réanimation 2021
PARIS 9-11 JUIN
Palais des Congrès de Paris
Porte Maillot

ATTENTION CHANGEMENT DE DATE

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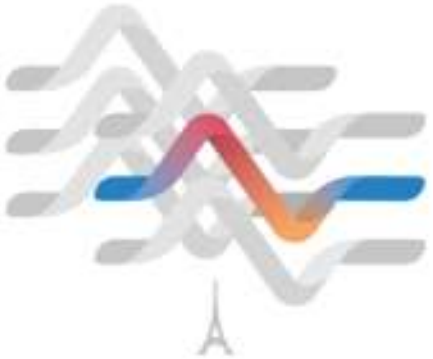
Mobilisation du patient COVID

David CHAPEAU
MKDE CHU Montpellier
Médecine Intensive Réanimation



réanimation 2021

PARIS 9-11 JUIN

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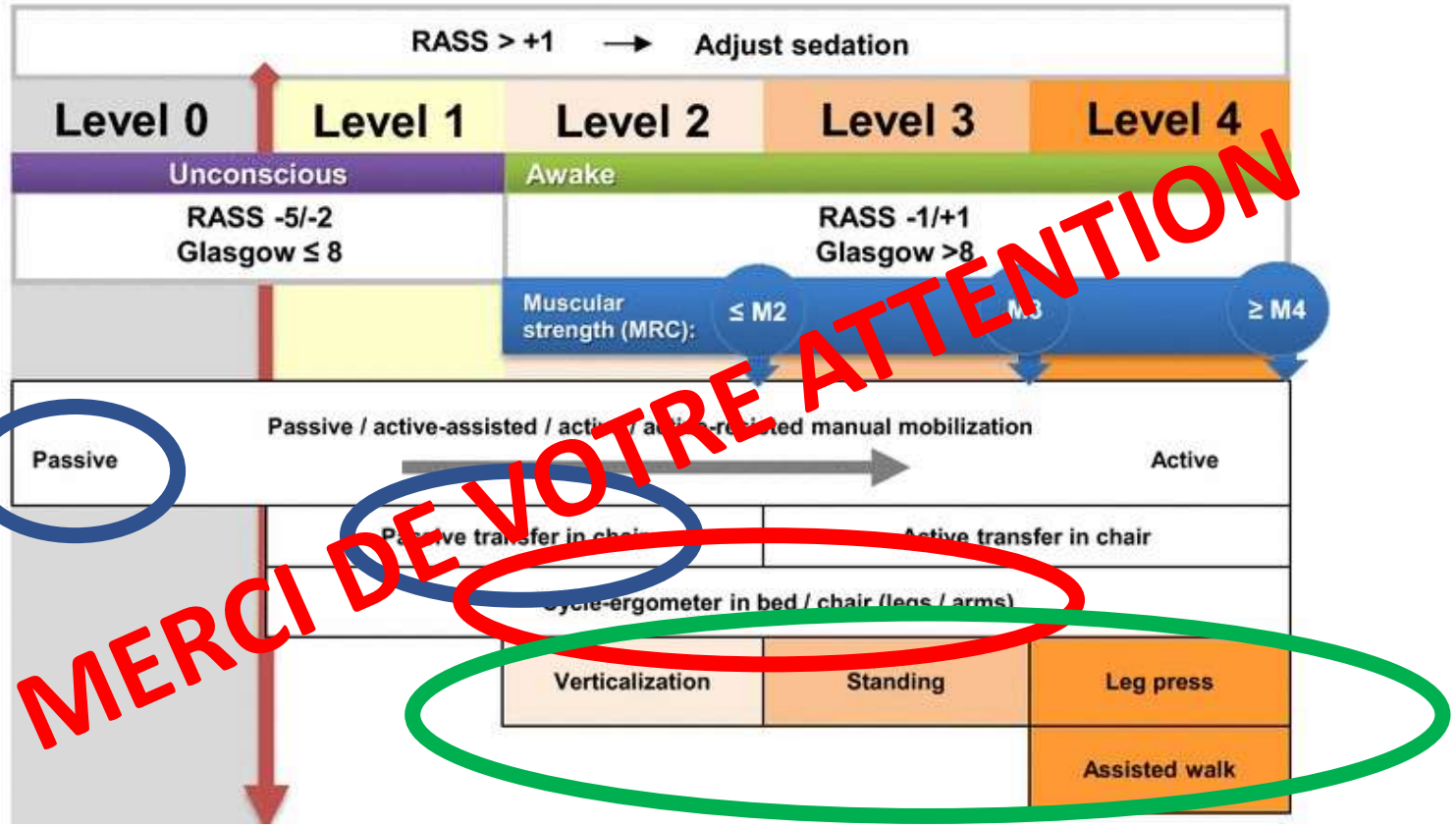
Porte Maillot

Orateur : David CHAPEAU, Montpellier

☑ Je n'ai pas de lien d'intérêt potentiel à déclarer

Early mobilization protocol

M. Patri, CE. Hickmann, E. Bialais, J. Dugernier, P-F Laterre , J. Roeseler
Intensive care unit, Saint Luc university hospital, Brussels.

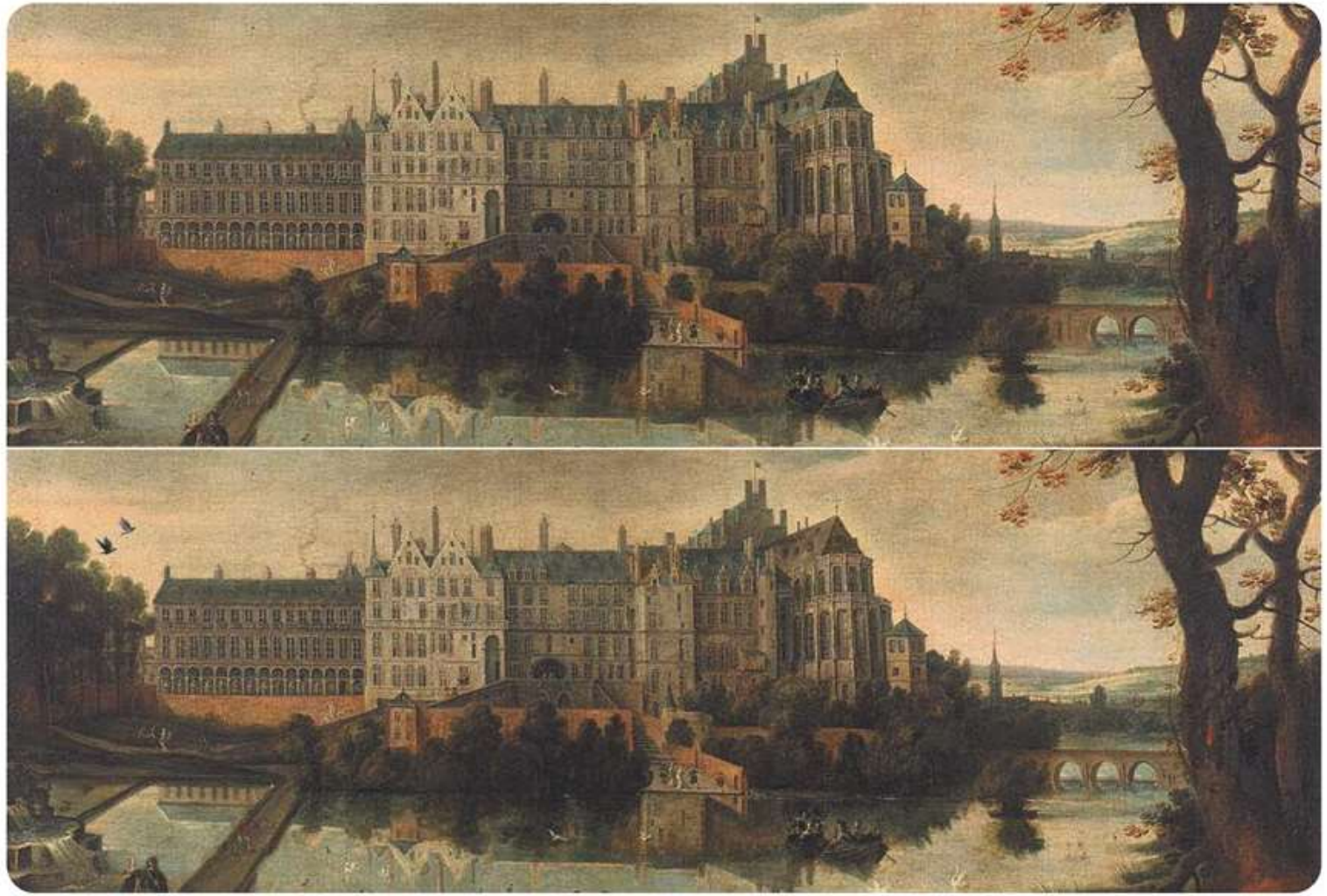


MERCI DE VOTRE ATTENTION

EMS (?)

Hickmann CE, Castanares-Zapatero D, Bialais E, Dugernier J, Tordeur A, Colmant L, et al. Teamwork enables high level of early mobilization in critically ill patients. Ann Intensive Care 2016

JEU DES 7 ERREURS !!!

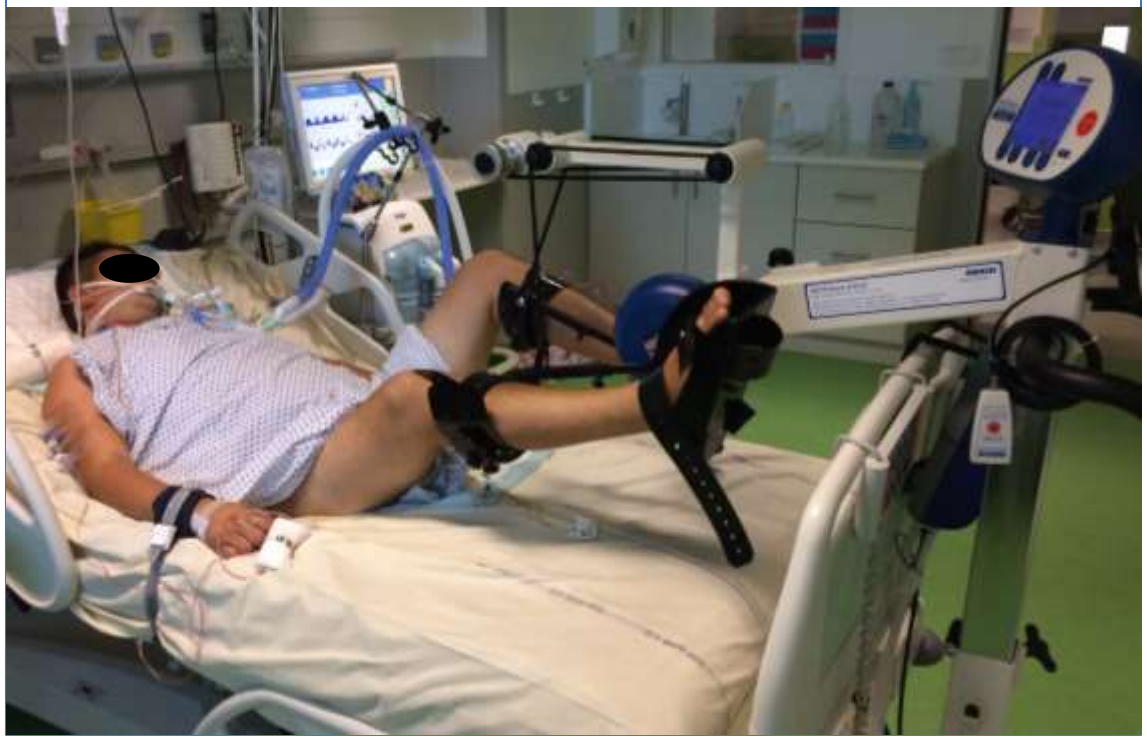



SORTIE


SORTIE

DE QUELS PATIENTS PARLE-T-ON?

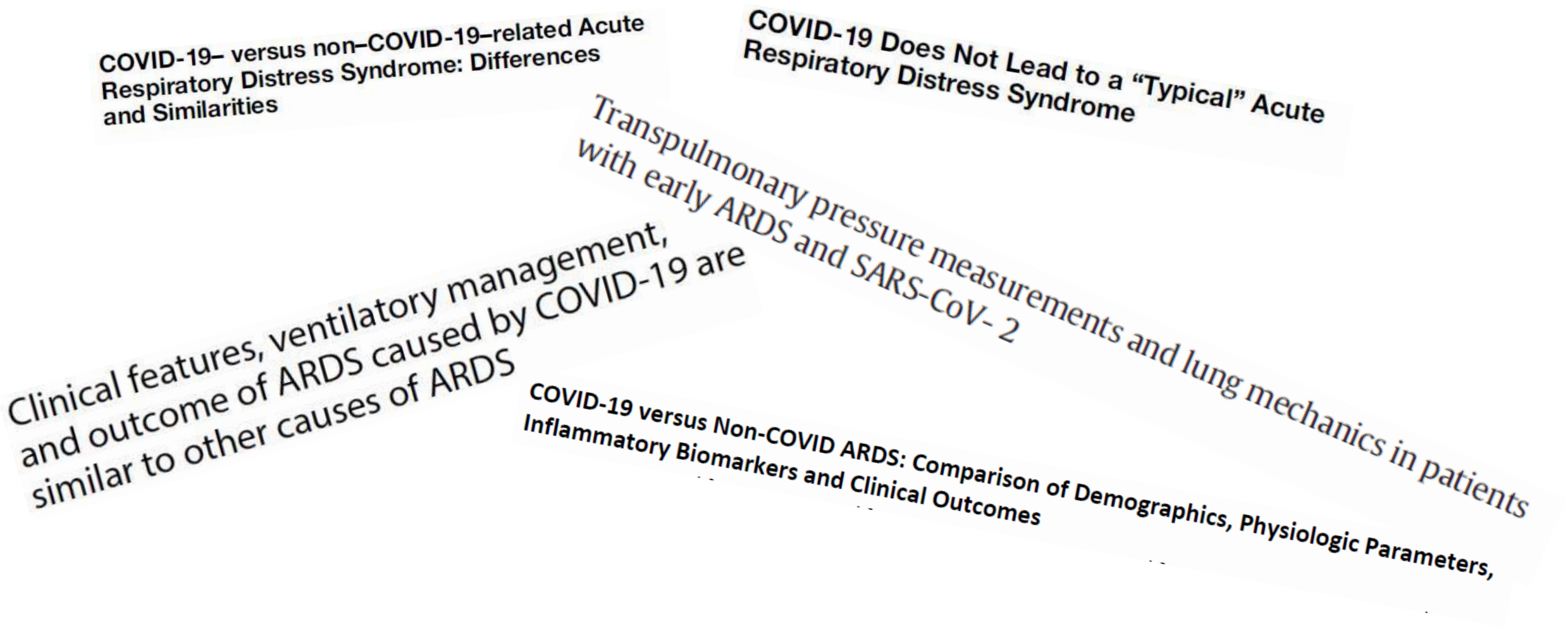
VM prolongée, sédation (NMB)etc…



VS

Hypoxémie sévère, OHD

SDRA COVID vs NON-COVID



SDRA COVID vs NON-COVID

Variable	Total Population ($n = 63$)	COVID-19–related ARDS ($n = 24$)	Non–COVID-19–related ARDS ($n = 39$)	*P* Value
Demographic variables				
Age, yr	61 (51–69)	67 (58–76)	59 (49–66)	**0.02**
Sex, male	42 (67)	19 (79)	23 (59)	0.10
Body mass index, kg/m^2	28.7 (24.6–35.0)	31.0 (27.7–34.8)	28.2 (23.8–35.0)	0.08
Time between symptom onset and ICU admission, d	6 (1–10)	8 (6–12)	2 (0–6)	**0.001**
Time between symptom onset and orotracheal intubation, d	7 (3–12)	10 (7–15)	5 (0–7)	**0.0001**
Comorbidities				
Chronic lung disease	23 (37)	8 (33)	15 (39)	0.68
Chronic cardiovascular disease	28 (44)	14 (58)	14 (36)	0.08
Diabetes	14 (22)	9 (38)	5 (13)	**0.03**
Obesity	26 (41)	14 (58)	12 (31)	**0.04**
Immunocompromise	19 (30)	2 (8)	17 (44)	**0.004**
Computed tomography findings	53 (84)	18 (75)	35 (90)	
Diffuse pattern	33 (62)	16 (89)	20 (57)	**0.03**
Focal pattern	14 (26)	2 (11)	12 (34)	0.10
Ground-glass opacity	31 (58)	15 (63)	16 (46)	**0.01**
Alveolar consolidation	32 (60)	11 (61)	21 (60)	>0.99
Pleural effusion	28 (53)	3 (17)	25 (78)	**0.0003**
Pulmonary embolism	2 (4)	2 (17)	0 (0)	0.22
Respiratory physiology				
$F_{I_{O_2}}$, %	80 (70–100)	100 (70–100)	80 (60–100)	0.06
$Pa_{O_2}/F_{I_{O_2}}$ ratio, mm Hg	104 (81–126)	101 (81–126)	106 (81–124)	0.64
Severe ARDS	32 (51)	12 (50)	20 (51)	0.92
Moderate ARDS	31 (49)	12 (50)	19 (49)	0.92
pH	7.33 (7.26–7.39)	7.34 (7.31–7.39)	7.31 (7.23–7.39)	0.24
Pa_{CO_2}, mm Hg	45.0 (39.5–52.0)	43.1 (40.3–50.7)	46.0 (39.5–53.0)	0.51
Ventilatory ratio	1.91 (1.65–2.33)	1.89 (1.67–2.23)	1.99 (1.64–2.55)	0.46
V_T, ml/kg of predicted body weight	6.07 (5.71–6.45)	6.07 (5.95–6.16)	6.09 (5.36–6.80)	0.74
Plateau pressure, cm H_2O	26.0 (23.0–28.0)	26.0 (21.8–28.0)	26.0 (23.5–29.0)	0.29
PEEP applied, cm H_2O	10.0 (8.5–14.0)	12.0 (6.5–15.0)	10.0 (9.5–13.0)	0.85
Driving pressure, cm H_2O	14.0 (11.0–17.0)	13.0 (10.0–15.0)	15.0 (12.0–17.5)	0.12
Crs, ml/cm H_2O	30.0 (23.0–39.5)	32.5 (25.8–41.3)	29.0 (22.0–37.0)	0.13

Brault C et al. COVID-19– versus non–COVID-19–related Acute Respiratory Distress Syndrome: Differences and Similarities.

Am J Respir Crit Care Med. 28 août 2020;202(9):1301-4.

COVID-19– versus non–COVID-19–related Acute Respiratory Distress Syndrome: Differences and Similarities

COVID-19 Does Not Lead to a "Typical" Acute Respiratory Distress Syndrome

Transpul

Is severe COVID-19 pneumonia a typical or atypical form of ARDS? And does it matter?

Ewan C. Goligher[1,2,3], V. Marco Ranieri[4] and Arthur S. Slutsky[1,5*]

Clinical features, ventilato
and outcome of ARDS caused by C
similar to other causes of ARDS

ung mechanics in patients

SDRA COVID vs NON-COVID : + de NMAR?

Tracheotomy	2229	198 (9)	53 (10)	107 (9)	38 (7)	0.207
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
Cardiac arrest	2227	133 (6)	31 (6)	58 (5)	44 (8)	0.038

Duration of invasive ventilation, days	1448					
All patients		12 (7–17)	11 (6–17)	12 (7–17)	11 (6–17)	0.021
[illegible]		[illegible]	[illegible]	14 (8–18)	14 (10–19)	0.007
ICU length of stay, days	2187					
All patients		16 (9–28)	15 (8–27)	17 (9–28)	16 (8–30)	0.149
Surviving patients at day-90		21 (13–36)	18 (10–31)	21 (13–35)	26 (16–43)	< 0.001
ICU mortality	2214	773 (35)	146 (27)	366 (32)	261 (49)	< 0.001

Reva (Covid)

Table 4. Use of Adjunctive and Other Optimization Measures in Invasively Ventilated Patients With Acute Respiratory Distress Syndrome[a]

	Patients of No. (%) [95% CI]				
	All (n = 2377)	Mild[b] (n = 498)	Moderate[b] (n = 1150)	Severe[b] (n = 729)	P Value[b]
Neuromuscular blockade	516 (21.7) [20.1-23.4]	34 (6.8) [4.8-9.4]	208 (18.1) [15.9-20.4]	274 (37.8) [34.1-41.2]	<.001
Recruitment maneuvers	496 (20.9) [19.2-22.6]	58 (11.7) [9.0-14.8]	200 (17.4) [15.2-19.7]	238 (32.7) [29.3-36.2]	<.001
Prone positioning	187 (7.9) [6.8-9.0]	5 (1.0) [0.3-2.3]	63 (5.5) [4.2-7.0]	119 (16.3) [13.7-19.2]	<.001
ECMO	76 (3.2) [2.5-4.0]	1 (0.2) [0.05-1.2]	27 (2.4) [1.6-3.4]	48 (6.6) [4.9-8.6]	<.001

Table 5. Outcome of Invasively Ventilated Patients by Acute Respiratory Distress Syndrome Severity at Diagnosis

Parameter	All (n = 2377)	Mild (n = 714)	Moderate (n = 1106)	Severe (n = 557)	P Value[a]
Progression of ARDS severity, No. (%) [95% CI][b]					
Progression to moderate[c]		184 (25.8) [22.6-29.1]	N/A	N/A	
Progression to severe[c]		32 (4.5) [3.1-6.3]	140 (12.7) [10.8-14.8]	N/A	
Death in the 1st wk without category change		63 (8.8) [6.8-11.1]	126 (11.4) [9.5-13.4]	117 (21.0) [17.7-24.6]	
Invasive ventilation-free days to day 28, median (IQR), d	10 (0-22)	16 (0-24)	11 (0-21)	0 (0-18)	<.001
Duration of invasive ventilation, median (IQR), d					
All patients	8 (4-15)	7 (3-14)	8 (4-16)	9 (4-16)	.04
[illegible]	[illegible]	6 (3-13)	8 (4-15)	11 (6-18)	<.001
ICU length of stay, median (IQR), d					
All patients	10 (5-20)	10 (5-19)	11 (6-20)	11 (5-19)	.39
Surviving patients	11 (7-21)	10 (6-19)	12 (7-21)	14 (7-23)	.03
ICU mortality, No. (%) [95% CI]	838 (35.3) [33.3-37.2]	212 (29.7) [26.4-33.2]	387 (35.0) [32.2-37.9]	239 (42.9) [38.8-47.1]	<.001
Day 28 mortality, No. (%) [95% CI]	828 (34.8) [32.9-36.8]	211 (29.6) [26.2-33.0]	389 (35.2) [32.4-38.1]	228 (40.9) [36.8-45.1]	<.001
Hospital length of stay, median (IQR), d					
All patients	17 (8-33)	18 (10-33)	17 (8-33)	16 (6-31)	.22
Surviving patients	23 (14-40)	23 (14-40)	22 (13-40)	26 (14-43)	.41
Hospital mortality, No. (%) [(95% CI]	952 (40.0) [38.1-42.1]	249 (34.9) [31.4-38.5]	446 (40.3) [37.4-43.3]	257 (46.1) [41.9-50.4]	<.001

Lung safe

Table 3. Secondary Outcomes, According to Study Group.*

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
From day 1 to day 90	53.1±35.8	44.6±37.5		0.03
No. of days without organ failure, from day 1 to day 28				
No cardiovascular failure	18.3±9.4	16.6±10.4		0.12
No coagulation abnormalities	22.6±8.9	20.5±9.9		0.05
No hepatic failure	21.3±9.6	19.1±10.6		0.05
No renal failure	20.5±10.1	18.1±11.6		0.05
None of the four	15.8±9.9	12.2±11.1		0.01
No. of days outside the ICU				
From day 1 to day 28	6.9±8.2	5.7±7.8		0.16
From day 1 to day 90	47.7±33.5	39.5±35.6		0.03
Hospital survivors admitted to other health care facilities from day 1 to day 90 — % (95% CI)	22.3 (15.8–30.5)	18.8 (12.2–27.8)		0.52
Barotrauma — no. (% [95% CI])‡	9 (5.1 [2.7–9.4])	19 (11.7 [7.6–17.6])	0.43 (0.20–0.93)	0.03
Pneumothorax — no. (% [95% CI])	7 (4.0 [2.0–8.0])	19 (11.7 [7.6–17.6])	0.34 (0.15–0.78)	0.01
MRC score — median (IQR)§				
At day 28	55 (46–60)	55 (39–60)	1.07 (0.80–1.45)	0.49
At ICU discharge	55 (43–60)	55 (44–60)	0.92 (0.71–1.19)	0.04
Patients without ICU-acquired paresis¶				
By day 28 — no./total no. (% [95% CI])	68/96 (70.8 [61.1–79.0])	52/77 (67.5 [56.5–77.0])		0.64
By ICU discharge — no./total no. (% [95% CI])	72/112 (64.3 [55.1–72.6])	61/89 (68.5 [58.3–77.3])		0.51

ACURASYS

Table 2. End Points.*

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)	
Days not in ICU at day 28	9.0±9.4	9.4±9.8	−0.4 (−1.6 to 0.8)	
Days not in hospital at day 28‡	5.7±7.8	5.9±8.1	−0.2 (−1.1 to 0.8)	
Safety end points				
In-hospital recall of paralysis				
Total no. of patients (%)	9 (1.8)	10 (2.0)	−0.2 (−1.9 to 1.5)	
Among patients who received neuromuscular blockade — no./total no. (%)	9/487 (1.8)	2/129 (1.6)	0.3 (−2.1 to 2.7)	
MRC score§				
Day 7	46.7±14.4	49.5±12.3	−2.8 (−6.1 to 0.6)¶	
Day 28	45.7±13.9	49.8±10.6	−4.1 (−7.0 to −0.9)¶	
ICU-acquired weakness — no./total no. (%)‖				
Day 7	50/122 (41.0)	41/131 (31.3)	−9.7 (−21.5 to 2.1)	
Day 28	22/47 (46.8)	14/51 (27.5)	−19.4 (−38.2 to −0.6)	
Any time through day 28	107/226 (47.3)	89/228 (39.0)	−7.3 (−15.7 to 1.1)	
Serious adverse events — no. of events**	35	22		0.09
Serious cardiovascular adverse events — no. of events**	14	4		0.02
Atrial fibrillation or SVT during ICU stay — no. (%)	101 (20.2)	99 (19.6)		0.88
Barotrauma — no. (%)	20 (4.0)	32 (6.3)		0.12
Pneumothorax on days 0 through 2 — no. (%)	8 (1.6)	10 (2.0)		0.81
Pneumothorax on days 0 through 7 — no. (%)	14 (2.8)	25 (5.0)		0.10

ROSE

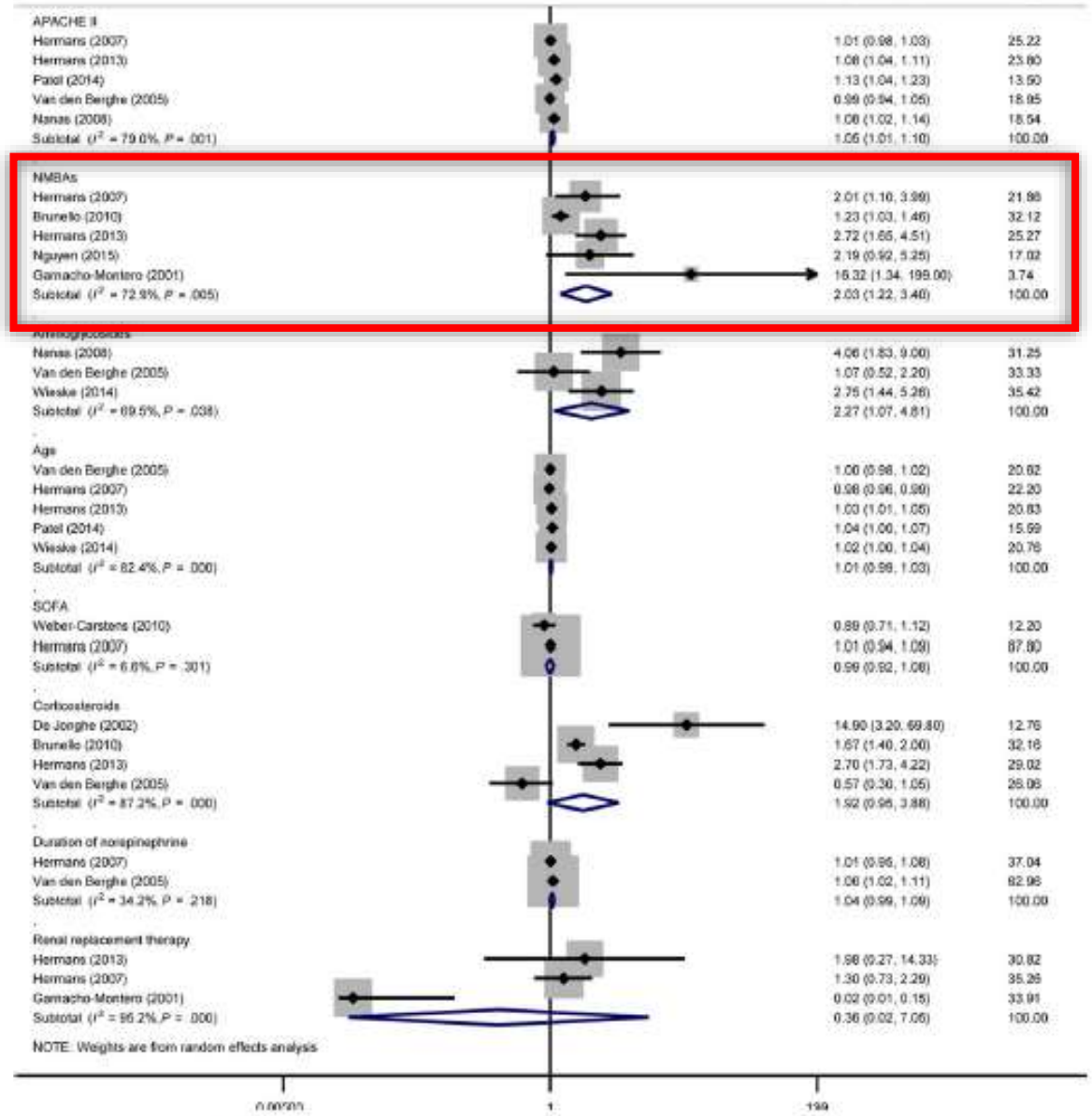


FIGURE 2 Meta-analysis of independent risk factors for ICU-acquired weakness

Yang T, Li Z, Jiang L, Wang Y, Xi X. Risk factors for intensive care unit-acquired weakness: A systematic review and meta-analysis. Acta Neurol Scand. août 2018;138(2):104-14.

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Surviving patients at day-90		13 (8–18)	12 (6–18)	14 (8–18)	14 (10–19)	0.007
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Reva

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Table 5. Outcome of Invasively Ventilated Patients by Acute Respiratory Distress Syndrome Severity at Diagnosis

Parameter	All (n = 2377)	Mild (n = 714)	Moderate (n = 1106)	Severe (n = 557)	P Value[a]
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Death in the 1st wk without category change		63 (8.8) [6.8-11.1]	126 (11.4) [9.5-13.4]	117 (21.0) [17.7-24.6]	
Invasive ventilation-free days to day 28, median (IQR), d[d]	10 (0-22)	16 (0-24)	11 (0-21)	0 (0-18)	<.001
Duration of invasive ventilation, median (IQR), d					
All patients	8 (4-15)	7 (3-14)	8 (4-16)	9 (4-16)	.04
Surviving patients	8 (4-15)	6 (3-13)	8 (4-15)	11 (6-18)	<.001
ICU length of stay, median (IQR), d					
All patients	10 (5-20)	10 (5-19)	11 (6-20)	11 (5-19)	.39
Surviving patients	11 (7-21)	10 (6-19)	12 (7-21)	14 (7-23)	.03
ICU mortality, No. (%) [95% CI]	838 (35.3) [33.3-37.2]	212 (29.7) [26.4-33.2]	387 (35.0) [32.2-37.9]	239 (42.9) [38.8-47.1]	<.001
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Hospital length of stay, median (IQR), d					
All patients	17 (8-33)	18 (10-33)	17 (8-33)	16 (6-31)	.22
Surviving patients	23 (14-40)	23 (14-40)	22 (13-40)	26 (14-43)	.41
Hospital mortality, No. (%) [(95% CI]	952 (40.0) [38.1-42.1]	249 (34.9) [31.4-38.5]	446 (40.3) [37.4-43.3]	257 (46.1) [41.9-50.4]	<.001

Lung safe

Table 3. Clinical Risk Factors and Pathophysiological Features of Critical Illness Polyneuropathy and Critical Illness Myopathy.

Variable	Reference
Clinical risk factors of both critical illness polyneuropathy and critical illness myopathy	
Female sex	De Jonghe et al.[11]
Sepsis	Garnacho-Montero et al.[28]
Catabolic state	Trojaborg et al.,[15] Garnacho-Montero et al.[28]
Multiorgan system failure	De Jonghe et al.[11]
Systemic inflammatory response syndrome	Jaber et al.,[33] Levine et al.[34]
Long duration of mechanical ventilation	De Jonghe et al.[11]
Immobility	Levine et al.,[32] Papazian et al.,[39] Iwashyna et al.[41]
Hyperglycemia	Van den Berghe et al.[13]
Glucocorticoids	De Jonghe et al.[11]
Neuromuscular blocking agents	MacFarlane and Rosenthal,[3] Leatherman et al.[12]

Kress JP, Hall JB. ICU-Acquired Weakness and Recovery from Critical Illness. New England Journal of Medicine. 24 avr 2014;370(17):1626-35.

Table 3. Multivariate Analysis of Risk Factors for Intensive Care Unit–Acquired Paresis*

Independent Risk Factor	OR (95% CI)	*P* Value†
Female sex	4.66 (1.19-18.30)	.02
No. of days with dysfunction in ≥2 organs‡	1.28 (1.11-1.49)	<.001
Duration of mechanical ventilation§	1.10 (1.00-1.22)	.049
Corticosteroid administration	14.90 (3.20-69.80)	<.001

*Risk factors were recorded between intensive care unit admission and awakening (day 1). Variables with $P<.15$ in univariate analysis were entered into a logistic regression analysis after identification of interaction and confounding. OR indicates odds ratio; CI, confidence interval.
†Logistic regression.
‡The OR per additional day with dysfunction in 2 or more organs.
§The OR per additional day of mechanical ventilation.

De Jonghe B et al. Paresis acquired in the intensive care unit: a prospective multicenter study. Jama. 2002;288(22):2859-67.

Tracheotomy	2229	198 (9)	53 (10)	107 (9)	38 (7)	0.207
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
Cardiac arrest	2227	133 (6)	31 (6)	58 (5)	44 (8)	0.038

Duration of invasive ventilation, days	1448					
All patients		12 (7–17)	11 (6–17)	12 (7–17)	11 (6–17)	0.021
Surviving patients at day-90		13 (8–18)	12 (6–18)	14 (8–18)	14 (10–19)	0.007
ICU length of stay, days	2187					
All patients		16 (9–28)	15 (8–27)	17 (9–28)	16 (8–30)	0.149
Surviving patients at day-90		21 (13–36)	18 (10–31)	21 (13–35)	26 (16–43)	< 0.001
ICU mortality	2214	773 (35)	146 (27)	366 (32)	261 (49)	< 0.001

Reva

Table 4. Use of Adjunctive and Other Optimization Measures in Invasively Ventilated Patients With Acute Respiratory Distress Syndrome[a]

	Patients of No. (%) [95% CI]				
	All (n = 2377)	Mild[b] (n = 498)	Moderate[b] (n = 1150)	Severe[b] (n = 729)	P Value[b]
Neuromuscular blockade	516 (21.7) [20.1-23.4]	34 (6.8) [4.8-9.4]	208 (18.1) [15.9-20.4]	274 (37.8) [34.1-41.2]	<.001
Recruitment maneuvers	496 (20.9) [19.2-22.6]	58 (11.7) [9.0-14.8]	200 (17.4) [15.2-19.7]	238 (32.7) [29.3-36.2]	<.001
Prone positioning	187 (7.9) [6.8-9.0]	5 (1.0) [0.3-2.3]	63 (5.5) [4.2-7.0]	119 (16.3) [13.7-19.2]	<.001
ECMO	76 (3.2) [2.5-4.0]	1 (0.2) [0.05-1.2]	27 (2.4) [1.6-3.4]	48 (6.6) [4.9-8.6]	<.001

Table 5. Outcome of Invasively Ventilated Patients by Acute Respiratory Distress Syndrome Severity at Diagnosis

Parameter	All (n = 2377)	Mild (n = 714)	Moderate (n = 1106)	Severe (n = 557)	P Value[a]
Progression of ARDS severity, No (%) [95% CI][b]					
Progression to moderate[c]		184 (25.8) [22.6-29.1]	N/A	N/A	
Progression to severe[c]		32 (4.5) [3.1-6.3]	140 (12.7) [10.8-14.8]	N/A	
Death in the 1st wk without category change		63 (8.8) [6.8-11.1]	126 (11.4) [9.5-13.4]	117 (21.0) [17.7-24.6]	
Invasive ventilation-free days to day 28, median (IQR), d[d]	10 (0-22)	16 (0-24)	11 (0-21)	0 (0-18)	<.001
Duration of invasive ventilation, median (IQR), d					
All patients	8 (4-15)	7 (3-14)	8 (4-16)	9 (4-16)	.04
Surviving patients	8 (4-15)	6 (3-13)	8 (4-15)	11 (6-18)	<.001
ICU length of stay, median (IQR), d					
All patients	10 (5-20)	10 (5-19)	11 (6-20)	11 (5-19)	.39
Surviving patients	11 (7-21)	10 (6-19)	12 (7-21)	14 (7-23)	.03
ICU mortality, No. (%) [95% CI]	838 (35.3) [33.3-37.2]	212 (29.7) [26.4-33.2]	387 (35.0) [32.2-37.9]	239 (42.9) [38.8-47.1]	<.001
Day 28 mortality, No. (%) [95% CI]	828 (34.8) [32.9-36.8]	211 (29.6) [26.2-33.0]	389 (35.2) [32.4-38.1]	228 (40.9) [36.8-45.1]	<.001
Hospital length of stay, median (IQR), d					
All patients	17 (8-33)	18 (10-33)	17 (8-33)	16 (6-31)	.22
Surviving patients	23 (14-40)	23 (14-40)	22 (13-40)	26 (14-43)	.41
Hospital mortality, No. (%) [(95% CI]	952 (40.0) [38.1-42.1]	249 (34.9) [31.4-38.5]	446 (40.3) [37.4-43.3]	257 (46.1) [41.9-50.4]	<.001

Lung safe

Brachial Plexus Neuropathies During the COVID-19 Pandemic: A Retrospective Case Series of 15 Patients in Critical Care

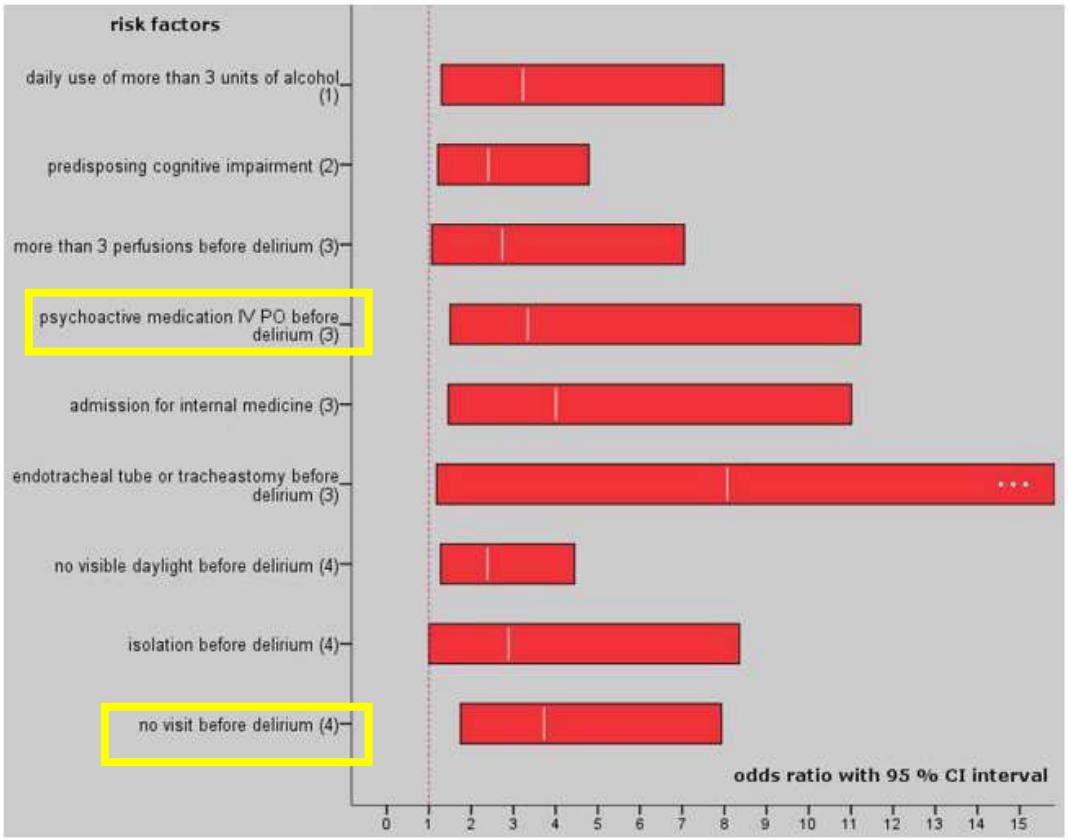
Caroline Miller, MSc, BSc(Hons)[1,2,†], Joel O'Sullivan, MSc, BSc(Hons)[3,*,†], Jack Jeffrey, BSc(Hons)[1,†], Dominic Power, MD[4]

Table 2. Patient Demographics, Critical Care Data, and Frequency of Nerve Injuries for Included Patients (n = 15)[a]

Patient Characteristics	Mean (Range)
Age, y	54.5 (39–69)
Sex (male: female)	12 male/3 female
Comorbidities present, %	HTN: 80 T2DM: 46 Obesity: 53
Critical care length of stay, d	32.5 (20–46)
Number of times proned	7.3 (2–15)
Frequency of nerve injuries by anatomical location (n = 30)	
Upper trunk	1
Lateral cord	4
Posterior cord	3
Medial cord	3
Axillary nerve	2
Median nerve	1
Ulnar nerve	12
Radial nerve	1
Musculocutaneous nerve	2
Spinal accessory nerve	1

SDRA COVID vs NON-COVID : + de barrières ?

Figure 2



Multivariate risk factors for intensive care delirium. Odds ratio with 95% confidence interval (CI), the number behind the factor indicates the domain: patients characteristics; chronic pathology; acute illness; and environment.

Van Rompaey B et al. Risk factors for delirium in intensive care patients: a prospective cohort study. Crit Care. 20 mai 2009;13(3):R77.

RESEARCH Open Access

Delirium and encephalopathy in severe COVID-19: a cohort analysis of ICU patients

Julie Helms[1,2], Stéphane Kremer[3,4], Hamid Merdji[1,5], Malika Schenck[6], François Severac[7], Raphaël Clere-Jehl[1,2], Antoine Studer[1], Mirjana Radosavljevic[2,8], Christine Kummerlen[1], Alexandra Monnier[1], Clotilde Boulay[9,10,11], Samira Fafi-Kremer[2,12], Vincent Castelain[6], Mickaël Ohana[13], Mathieu Anheim[9,10,11], Francis Schneider[6] and Ferhat Meziani[1,5*]

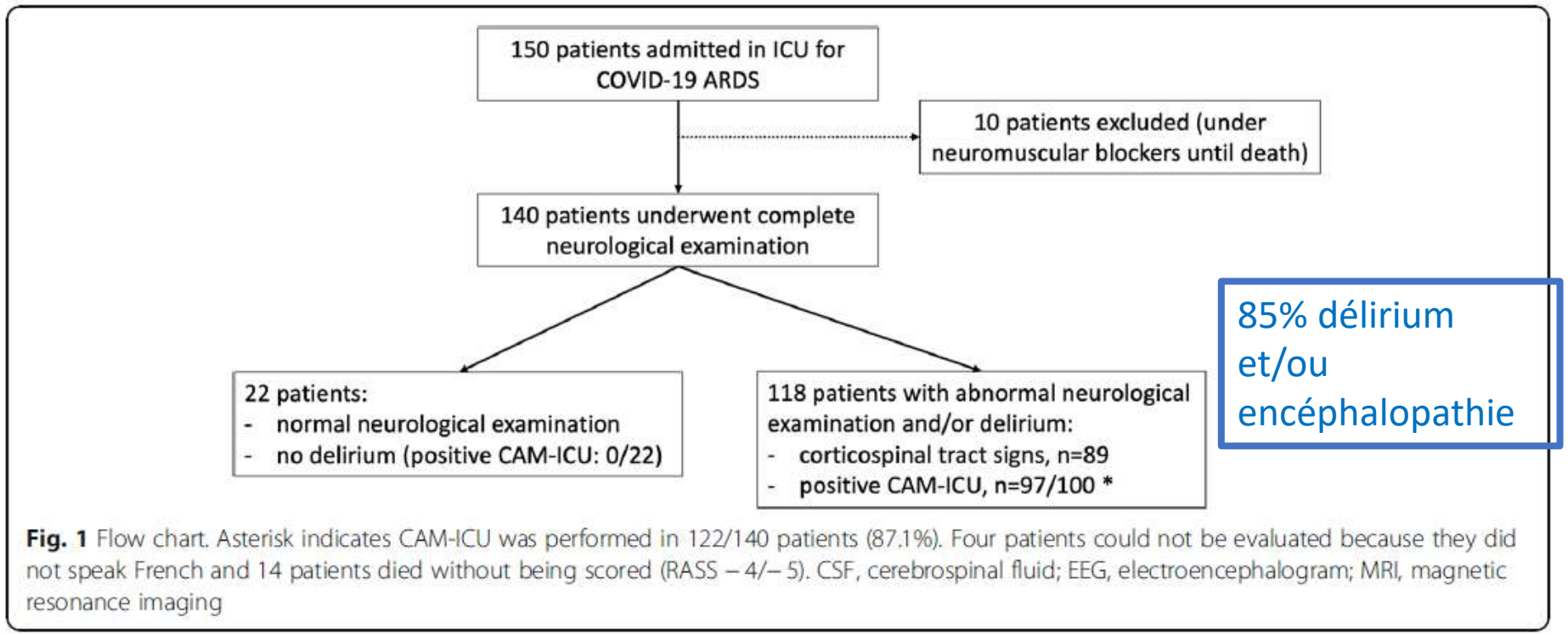


Fig. 1 Flow chart. Asterisk indicates CAM-ICU was performed in 122/140 patients (87.1%). Four patients could not be evaluated because they did not speak French and 14 patients died without being scored (RASS −4/−5). CSF, cerebrospinal fluid; EEG, electroencephalogram; MRI, magnetic resonance imaging

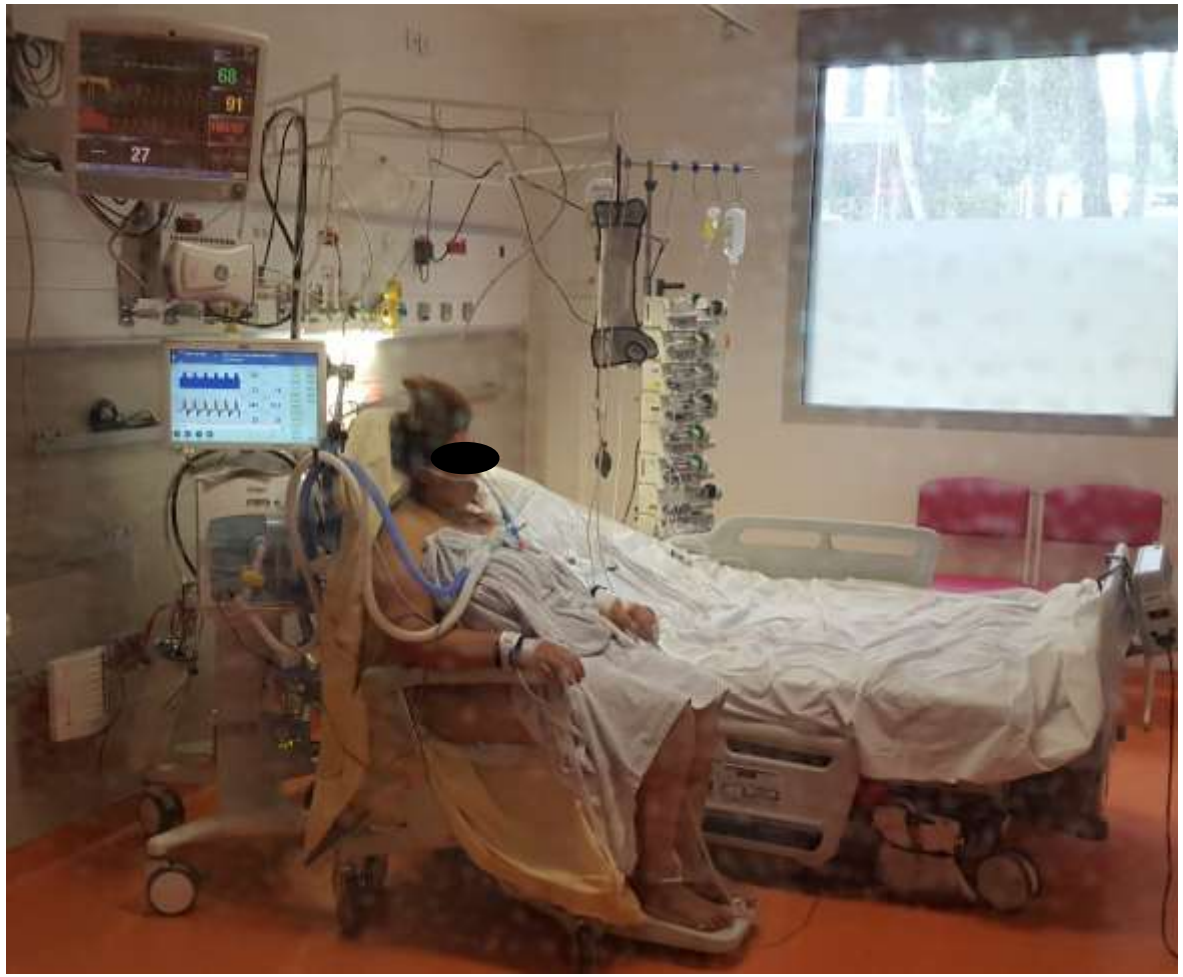
85% délirium et/ou encéphalopathie

Plutôt hyperactifs

Variable	Total Population ($n = 63$)	COVID-19–related ARDS ($n = 24$)	Non–COVID-19–related ARDS ($n = 39$)	*P* Value
Demographic variables				
Age, yr	61 (51–69)	67 (58–76)	59 (49–66)	**0.02**
Sex, male	42 (67)	19 (79)	23 (59)	0.10
Body mass index, kg/m^2	28.7 (24.6–35.0)	31.0 (27.7–34.8)	28.2 (23.8–35.0)	0.08
Time between symptom onset and ICU admission, d	6 (1–10)	8 (6–12)	2 (0–6)	**0.001**
Time between symptom onset and orotracheal intubation, d	7 (3–12)	10 (7–15)	5 (0–7)	**0.0001**
Comorbidities				
Chronic lung disease	23 (37)	8 (33)	15 (39)	0.68
Chronic cardiovascular disease	28 (44)	14 (58)	14 (36)	0.08
Diabetes	14 (22)	9 (38)	5 (13)	0.03
Obesity	26 (41)	14 (58)	12 (31)	**0.04**
Immunocompromise	15 (30)	2 (8)	17 (44)	0.004
Computed tomography findings	53 (84)	18 (75)	35 (90)	
Diffuse pattern	33 (62)	16 (89)	20 (57)	**0.03**
Focal pattern	14 (26)	2 (11)	12 (34)	0.10
Ground-glass opacity	31 (58)	15 (63)	16 (46)	**0.01**
Alveolar consolidation	32 (60)	11 (61)	21 (60)	>0.99
Pleural effusion	28 (53)	3 (17)	25 (78)	**0.0003**
Pulmonary embolism	2 (4)	2 (17)	0 (0)	0.22
Respiratory physiology				
$F_{I_{O_2}}$, %	80 (70–100)	100 (70–100)	80 (60–100)	0.06
$Pa_{O_2}/F_{I_{O_2}}$ ratio, mm Hg	104 (81–126)	101 (81–126)	106 (81–124)	0.64
Severe ARDS	32 (51)	12 (50)	20 (51)	0.92
Moderate ARDS	31 (49)	12 (50)	19 (49)	0.92
pH	7.33 (7.26–7.39)	7.34 (7.31–7.39)	7.31 (7.23–7.39)	0.24
Pa_{CO_2}, mm Hg	45.0 (39.5–52.0)	43.1 (40.3–50.7)	46.0 (39.5–53.0)	0.51
Ventilatory ratio	1.91 (1.65–2.33)	1.89 (1.67–2.23)	1.99 (1.64–2.55)	0.46
V_T, ml/kg of predicted body weight	6.07 (5.71–6.45)	6.07 (5.95–6.16)	6.09 (5.36–6.80)	0.74
Plateau pressure, cm H_2O	26.0 (23.0–28.0)	26.0 (21.8–28.0)	26.0 (23.5–29.0)	0.29
PEEP applied, cm H_2O	10.0 (8.5–14.0)	12.0 (6.5–15.0)	10.0 (9.5–13.0)	0.85
Driving pressure, cm H_2O	14.0 (11.0–17.0)	13.0 (10.0–15.0)	15.0 (12.0–17.5)	0.12
Crs, ml/cm H_2O	30.0 (23.0–39.5)	32.5 (25.8–41.3)	29.0 (22.0–37.0)	0.13

Brault C et al. COVID-19– versus non–COVID-19–related Acute Respiratory Distress Syndrome: Differences and Similarities.

Am J Respir Crit Care Med. 28 août 2020;202(9):1301-4.



Premorbid obesity, but not nutrition, prevents critical illness-induced muscle wasting and weakness

Chloë Goossens[1], Mirna Bastos Marques[1], Sarah Derde[1], Sarah Vander Perre[1], Thomas Dufour[1], Steven E. Thiessen[1], Fabian Güiza[1], Thomas Janssens[1], Greet Hermans[1], Ilse Vanhorebeek[1], Katrien De Bock[2], Greet Van den Berghe[1] & Lies Langouche[1*]

HAS HAUTE AUTORITÉ DE SANTÉ

SOFMER

CNP de MPR

SPLF

srlf SOCIÉTÉ DE RÉANIMATION DE LANGUE FRANÇAISE

FICHE

Réponse rapide dans le cadre du COVID-19 Prise en charge précoce de Médecine Physique et de Réadaptation (MPR) en réanimation, en soins continus ou en service de rééducation post-réanimation (SRPR)

Validée par le Collège le 30 avril 2020

Kinésithérapie et COVID-19 : de la réanimation à la réhabilitation à domicile. Synthèse des recommandations internationales

Physiotherapy and COVID-19. From intensive care unit to home care—An overview of international guidelines

P. Smondack[a,*], F.-É. Gravier[a,b], G. Prieur[b,c], A. Repel[e], J.-F. Muir[b,f], A. Cuvelier[b,f], Y. Combret[c,d], C. Medrinal[b,c], T. Bonnevie[a,b]

Rehabilitation Levels in Patients with COVID-19 Admitted to Intensive Care Requiring Invasive Ventilation

An Observational Study

David McWilliams[1], Jonathan Weblin[1], James Hodson[2], Tonny Veenith[3], Tony Whitehouse[3], and Catherine Snelson[3]; on behalf of the Queen Elizabeth Hospital Birmingham COVID-19 Research Team

Table 2. ICU therapy and outcomes

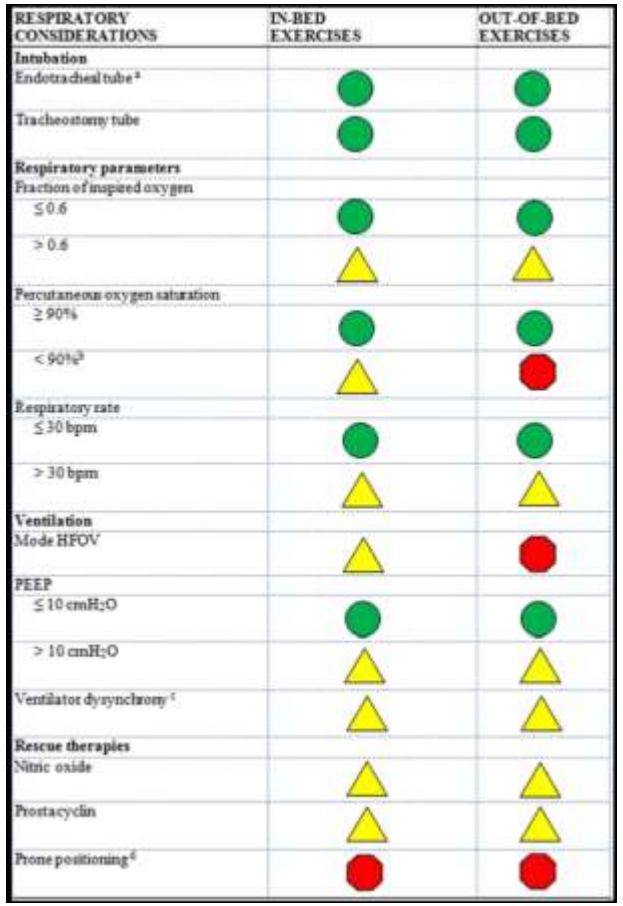
Factor	Statistic
ICU therapy	
Mechanical ventilation	110 (100)
Duration of ventilation, d	19 ± 10
Tracheostomy	85 (77)
Prone position	74 (67)
Renal failure requiring CVVH	37 (34)
Sedated	110 (100)
Duration of sedation, d	13 ± 6
Neuromuscular blockade	99 (90)
Duration of blockade, d, $N = 81$*	7 (4–11)
ICU outcomes	
ICU-acquired weakness on awakening†	110 (100)
Delirium in ICU	76 (69)
Mobilized in ICU	110 (100)
Time to first mobilize, d	14 ± 7
ICU LOS, d	22 ± 11
MMS at ICU discharge	
1	0 (0)
2	15 (14)
3	6 (5)
4	34 (31)
5	26 (24)
6	19 (17)
7	10 (9)

Table 3. Associations with physical outcomes (part 1)

Factor	*N*	Days to First Mobilize	MMS 5+ at ICU Discharge
Age, yr†		$P = 0.638$‡	$P = 0.094$‡
<45	22	14 ± 7	12 (55)
45–54	35	14 ± 6	20 (57)
55–64	35	15 ± 7	16 (46)
65+	18	11 ± 6	7 (39)
Sex		$P = 0.235$	$P = 0.225$
F	27	13 ± 7	12 (44)
BMI, kg/m^2		**$P < 0.001$**‡	$P = 0.262$‡
20–24	14	10 ± 5	9 (64)
25–29	42	13 ± 7	20 (48)
30–39	39	14 ± 6	19 (49)
40+	15	18 ± 6	7 (47)
Ethnicity		$P = 0.256$	$P = 0.970$
White	53	13 ± 7	25 (47)
Asian	38	15 ± 6	20 (53)
Black	8	18 ± 8	5 (63)
Other	11	11 ± 6	5 (45)
Clinical frailty score†		$P = 0.317$‡	**$P = 0.033$**‡
1	23	12 ± 6	14 (61)
2	32	14 ± 7	18 (56)
3	35	14 ± 6	17 (49)
4–5	20	14 ± 6	6 (30)
ICNARC risk†		$P = 0.814$‡	$P = 0.688$‡
<10	19	12 ± 5	8 (42)
10–19	35	14 ± 6	17 (49)
20–29	17	14 ± 6	6 (35)
30+	28	13 ± 7	16 (57)
APACHE II†		$P = 0.108$‡	$P = 0.420$‡
<12	7	10 ± 5	3 (43)
12–15	8	11 ± 5	5 (63)
16–23	12	16 ± 5	6 (50)
24+	10	13 ± 3	5 (50)

SDRA COVID vs NON-COVID : synthèse

- Peu ou pas de différences physiologiques respiratoires
- Sources de complications NM plus importantes :
  - Sédations+++ (curares)
  - VM prolongée
  - DV plus fréquents et plus nombreux
- Obstacles potentiels :
  - Délirium/encéphalopathie
  - Obésité (?)
  - Ressources humaines



RESPIRATORY CONSIDERATIONS	IN-BED EXERCISES	OUT-OF-BED EXERCISES
Intubation		
Endotracheal tube [a]	●	●
Tracheostomy tube	●	●
Respiratory parameters		
Fraction of inspired oxygen		
≤ 0.6	●	●
> 0.6	▲	▲
Percutaneous oxygen saturation		
≥ 90%	●	●
< 90% [b]	▲	■
Respiratory rate		
≤ 30 bpm	●	●
> 30 bpm	▲	▲
Ventilation		
Mode HFOV	▲	■
PEEP		
≤ 10 cmH_2O	●	●
> 10 cmH_2O	▲	▲
Ventilator dyssynchrony [c]	▲	▲
Rescue therapies		
Nitric oxide	▲	▲
Prostacyclin	▲	▲
Prone positioning [d]	■	■

1.

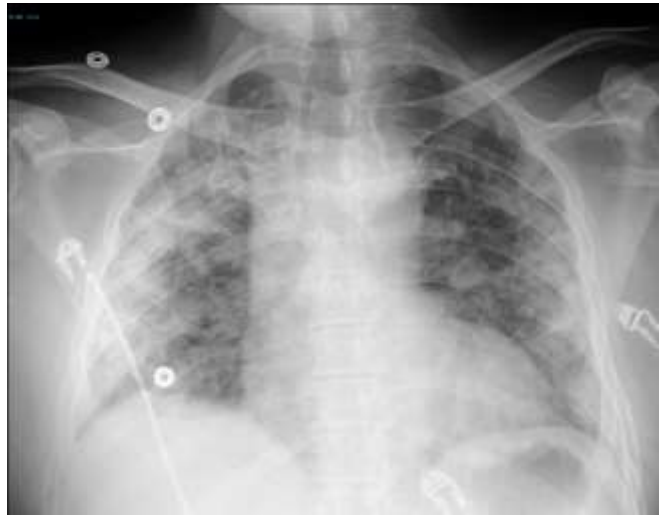
Hodgson CL et al. Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults. Critical Care 2014;18(6)

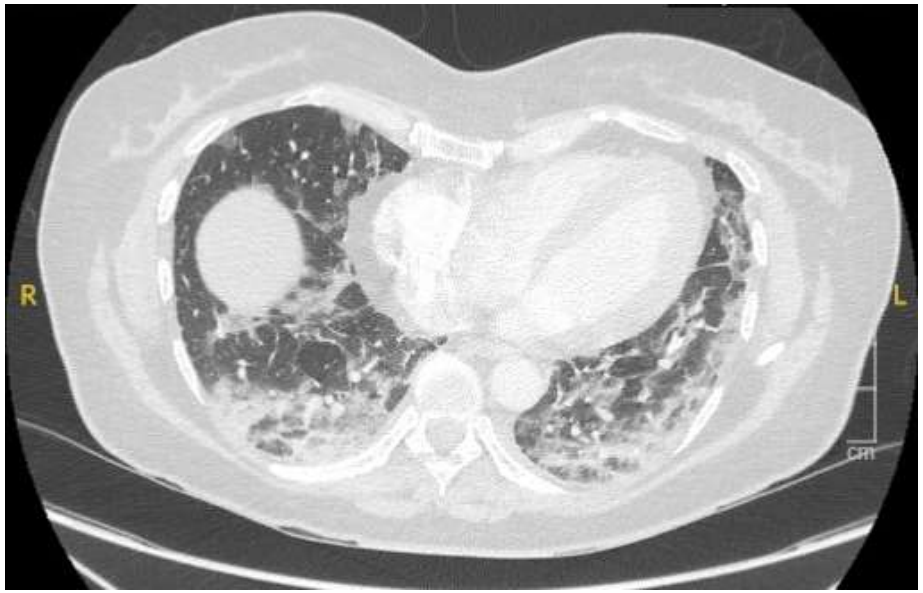
COVID OR NOT COVID, THAT'S NOT THE QUESTION

BUT REHAB IS THE MISSION!!!

PHASE PRÉCOCE/NON INTUBÉS

- Femme de 65a, IMC = 32, Entrée via les urgences, à J8 des symptômes, J2 de réa.
- Sous OHD 50L/50 à 60%, pour SpO2≥94%
- FR = 24 au repos, pas de dyspnée ni de signes de DRA
- Toux non productive





RESEARCH Open Access

Surgical mask on top of high-flow nasal cannula improves oxygenation in critically ill COVID-19 patients with hypoxemic respiratory failure

Virginie Montiel[1*], Arnaud Robert[1], Annie Robert[2], Anas Nabaoui[1], Tourneux Marie[1], Natalia Morales Mestre[1,3], Maerckx Guillaume[1,3], Pierre-François Laterre[1] and Xavier Wittebole[1]

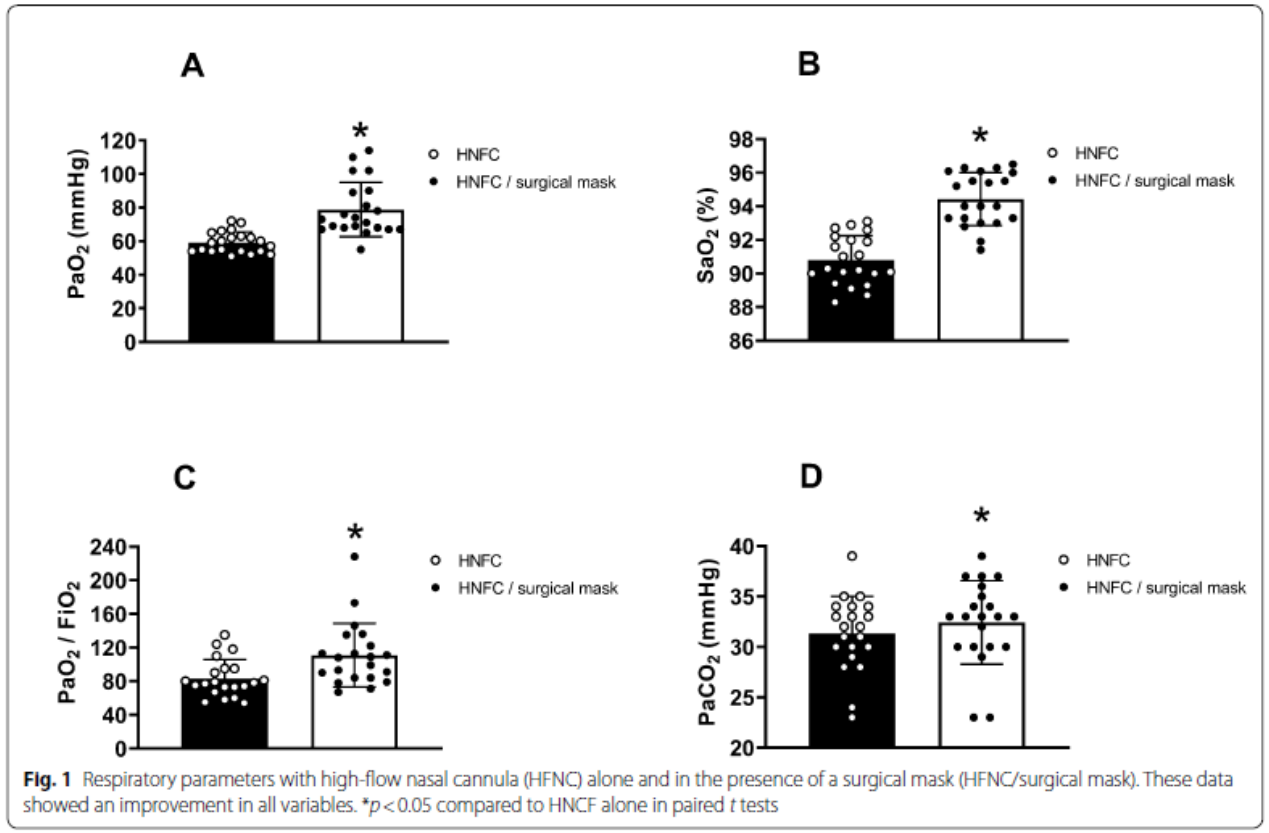
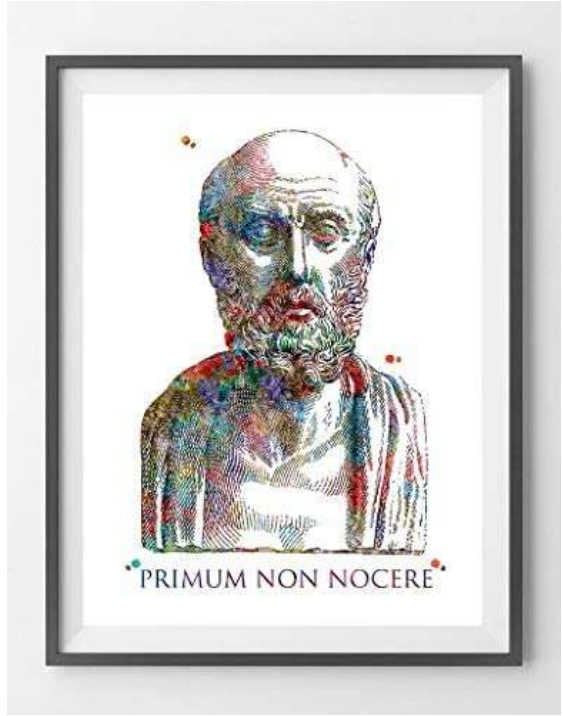


Fig. 1 Respiratory parameters with high-flow nasal cannula (HFNC) alone and in the presence of a surgical mask (HFNC/surgical mask). These data showed an improvement in all variables. *$p < 0.05$ compared to HNCF alone in paired *t* tests

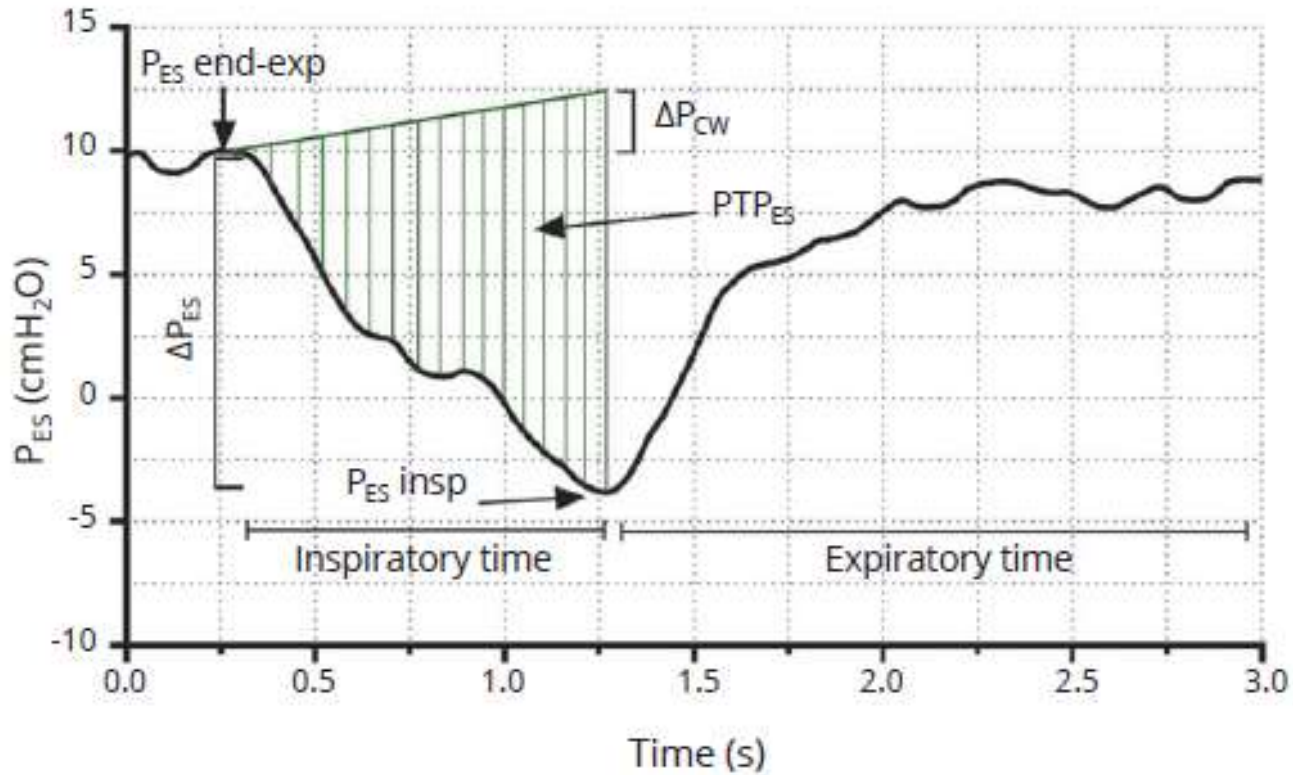
?


PRIMUM NON NOCERE

Patient self-inflicted lung injury: implications for acute hypoxemic respiratory failure and ARDS patients on non-invasive support

Domenico L. GRIECO [1, 2] *, Luca S. MENGA [1, 2],
Davide ELEUTERI [1, 2], Massimo ANTONELLI [1, 2]

- Augmentation du stress/strain et de l'inflammation
- Perméabilité capillaire
- Pendelluft effect
- Diaphragm injury



REVIEW Open Access

A physiological approach to understand the role of respiratory effort in the progression of lung injury in SARS-CoV-2 infection

Pablo Cruces[1,2], Jaime Retamal[3,4], Daniel E. Hurtado[5,6,7], Benjamín Erranz[8], Pablo Iturrieta[5], Carlos González[1] and Franco Díaz[2,9,10*]

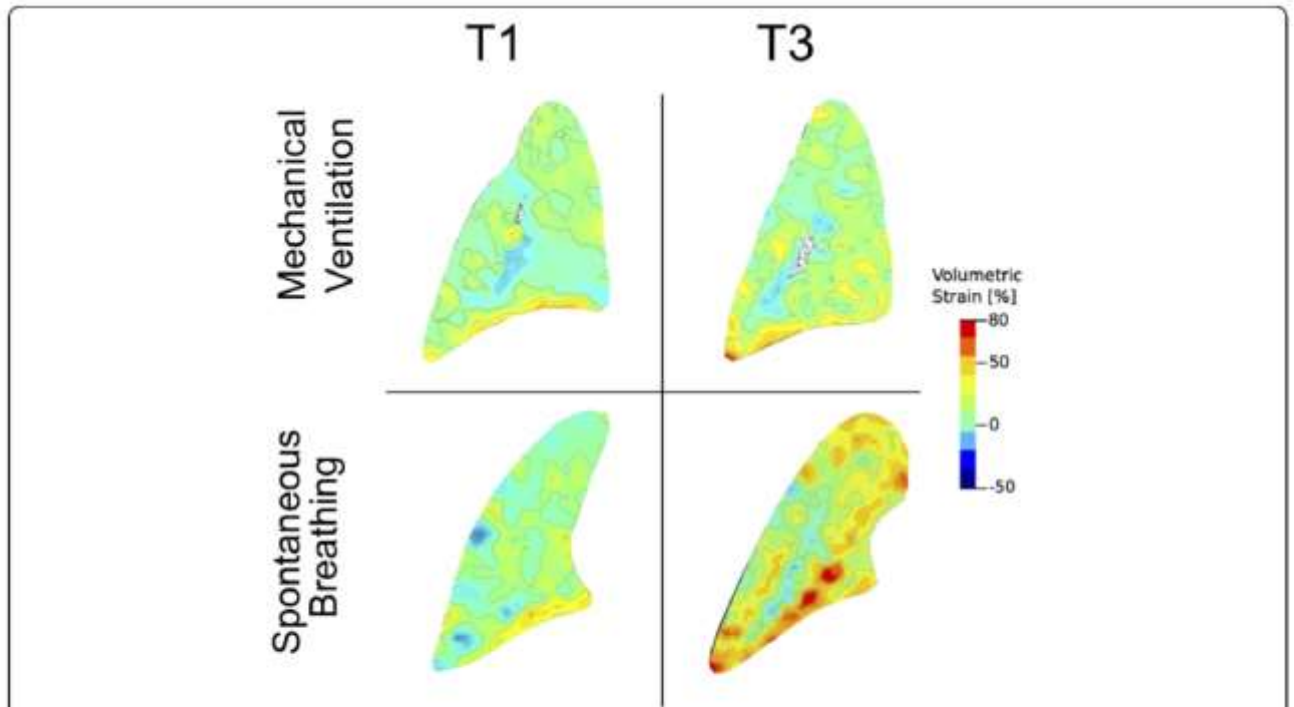


Fig. 2 Regional volumetric strain maps in a 3-h murine model of patient self-inflicted lung injury randomized to two groups: Group I: subjects with induced lung injury on low tidal volume mechanical ventilation at the beginning of the experiment (T1) and at the end of the experiment (T3) (upper left and right panels). Group II: subjects with induced lung injury on spontaneous breathing (no mechanical ventilation) at the beginning of the experiment (T1) and at the end of the experiment (T3) (lower left and right panels). Progression of regional strain and heterogeneity in time is observed in spontaneous breathing, which reaches volumetric strain levels of up to 80%. Regional strain distribution remains more uniform and homogeneous in low tidal volume mechanical ventilation

NARRATIVE REVIEW

Respiratory drive in the acute respiratory distress syndrome: pathophysiology, monitoring, and therapeutic interventions

Elena Spinelli[1], Tommaso Mauri[1,2*], Jeremy R. Beitler[3], Antonio Pesenti[1,2] and Daniel Brodie[3]

Effort??

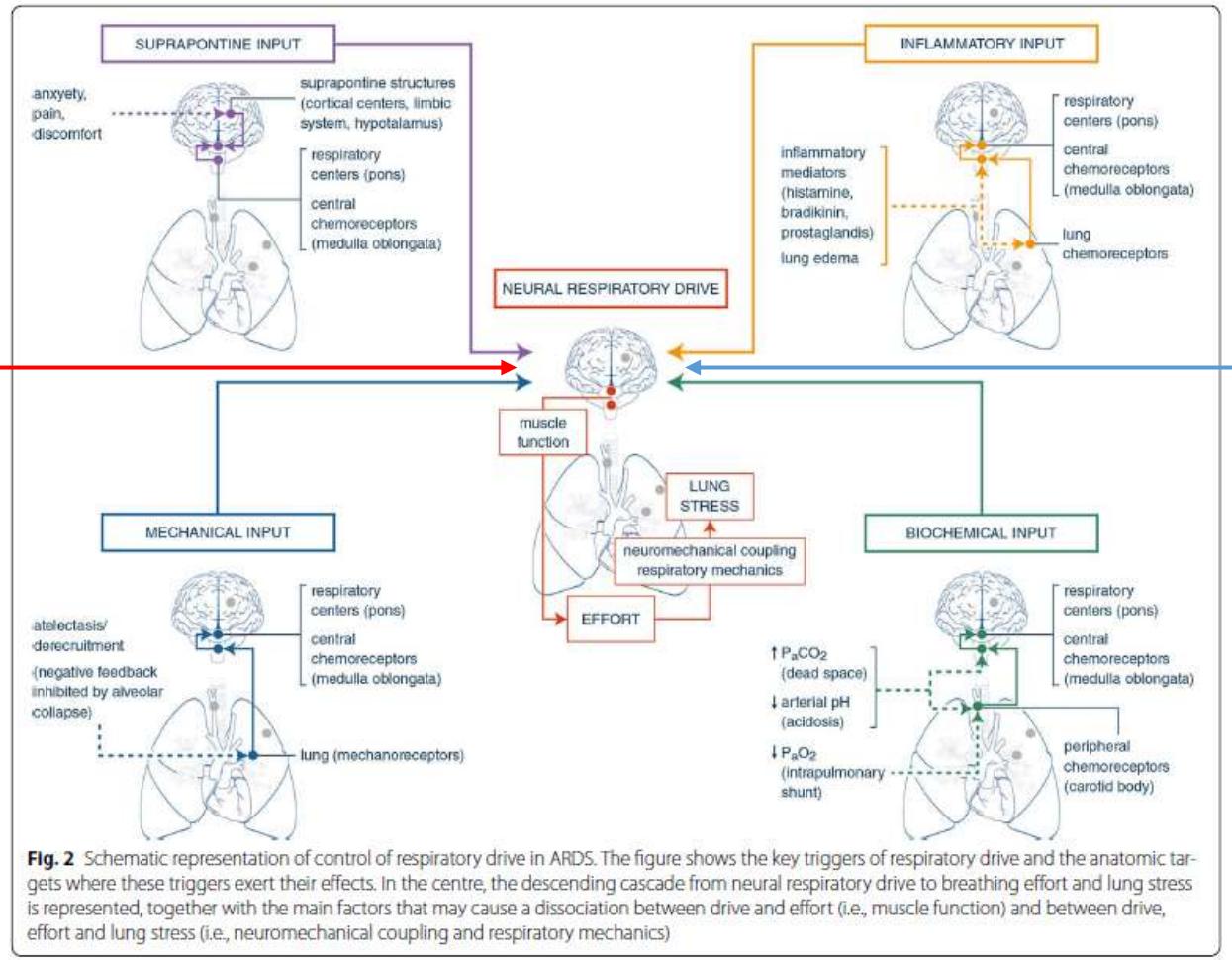
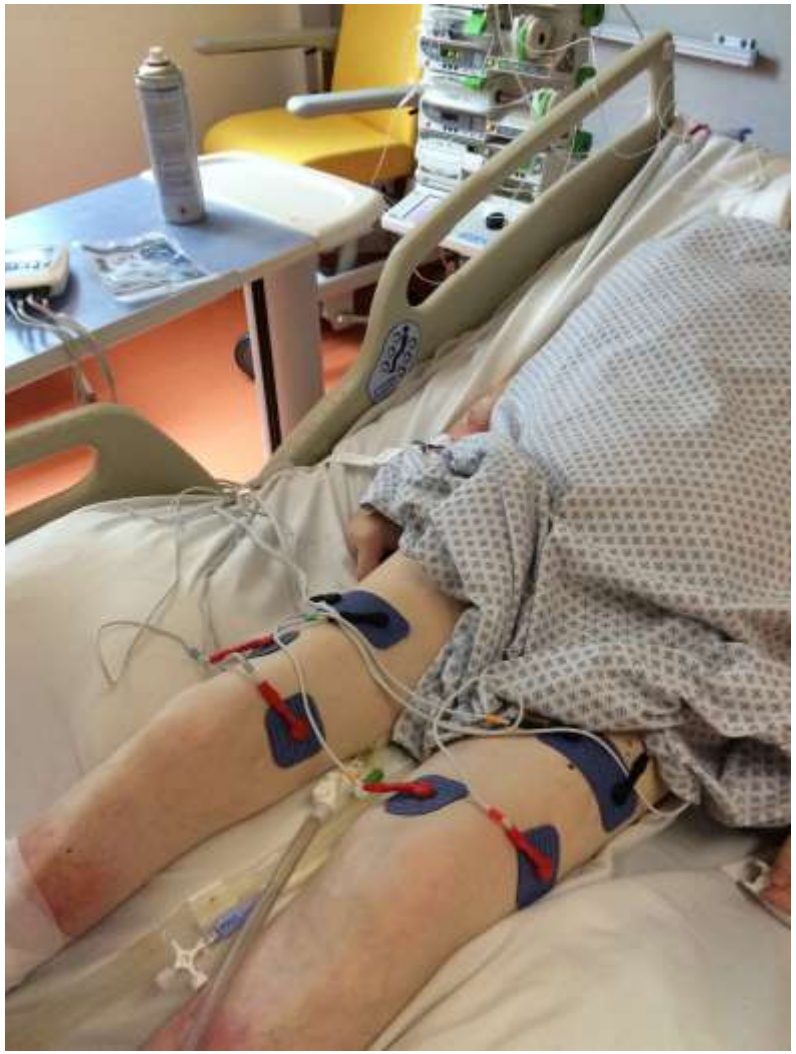


Fig. 2 Schematic representation of control of respiratory drive in ARDS. The figure shows the key triggers of respiratory drive and the anatomic targets where these triggers exert their effects. In the centre, the descending cascade from neural respiratory drive to breathing effort and lung stress is represented, together with the main factors that may cause a dissociation between drive and effort (i.e., muscle function) and between drive, effort and lung stress (i.e., neuromechanical coupling and respiratory mechanics)

Emotionnel



Supplemental Table 1: Abnormal chest x-ray at follow-up, inpatient factors

Predictor	Abnormal chest x-ray		Distance at 6MWT		Maximal Borg at 6MWT	
	OR (95% CI)	P value	β coefficient (95% CI)	P value	β coefficient (95% CI)	P value
Disease Severity						
Admitted, non-ICU	1.0 (reference)	n/a	0 (reference)	n/a	0 (reference)	n/a
Admitted, ICU	0.06 (0.001 – 2.1)	0.12	37.6 (-84.6 – 159.7)	0.53	-0.7 (-3.4 – 2.0)	0.59
Age	0.03 90.83 – 1.05)	0.25	0.3 (-4.1 – 4.7)	0.89	-0.03 (-0.1 – 0.07)	0.55
Sex, Female	0.67 (0.09 – 4.87)	0.70	-38.2 (-117.7 – 41.3)	0.33	1.9 (0.1 – 3.6)	0.04
CFS	1.12 (0.37 – 0.36)	0.84	-38.0 (-86.9 – 10.9)	0.12	0.8 (-0.3 – 1.8)	0.16
Peak CRP	0.99 (0.98 – 1.0)	0.17	0.5 (-0.02 – 1.1)	0.06	-0.0001 (-0.01 – 0.01)	0.99
Max FiO2	30.8 (0.24 – 3985.8)	0.17	-16.8 (-259.2 – 225.6)	0.89	-1.5 (-6.8 – 3.8)	0.57
Brixia score	1.03 (0.8 – 1.32)	0.83	-3.6 (-13.1 – 5.9)	0.44	0.07 (-0.1 – 0.3)	0.50
Length of stay	1.18 (1.02 – 1.36)	0.03	-6.1 (-11.9 – -0.19)	0.04	0.08 (-0.06 – 0.2)	0.25

Townsend L et al. Persistent Poor Health Post-COVID-19 Is Not Associated with Respiratory Complications or Initial Disease Severity. Ann Am Thorac Soc. 8 janv 2021;

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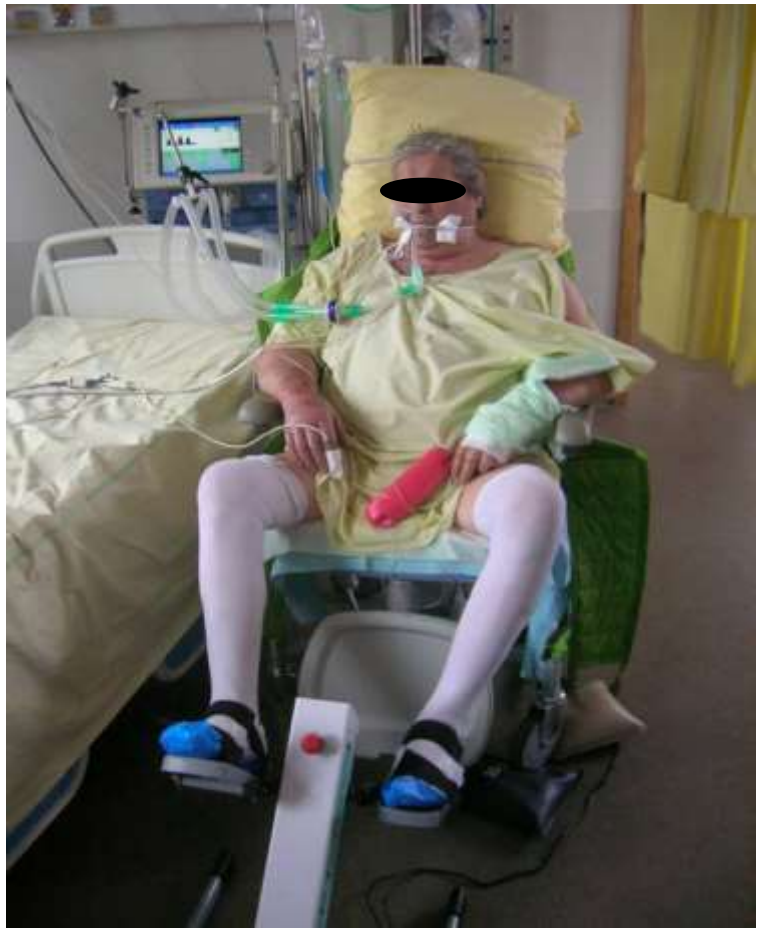

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