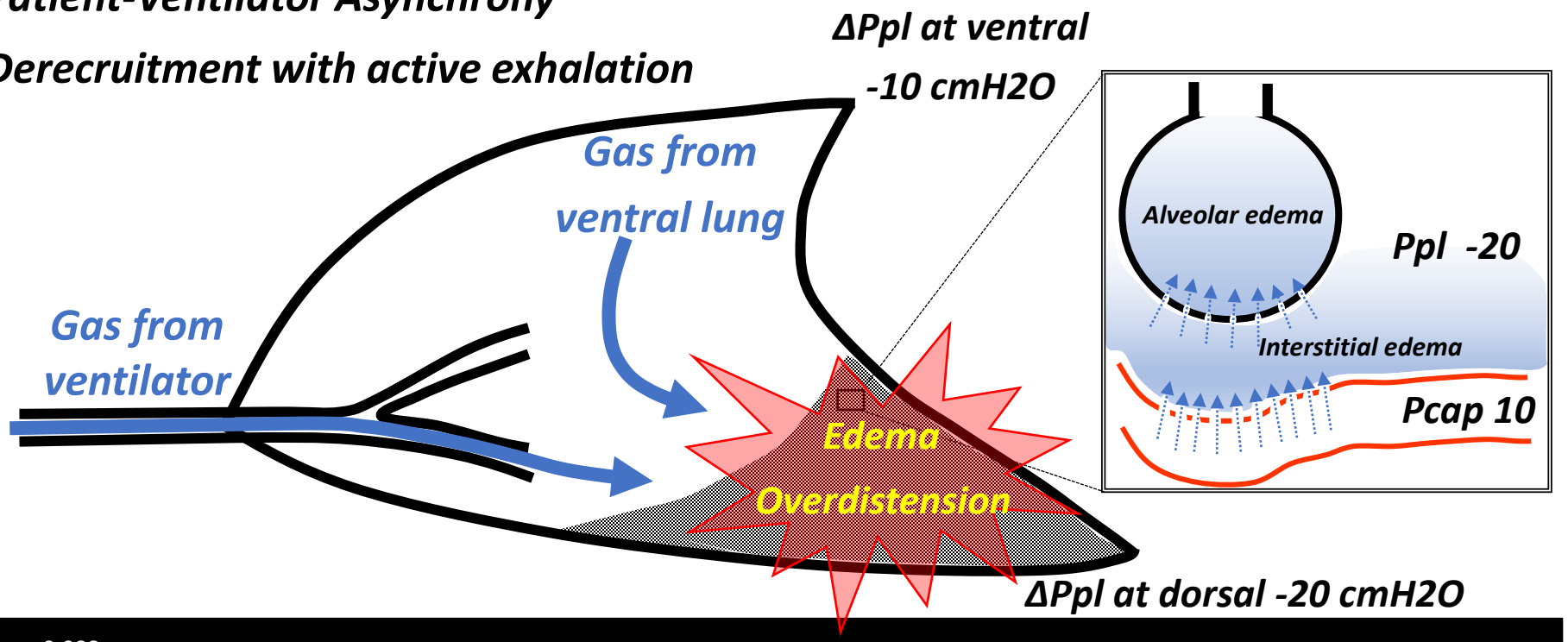


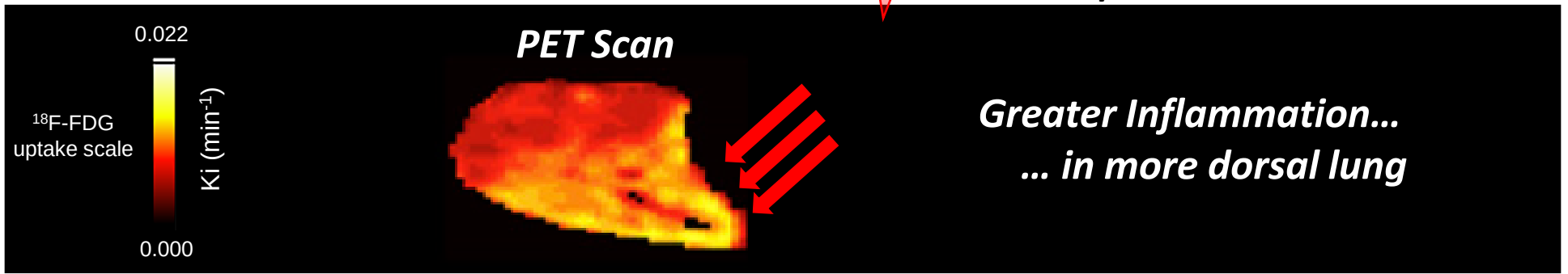


Yoshida *et al.* AJRCCM 2017

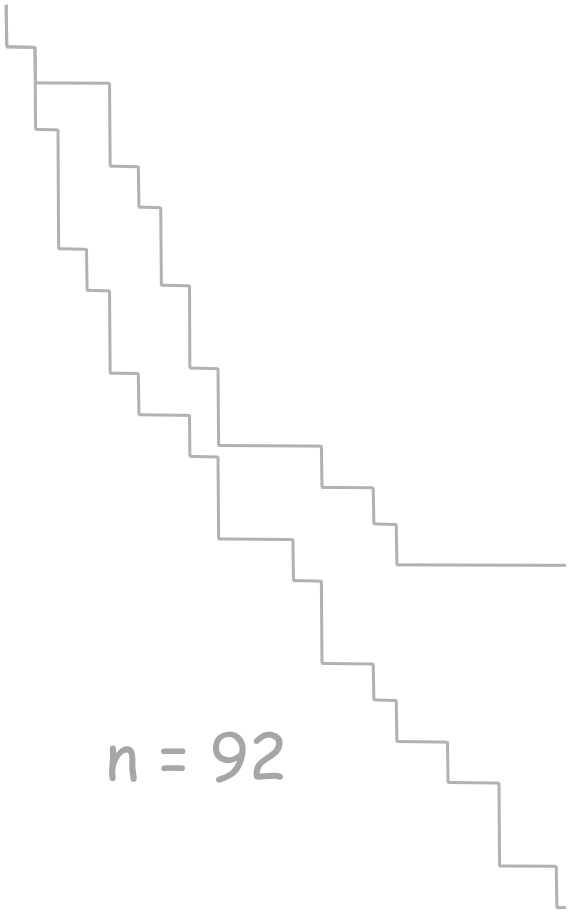
Vigorous Spontaneous Effort Causes…

- *Global Overdistension*
- *Maldistribution of Lung stress & Local Overdistension*
- *Increased Lung Perfusion & Lung Edema*
- *Patient-Ventilator Asynchrony*
- *Derecruitment with active exhalation*





Mortality



Gainnier *et al.* CCM 2004

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Forel *et al.* CCM 2006

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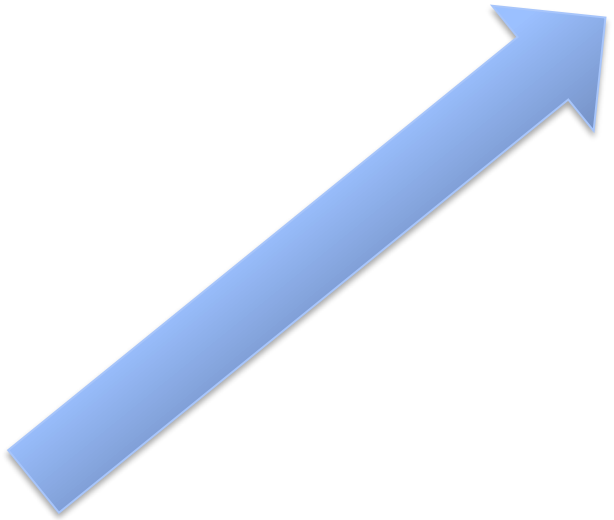


The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 SEPTEMBER 16, 2010 VOL. 363 NO. 12

Neuromuscular Blockers in Early Acute Respiratory Distress Syndrome

Laurent Papazian, M.D., Ph.D., Jean-Marie Forel, M.D., Arnaud Gacouin, M.D., Christine Penot-Ragon, Pharm.D., Gilles Perrin, M.D., Anderson Loundou, Ph.D., Samir Jaber, M.D., Ph.D., Jean-Michel Arnal, M.D., Didier Perez, M.D., Jean-Marie Seghboyan, M.D., Jean-Michel Constantin, M.D., Ph.D., Pierre Courant, M.D., Jean-Yves Lefrant, M.D., Ph.D., Claude Guérin, M.D., Ph.D., Gwenaël Prat, M.D., Sophie Morange, M.D., and Antoine Roch, M.D., Ph.D., for the ACURASYS Study Investigators*

Important methodological aspects

- Prospective, randomized, double-blind study

  cisatracurium *vs.* placebo

- Vt 6-8 ml/kg, Pplat ≤ 32 cmH2O

- Inclusion criteria:

  $PaO_2:FiO_2$ < 150 (PEEP ≥ 5) for < 48 h

EARLY IN THE COURSE OF ARDS

Papazian *et al.* N Engl J Med 2010

ACURASYS

ACURASYS strategy

48 hrs

NMBA + ⟶ lung protection

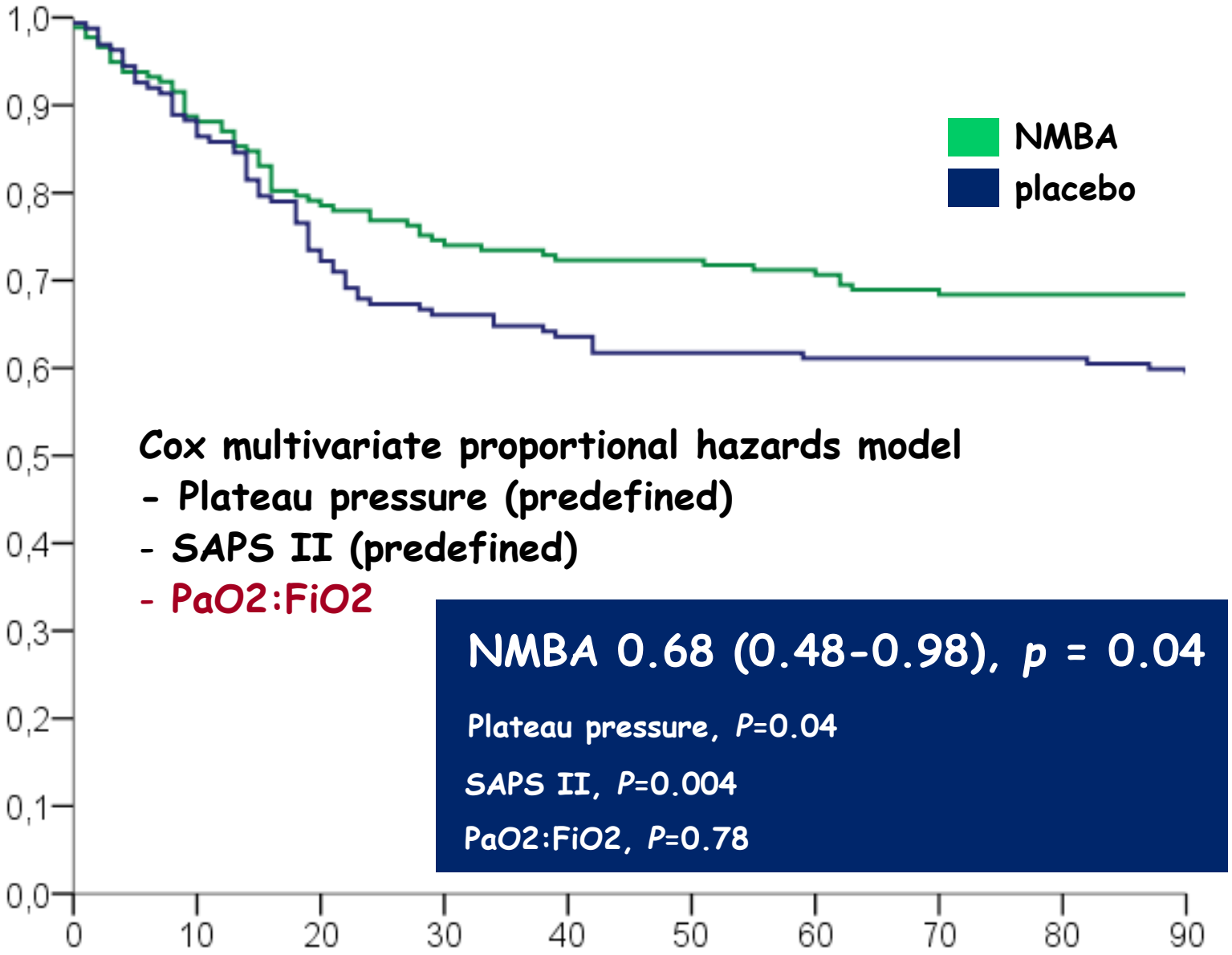
Stop NMBA + ⟶ weaning

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 plateau 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 respiratory 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

Survival curve

ACURASYS



Cox multivariate proportional hazards model
- Plateau pressure (predefined)
- SAPS II (predefined)
- PaO2:FiO2

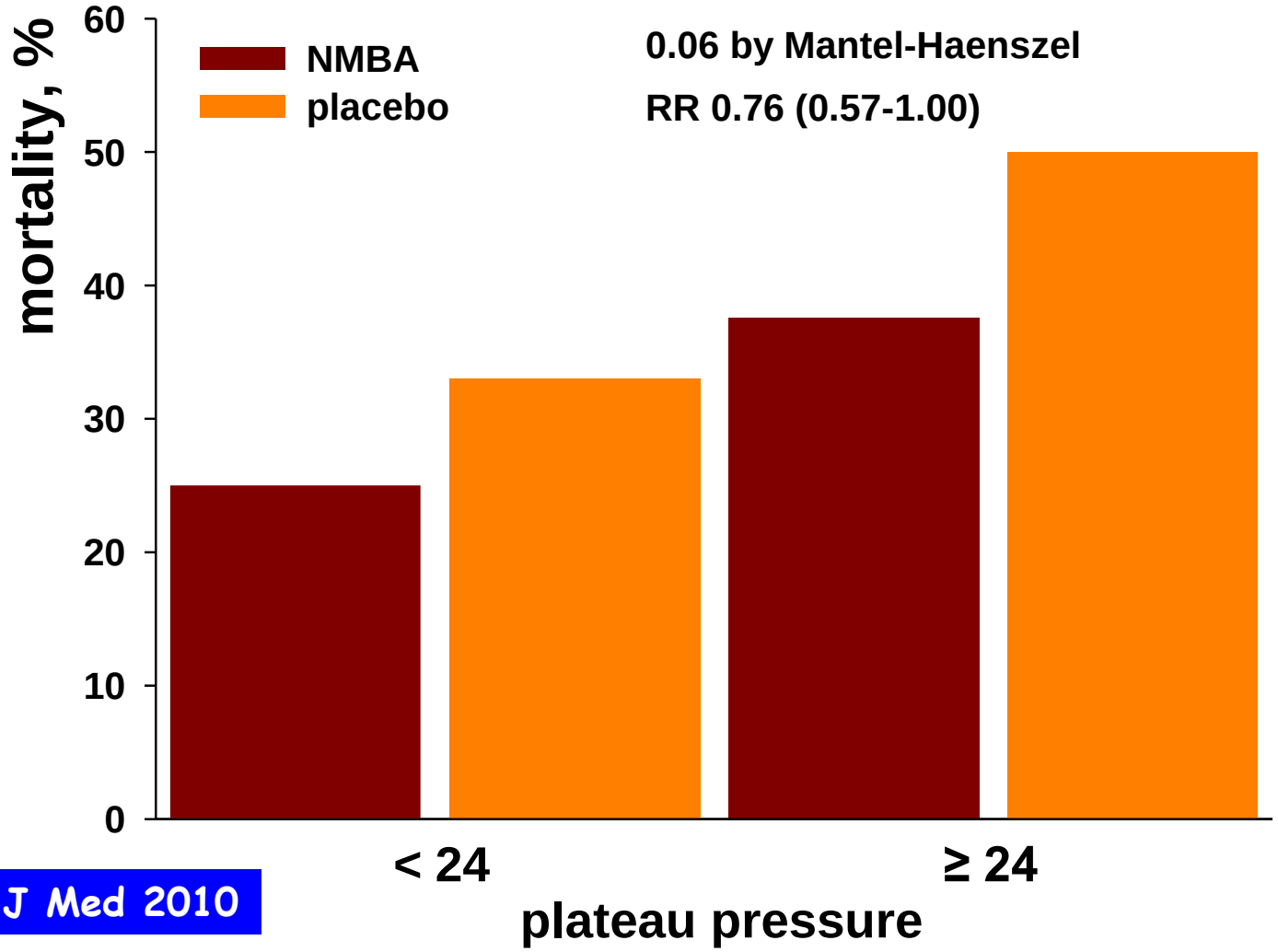
NMBA 0.68 (0.48-0.98), p = 0.04

Plateau pressure, P=0.04

SAPS II, P=0.004

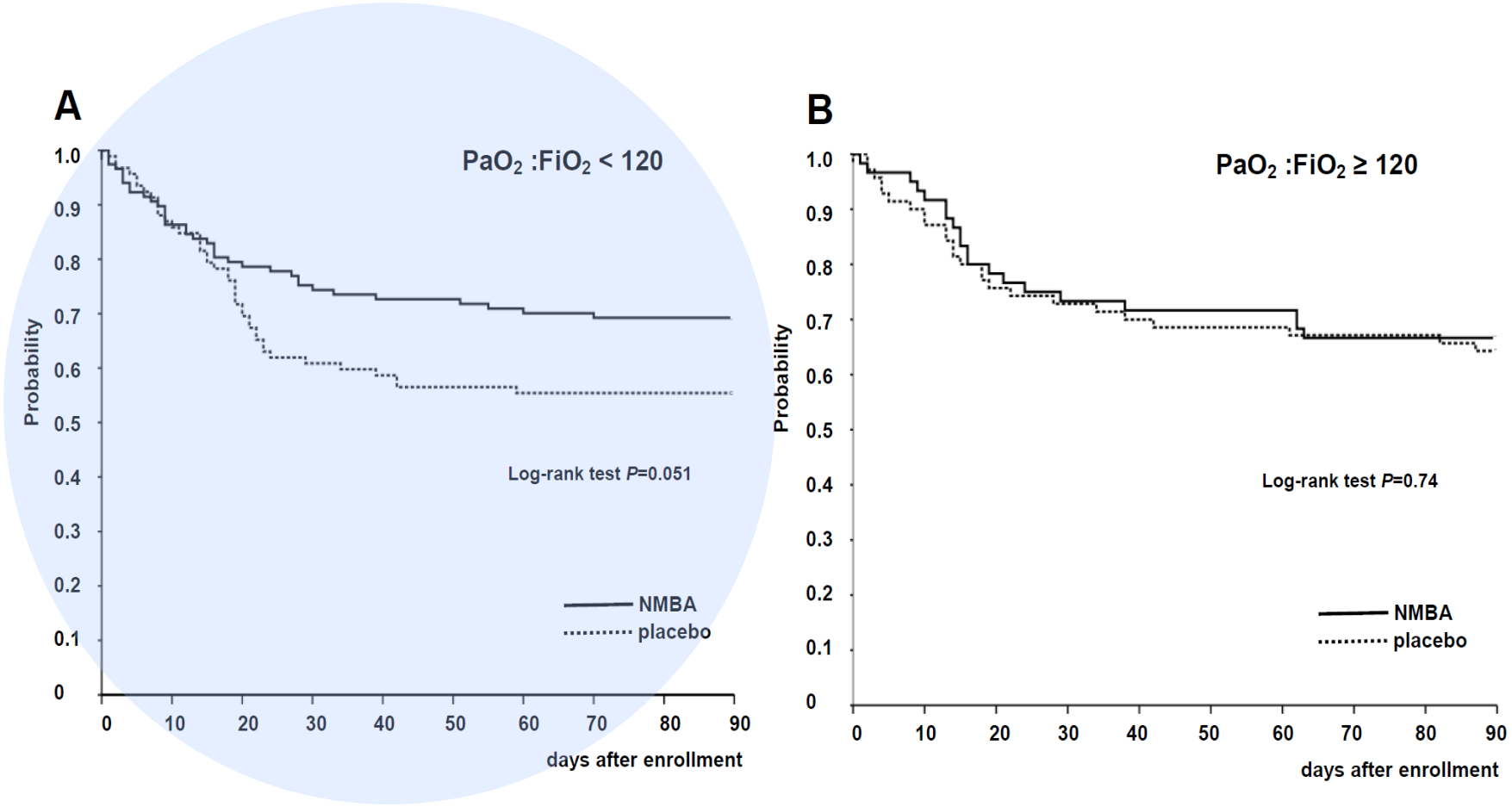
PaO2:FiO2, P=0.78

Mortality d90 and plateau pressure on inclusion



Papazian *et al.* N Engl J Med 2010

Mortality according to P/F ratio



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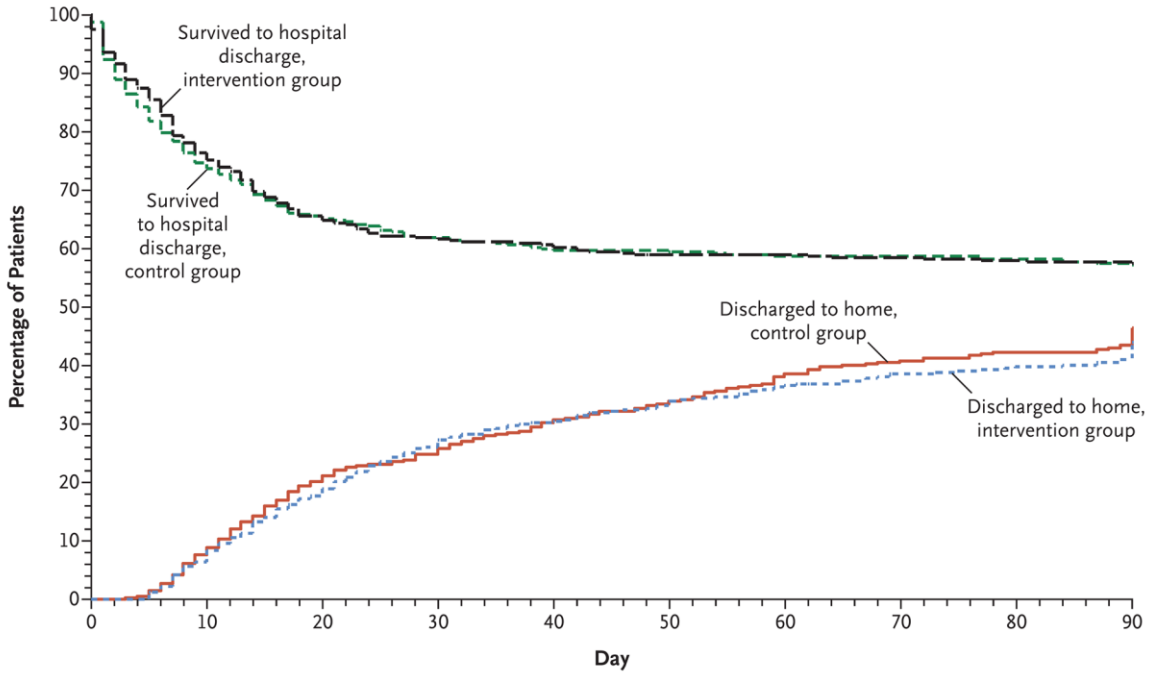
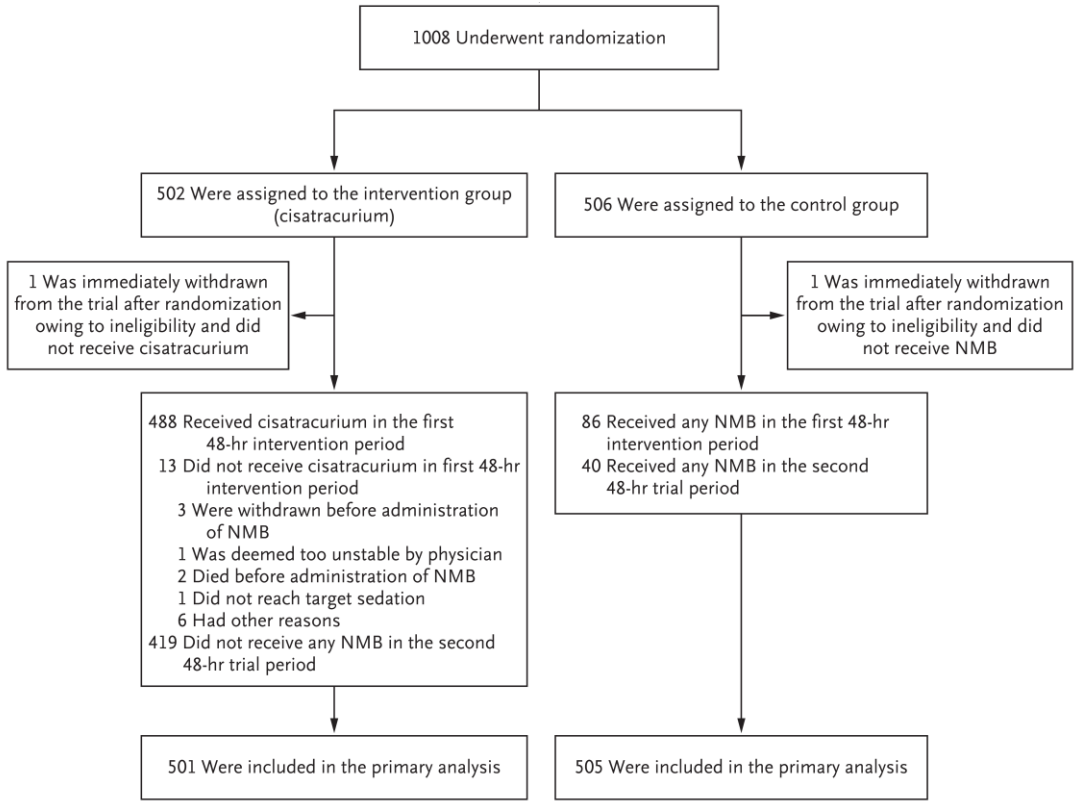
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Early Neuromuscular Blockade in the Acute Respiratory Distress Syndrome

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





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

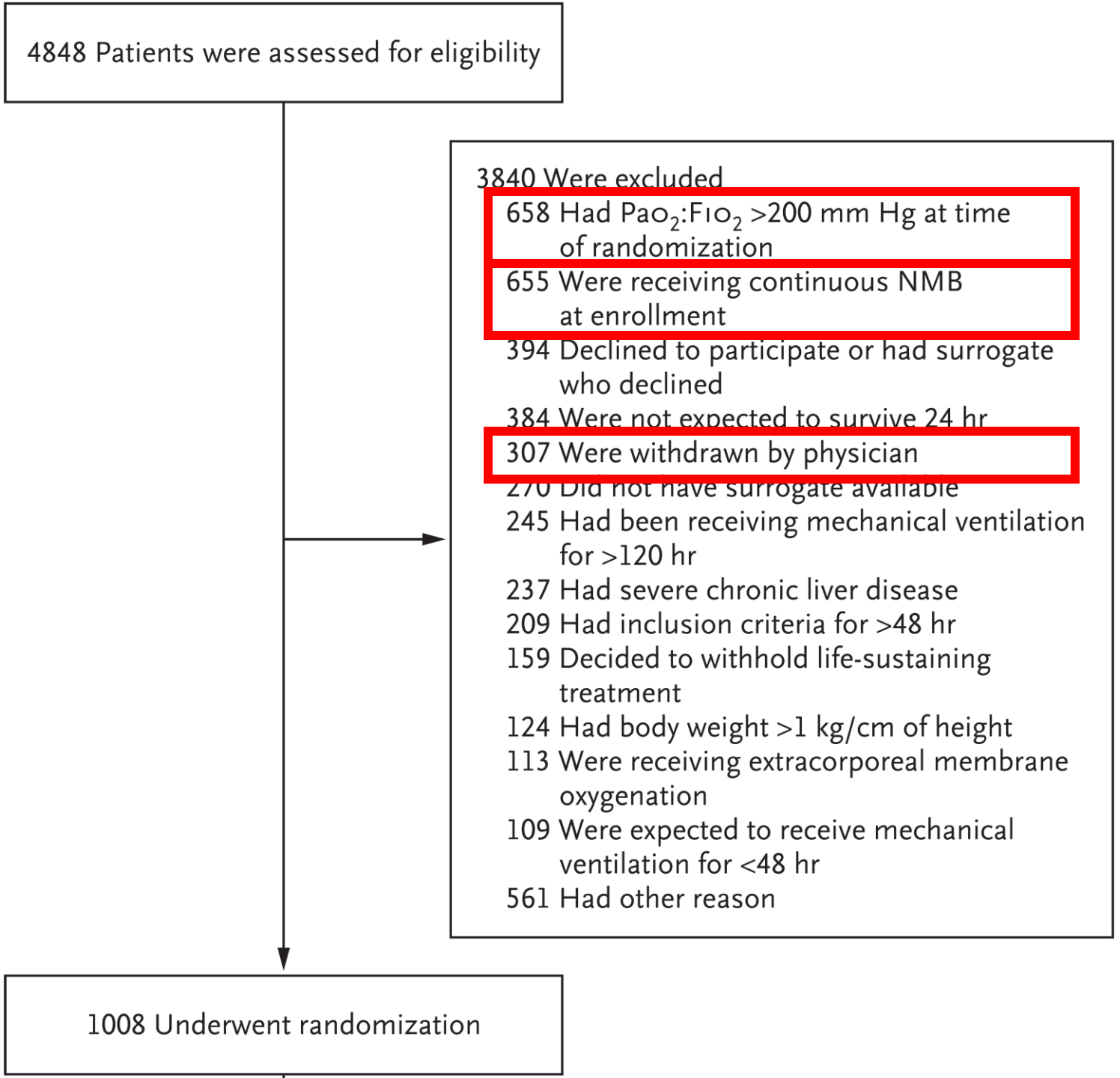
- Median of 7.6 hrs (3.7-15.6) after diagnosis of moderate-to-severe ARDS
- ?

Sedation/paralysis

ACURASYS

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

ROSE

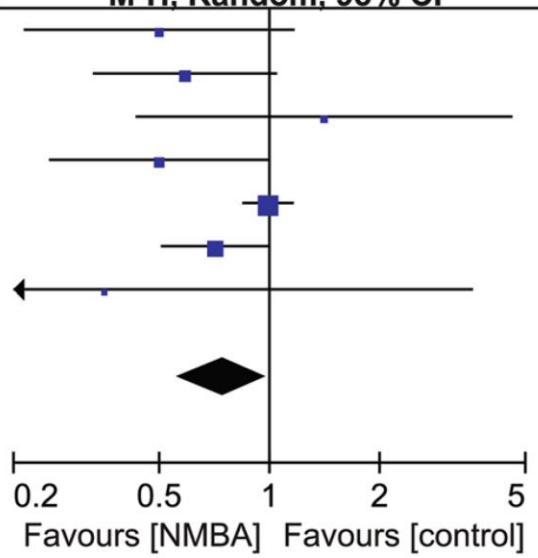

4848 Patients were assessed for eligibility
3840 Were excluded
658 Had Pao_2:FIO_2 >200 mm Hg at time of randomization
655 Were receiving continuous NMB at enrollment
394 Declined to participate or had surrogate who declined
384 Were not expected to survive 24 hr
307 Were withdrawn by physician
270 Did 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

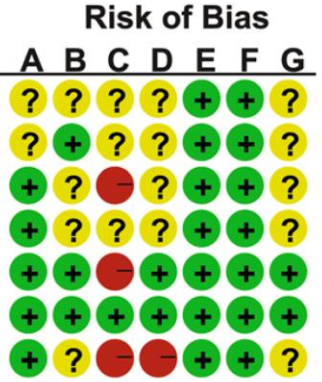
A

Study or Subgroup	NMBA Events	NMBA Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
Forel 2006	5	18	10	18	8.3%	0.50 [0.21, 1.17]
Gainnier 2004	10	28	17	28	14.5%	0.59 [0.33, 1.05]
Guervilly 2017	5	13	3	11	4.8%	1.41 [0.43, 4.61]
Lyu 2014	9	48	18	48	11.4%	0.50 [0.25, 1.00]
Moss 2019	184	501	187	505	35.0%	0.99 [0.84, 1.17]
Papazian 2010	42	177	54	162	24.7%	0.71 [0.51, 1.00]
Rao 2016	1	24	2	17	1.4%	0.35 [0.03, 3.60]
Total (95% CI)		**809**		**789**	**100.0%**	**0.74 [0.56, 0.98]**
Total events	256		291			

Heterogeneity: Tau² = 0.05; Chi² = 10.90, df = 6 (P = 0.09); I² = 45%

Test for overall effect: Z = 2.11 (P = 0.03)



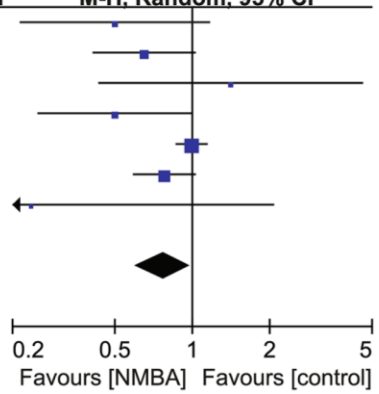


B

Study or Subgroup	NMBA Events	NMBA Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
Forel 2006	5	18	10	18	7.1%	0.50 [0.21, 1.17]
Gainnier 2004	13	28	20	28	16.8%	0.65 [0.41, 1.03]
Guervilly 2017	5	13	3	11	4.0%	1.41 [0.43, 4.61]
Lyu 2014	9	48	18	48	9.8%	0.50 [0.25, 1.00]
Moss 2019	213	501	216	505	34.9%	0.99 [0.86, 1.15]
Papazian 2010	57	177	67	162	26.3%	0.78 [0.59, 1.03]
Rao 2016	1	24	3	17	1.3%	0.24 [0.03, 2.08]
Total (95% CI)		**809**		**789**	**100.0%**	**0.77 [0.60, 0.99]**
Total events	303		337			

Heterogeneity: Tau² = 0.04; Chi² = 11.38, df = 6 (P = 0.08); I² = 47%

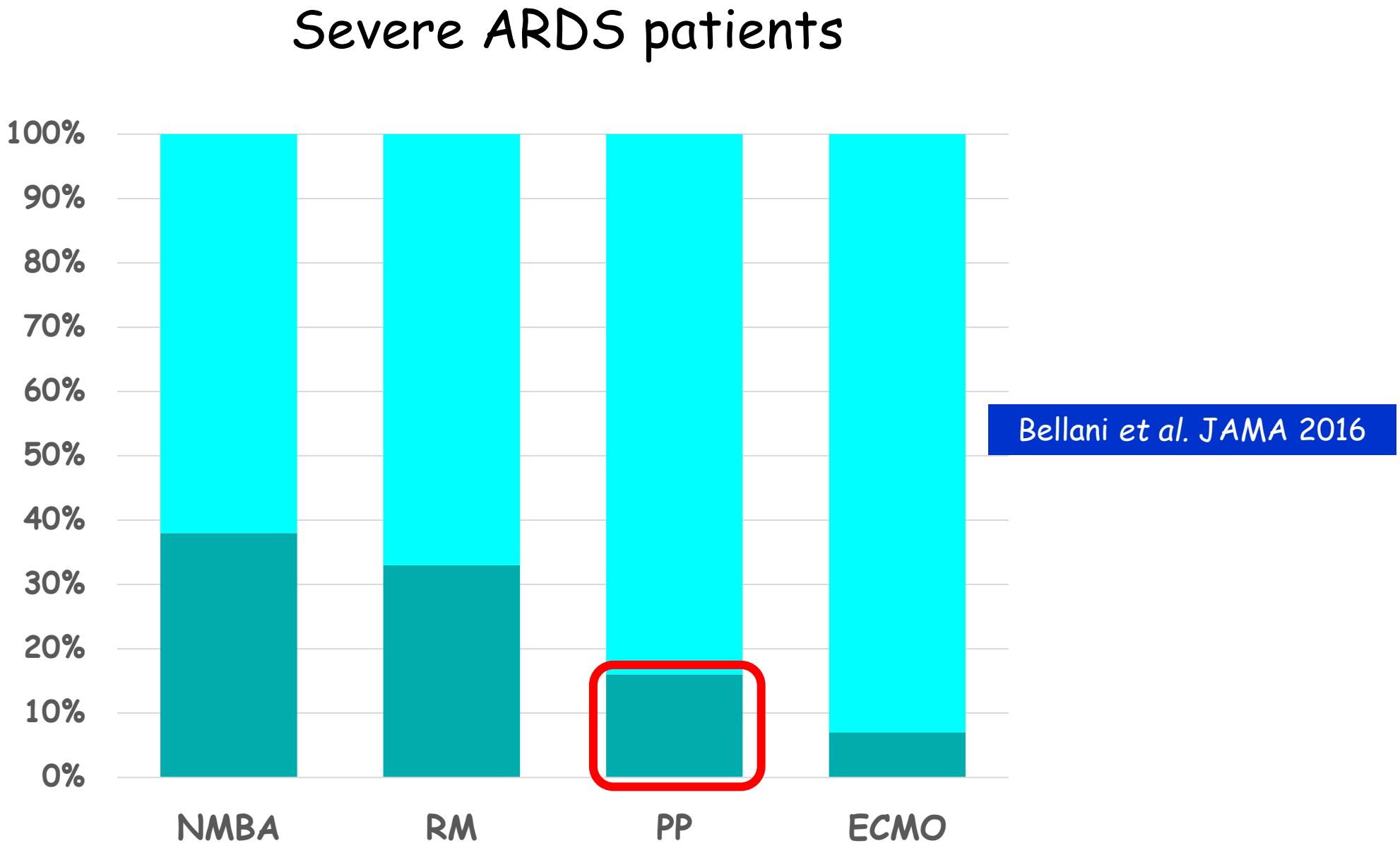
Test for overall effect: Z = 2.05 (P = 0.04)



Chang et al. Crit Care 2020

Décubitus ventral

LUNG SAFE


Severe ARDS patients
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
NMBA
RM
PP
ECMO
Bellani et al. JAMA 2016

Adjunct measures according to ARDS severity on ICU day 1

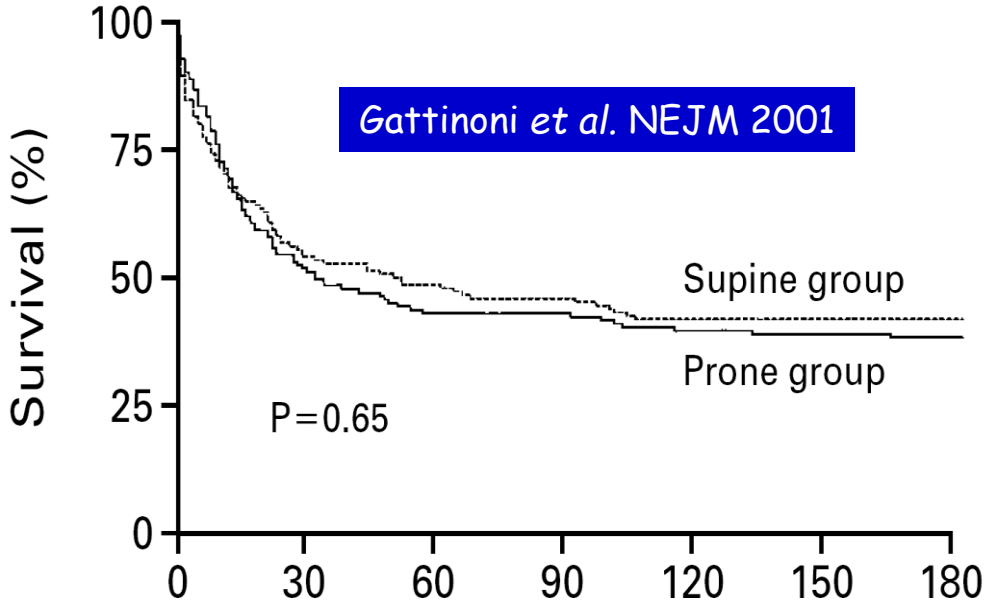
Parameter	No.	All[a] (*n* = 2233)	Mild ARDS[b] (*n* = 539)	Moderate ARDS[c] (*n* = 1154)	Severe ARDS[d] (*n* = 540)	*P* value
Prone position	2223	1556 (70)	308 (57)	822 (71)	426 (79)	<0.001
Number of session	1553	3 (2–6)	3 (2–6)	3 (2–6)	3 (2–6)	0.585
Continuous neuromuscular blockers	2224	1966 (88)	441 (82)	1025 (89)	500 (93)	<0.001
Nitric oxide	2224	425 (19)	74 (14)	206 (18)	145 (27)	<0.001
Corticosteroids[h]	2224	888 (41)	192 (37)	458 (41)	238 (46)	0.012
ECMO	2153	235 (11)	41 (8)	111 (10)	83 (15)	<0.001

COVID-ICU Intensive Care Med 2020

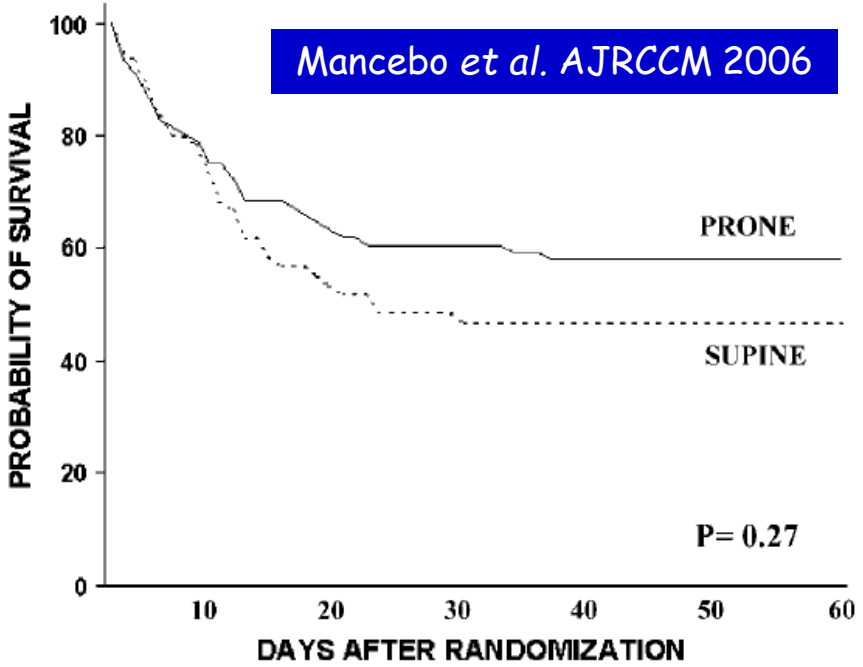
For all ARDS patients?

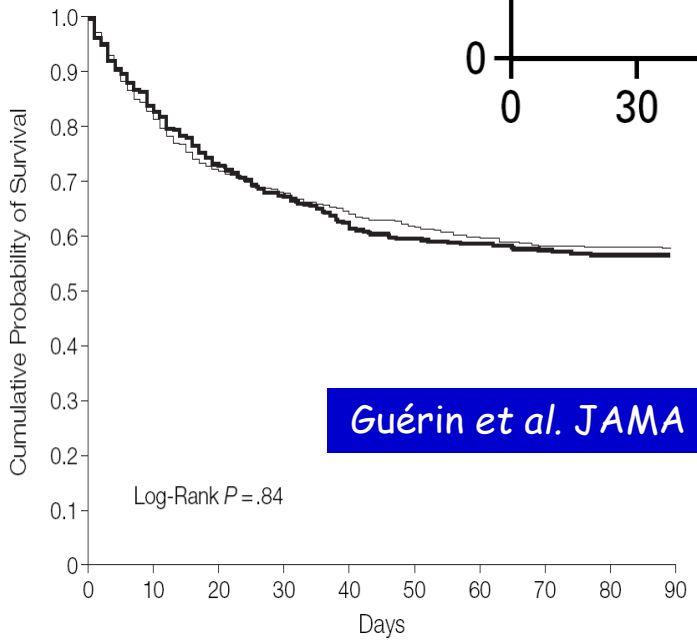
Prone position for all ARDS patients

Gattinoni *et al.* NEJM 2001



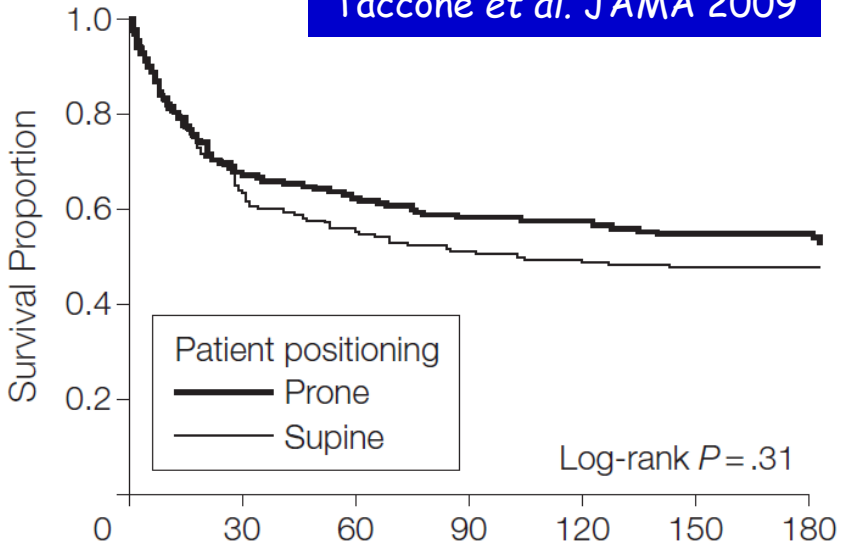
Mancebo *et al.* AJRCCM 2006

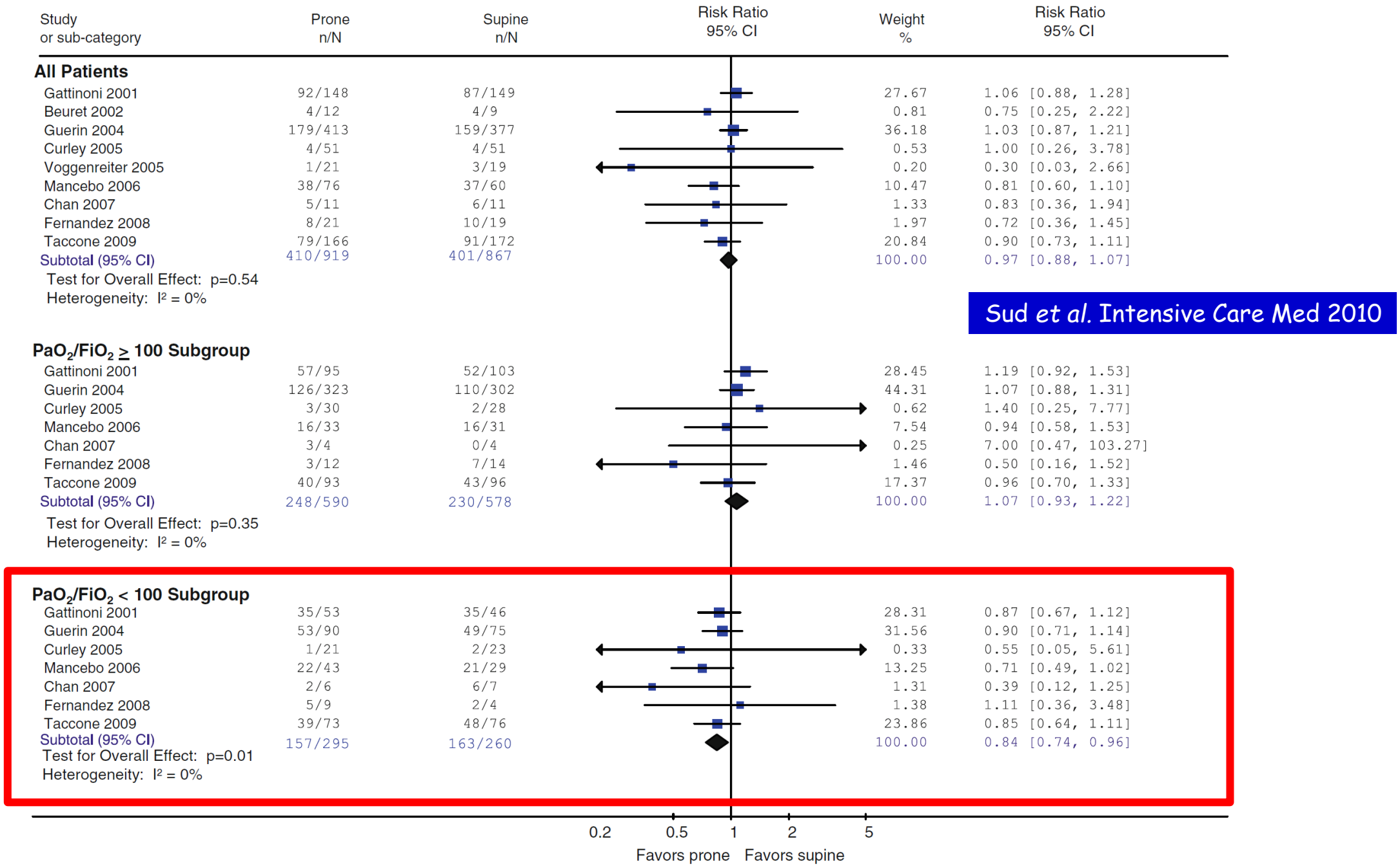




Guérin *et al.* JAMA 2004

Taccone *et al.* JAMA 2009





Sud *et al.* Intensive Care Med 2010

The NEW ENGLAND JOURNAL of MEDICINE

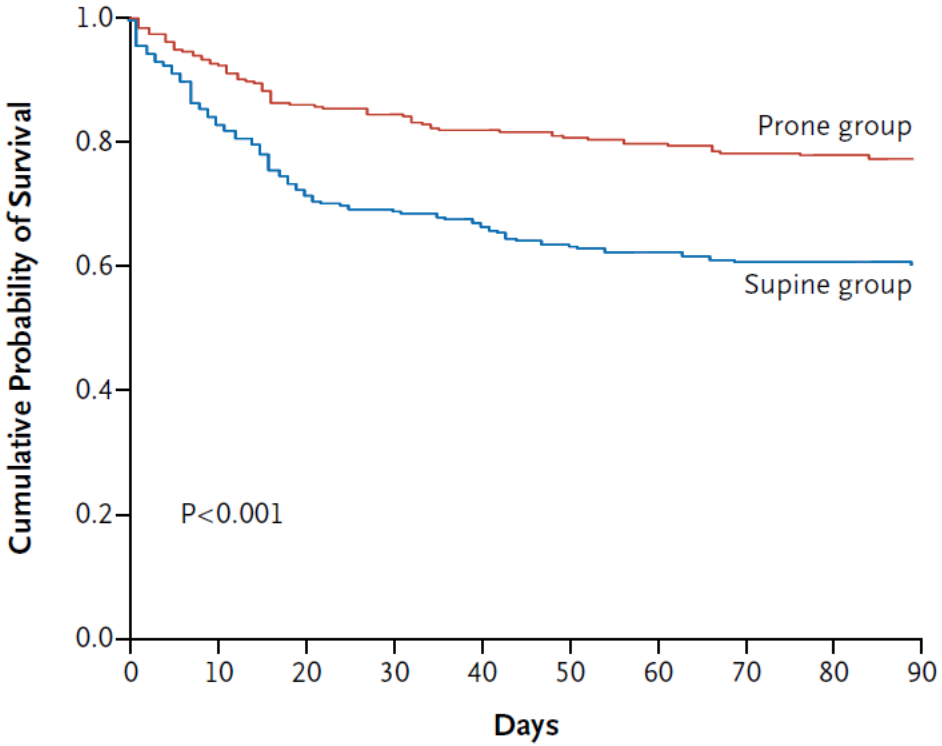
ORIGINAL ARTICLE

Prone Positioning in Severe Acute Respiratory Distress Syndrome

Claude Guérin, M.D., Ph.D., Jean Reignier, M.D., Ph.D., Jean-Christophe Richard, M.D., Ph.D., Pascal Beuret, M.D., Arnaud Gacouin, M.D., Thierry Boulain, M.D., Emmanuelle Mercier, M.D., Michel Badet, M.D., Alain Mercat, M.D., Ph.D., Olivier Baudin, M.D., Marc Clavel, M.D., Delphine Chatellier, M.D., Samir Jaber, M.D., Ph.D., Sylvène Rosselli, M.D., Jordi Mancebo, M.D., Ph.D., Michel Sirodot, M.D., Gilles Hilbert, M.D., Ph.D., Christian Bengler, M.D., Jack Richecoeur, M.D., Marc Gainnier, M.D., Ph.D., Frédérique Bayle, M.D., Gael Bourdin, M.D., Véronique Leray, M.D., Raphaele Girard, M.D., Loredana Baboi, Ph.D., and Louis Ayzac, M.D., for the PROSEVA Study Group*

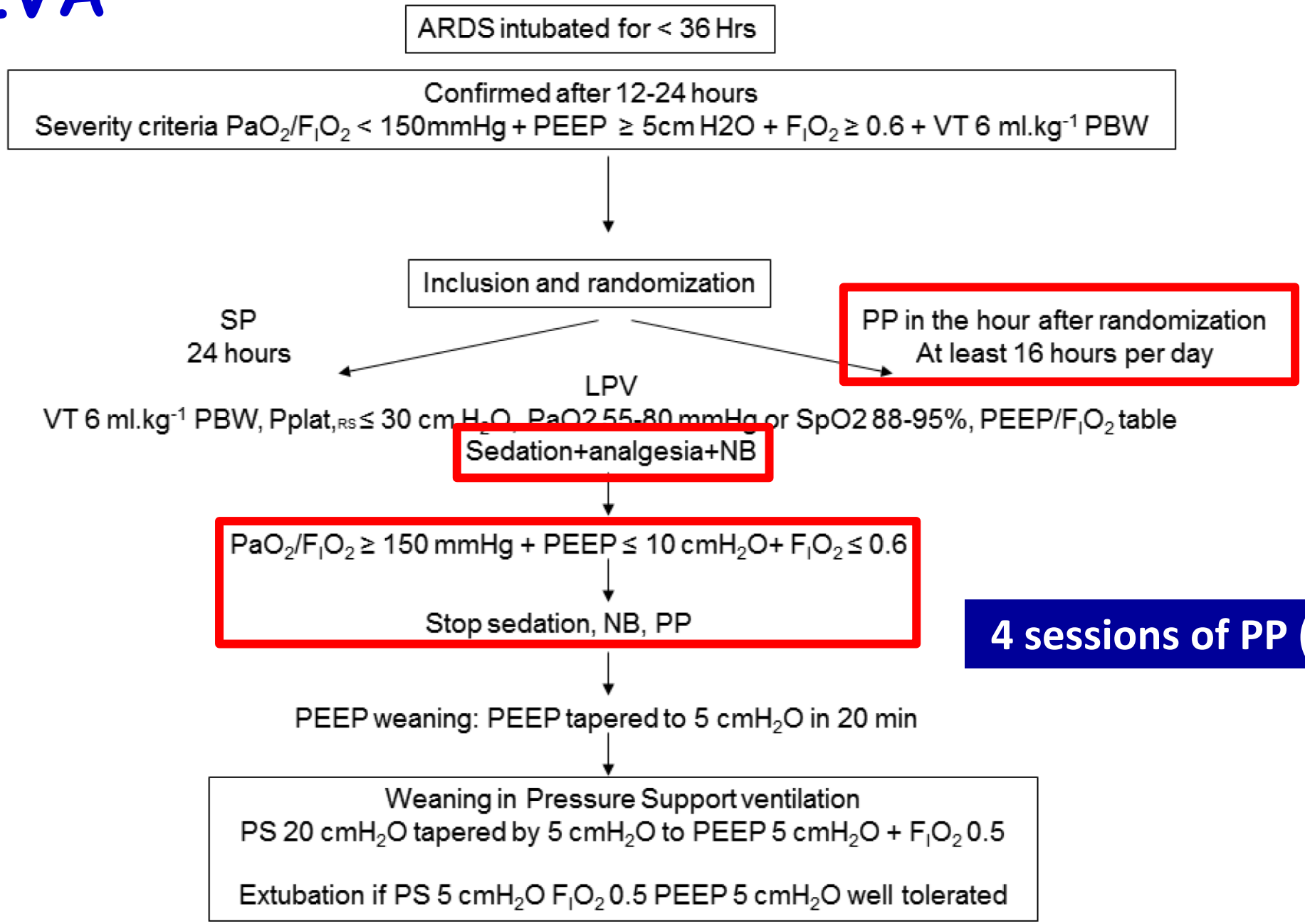
P/F ratio < 150 mmHg

Mean P/F ratio, 100 mmHg



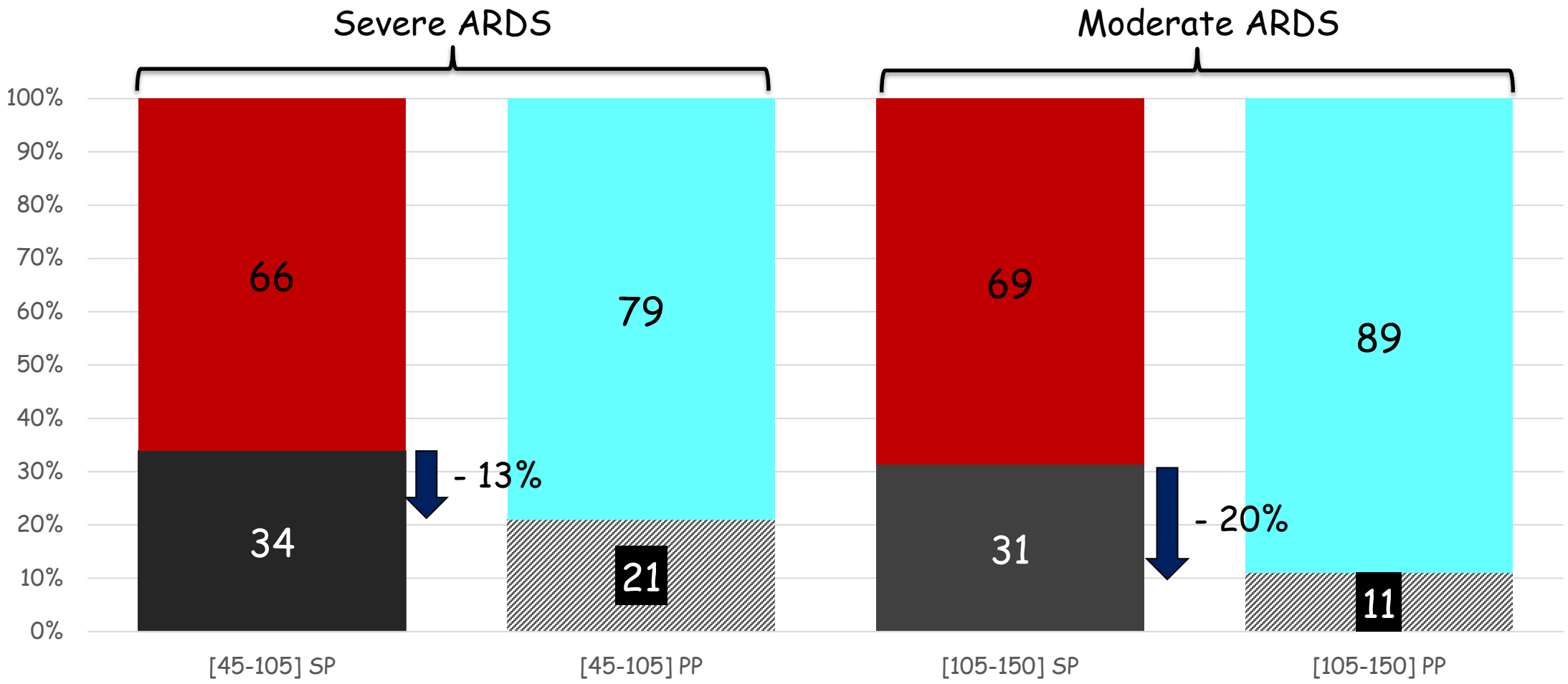
	Supine group (n=229)	Prone group (n=237)
ARDS main origin		
Pneumonia	133 (58.1)	148 (62.4)
Aspiration	41 (17.9)	45 (19.0)
Extra-pulmonary sepsis	28 (12.2)	17 (7.2)
Other	27 (11.8)	27 (11.4)

PROSEVA



4 sessions of PP (17±3 h)

PROSEVA – D28 mortality according to P/F on inclusion



Guérin *et al.* New Engl J Med 2013

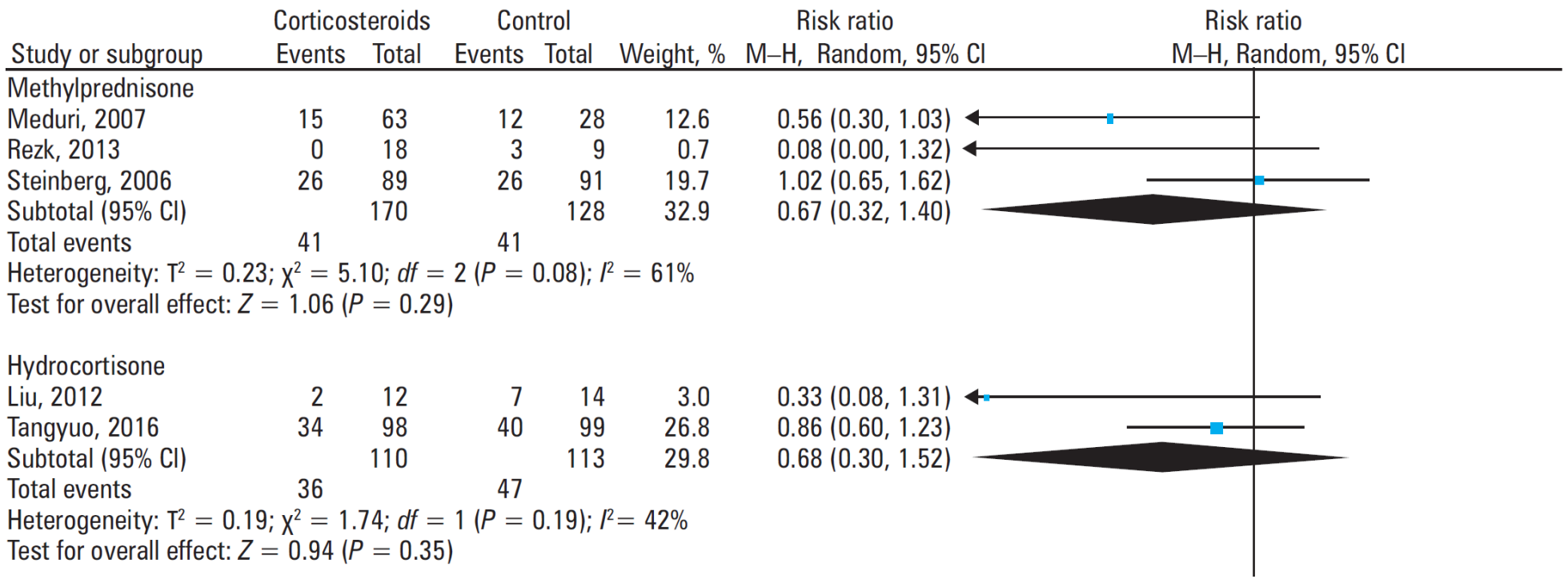
Corticosteroids

Corticosteroids for patients with acute respiratory distress syndrome: a systematic review and meta-analysis of randomized trials

Manoj J. Mammen[1], Komal Aryal[2], Waleed Alhazzani[2,3], Paul E. Alexander[2]

1 Department of Medicine, Jacobs School of Medicine and Biomedical Sciences, State University of New York at Buffalo, Buffalo, New York, United States
2 Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Ontario, Canada
3 Department of Medicine, McMaster University, Hamilton, Ontario, Canada

POLISH ARCHIVES OF INTERNAL MEDICINE 2020; 130 (4)



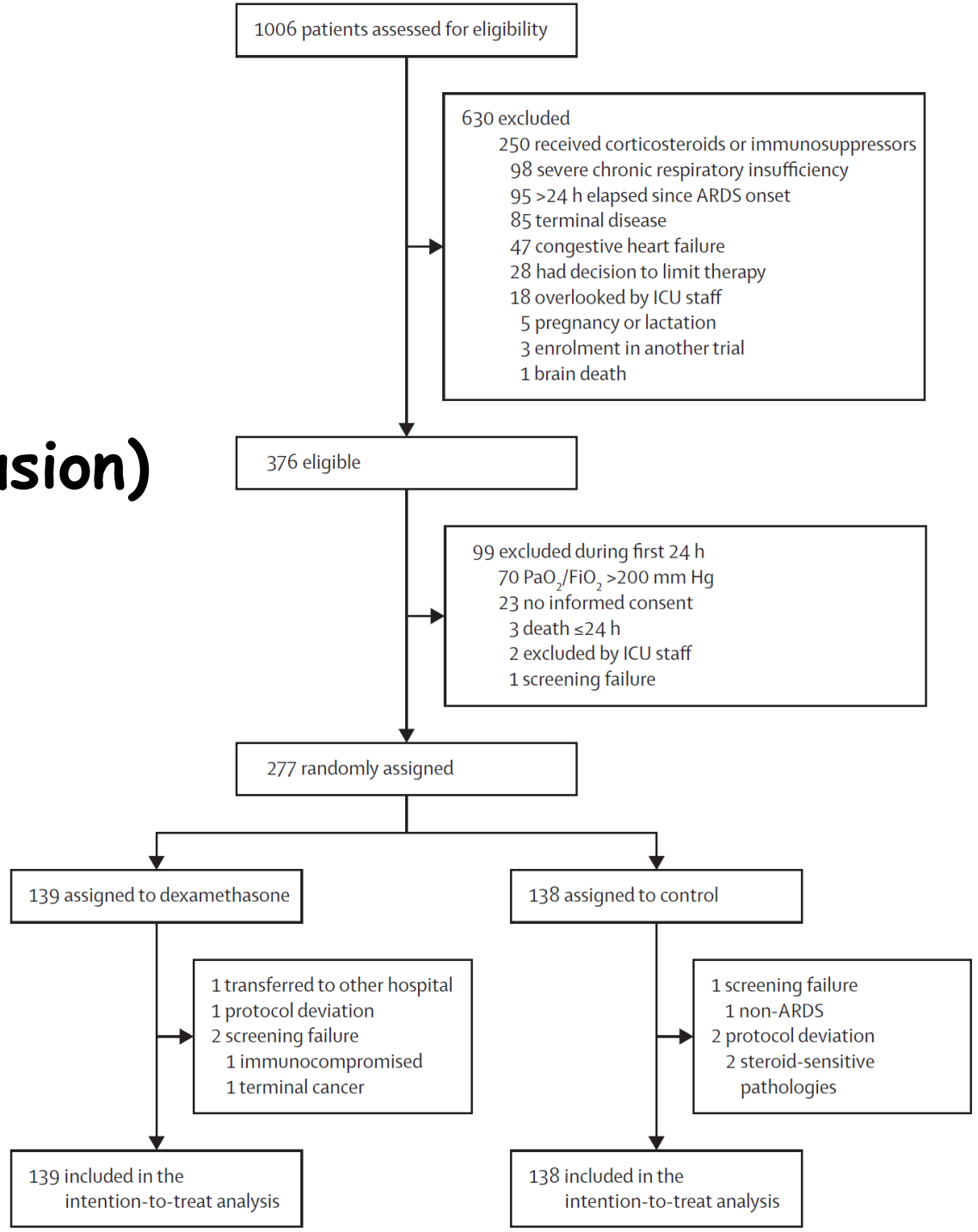
Dexamethasone treatment for the acute respiratory distress syndrome: a multicentre, randomised controlled trial

*Jesús Villar, Carlos Ferrando, Domingo Martínez, Alfonso Ambrós, Tomás Muñoz, Juan A Soler, Gerardo Aguilar, Francisco Alba, Elena González-Higueras, Luís A Conesa, Carmen Martín-Rodríguez, Francisco J Díaz-Domínguez, Pablo Serna-Grande, Rosana Rivas, José Ferreres, Javier Belda, Lucía Capilla, Alec Tallet, José M Añón, Rosa L Fernández, Jesús M González-Martín for the dexamethasone in ARDS network**

Lancet Respir Med 2020

- 17 ICUs in teaching hospitals across Spain
- ARDS (PaO2/FiO2 <200 mm Hg, PEEP ≥10 and FiO2 ≥ 0·5 at 24 h after ARDS onset)
- Dexamethasone (<30h after ARDS onset) or routine care (control)
- Dexamethasone
  - IV dose of 20 mg once daily from day 1 to day 5
  - 10 mg once daily from day 6 to day 10 (stop if extubation)
- Primary outcome: number of ventilator-free days at 28 days

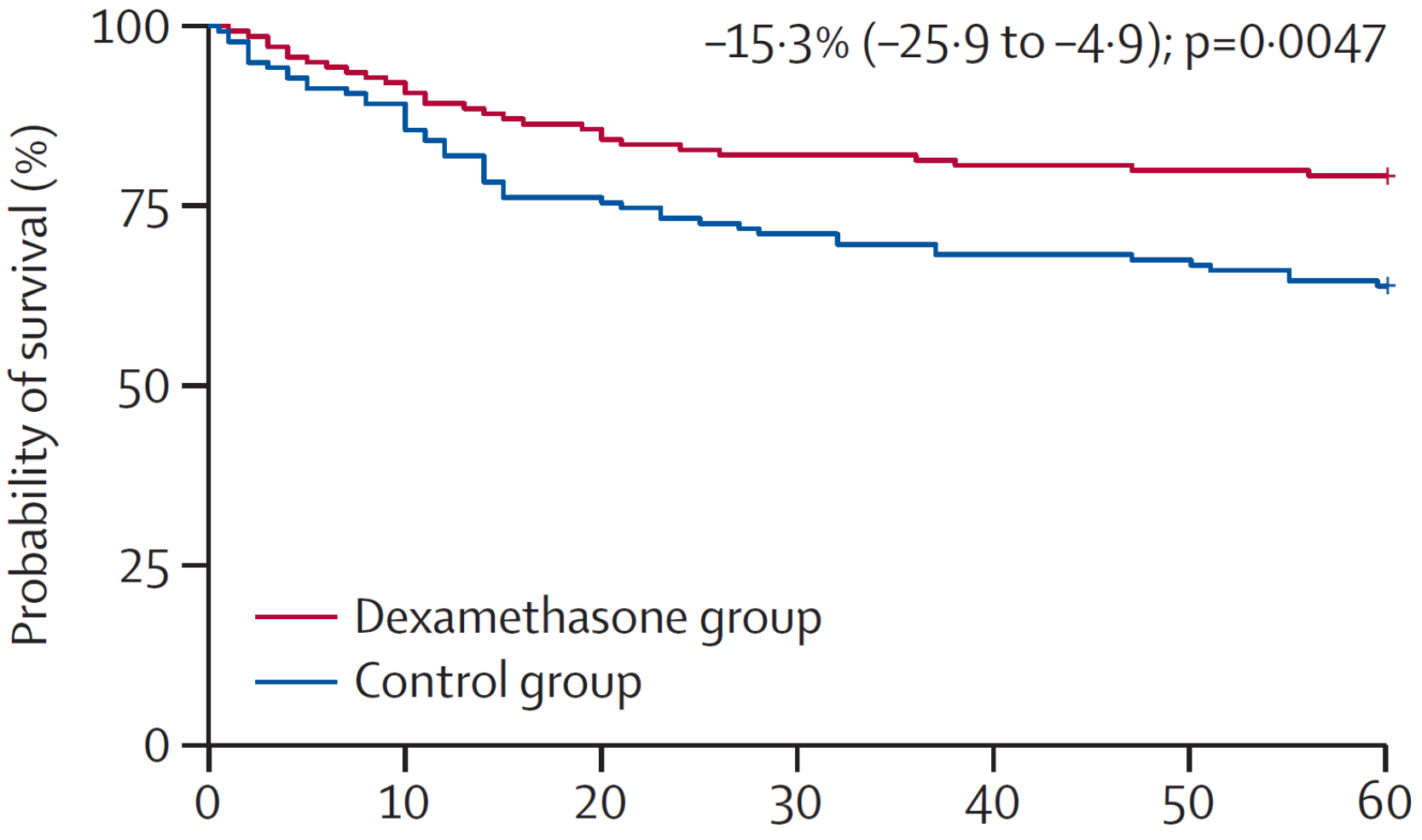
- 2013-2018
- Arrêté par DSMB (rythme d'inclusion)
- > 88% (277/314) de l'effectif



	Dexamethasone group (n=139)	Control group (n=138)	Between-group difference (95% CI)	p value
Ventilator-free days at 28 days	12·3 (9·9)	7·5 (9·0)	4·8 (2·57 to 7·03)	<0·0001
All-cause mortality at day 60	29 (21%)	50 (36%)	−15·3% (−25·9 to −4·9)	0·0047
ICU mortality	26 (19%)	43 (31%)	−12·5% (−22·4 to −2·3)	0·0166
Hospital mortality	33 (24%)	50 (36%)	−12·5% (−22·9 to −1·7)	0·0235
Actual duration of mechanical ventilation in ICU survivors, days	14·2 (13·2)	19·5 (13·2)	−5·3 (−8·4 to −2·2)	0·0009
Actual duration of mechanical ventilation in survivors at day 60, days	14·3 (13·3)	20·2 (14·0)	−5·9 (−9·1 to −2·7)	0·0004
Adverse events and complications*				
Hyperglycaemia in ICU	105 (76%)	97 (70%)	5·2% (−5·2 to 15·6)	0·33
New infections in ICU	33 (24%)	35 (25%)	1·6% (−8·5 to 11·7)	0·75
Barotrauma	14 (10%)	10 (7%)	2·8% (−4·0 to 9·8)	0·41

Data are n (%) or mean (SD). ICU=intensive care unit. *Data included the period from randomisation to day 10 (for hyperglycaemia) and from randomisation to ICU discharge (for new infections and barotrauma).

Table 2: **Outcomes, adverse events, and complications**



Number at risk							
Dexamethasone	139	128	119	114	112	111	110
Control	138	123	105	98	94	93	88

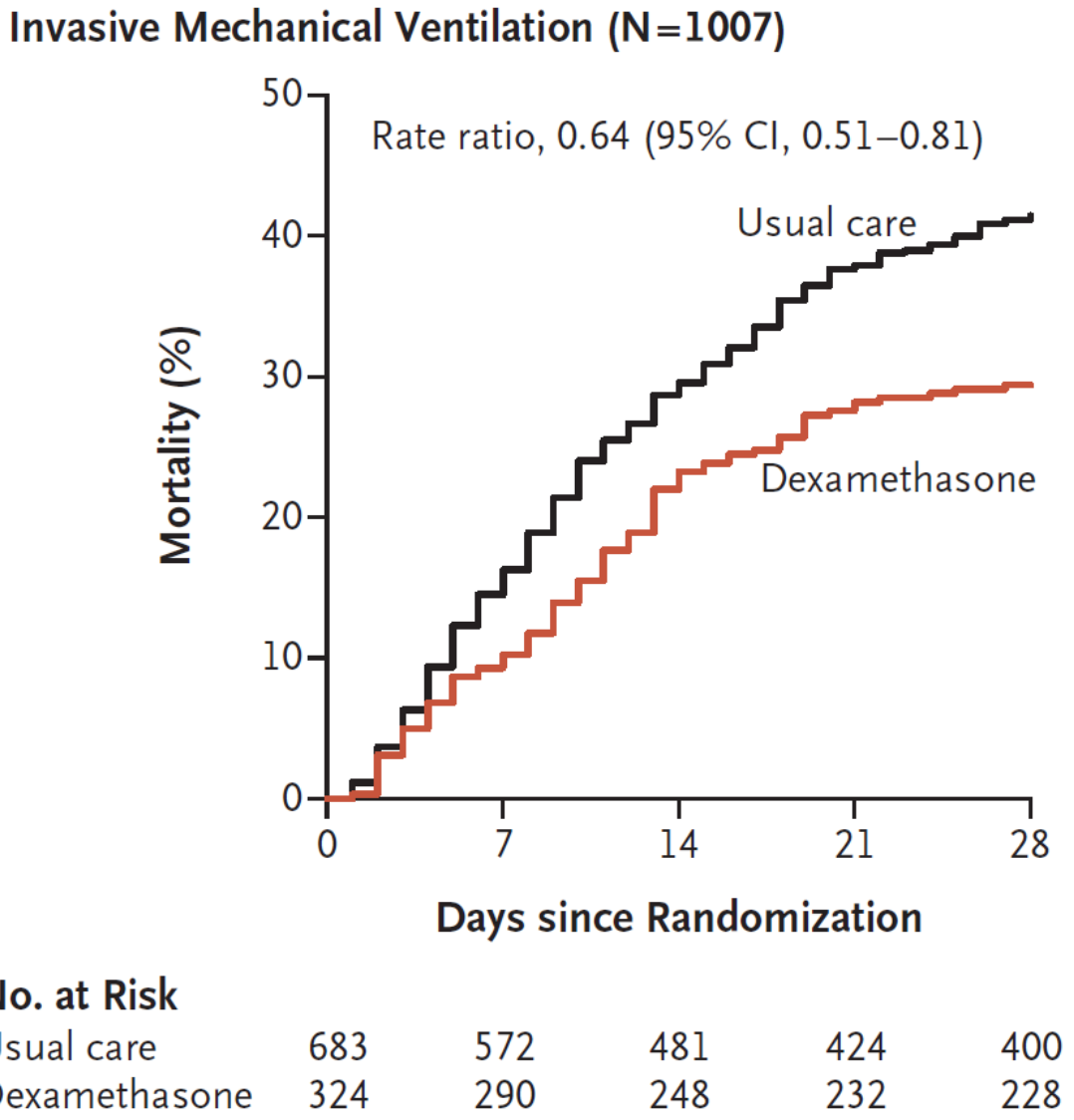
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

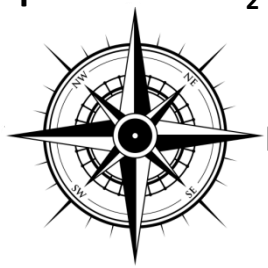
Dexamethasone in Hospitalized Patients with Covid-19 — Preliminary Report

The RECOVERY Collaborative Group*

Dexa: IV dose of 6 mg once daily from day 1 to day 10



Prise en charge initiale du SDRA



Toute initiation de ventilation invasive avec sédation en réanimation

SDRA confirmé

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

P/F < 200 — PEP élevée si améliore oxygénation

Vt autour de 6 ml/kg de poids prédit
Pplateau < 30 cmH_2O
PEP > 5 cmH_2O
Surveiller hypercapnie

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 cmH_2O)
Utilisation PEP élevée si :
- ❑ Amélioration de l'oxygénation
- ❑ Sans dégradation significative de la compliance du système respiratoire et de l'hémodynamique
- ❑ Maintien Pplateau < 30 cmH_2O, monitorage continu

Critères du SDRA
- ❑ PaO_2/FiO_2 ≤ 300 mmHg
- ❑ PEP ≥ 5 cmH_2O
- ❑ 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
- ➢ $ECCO_2R$
- ➢ Pression motrice
- ➢ Ventilation spontanée à la phase aiguë

Probablement ne pas faire
- ➢ Manœuvres de recrutement systématiques

Ne pas faire
- ➢ HFOV