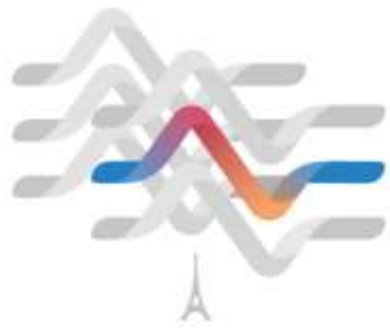


Epreuve de sevrage pour tous? Contre!

CLÉMENT MEDRINAL

GROUPE HOSPITALIER DU HAVRE

SRLF 2023



réanimation 2023

PARIS 14-16 JUIN

Palais des Congrès de Paris
Porte Maillot



Clément MEDRINAL, Le Havre

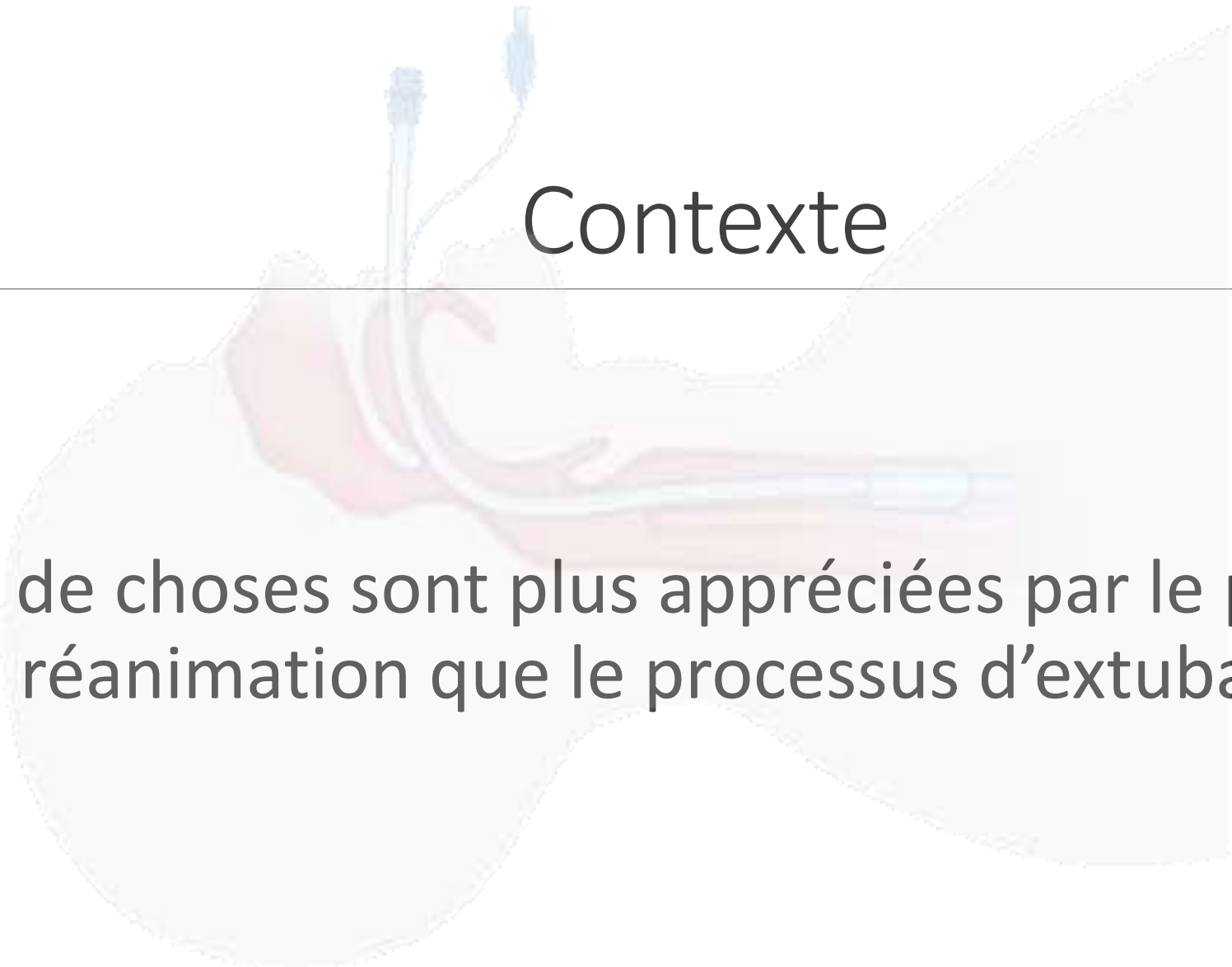
☒ Je déclare les liens d'intérêt potentiel suivants :

Air Liquide: Invitation Congrès, Consultant Expertise

Fullphysio: Formation

Asten Santé: Financement recherche

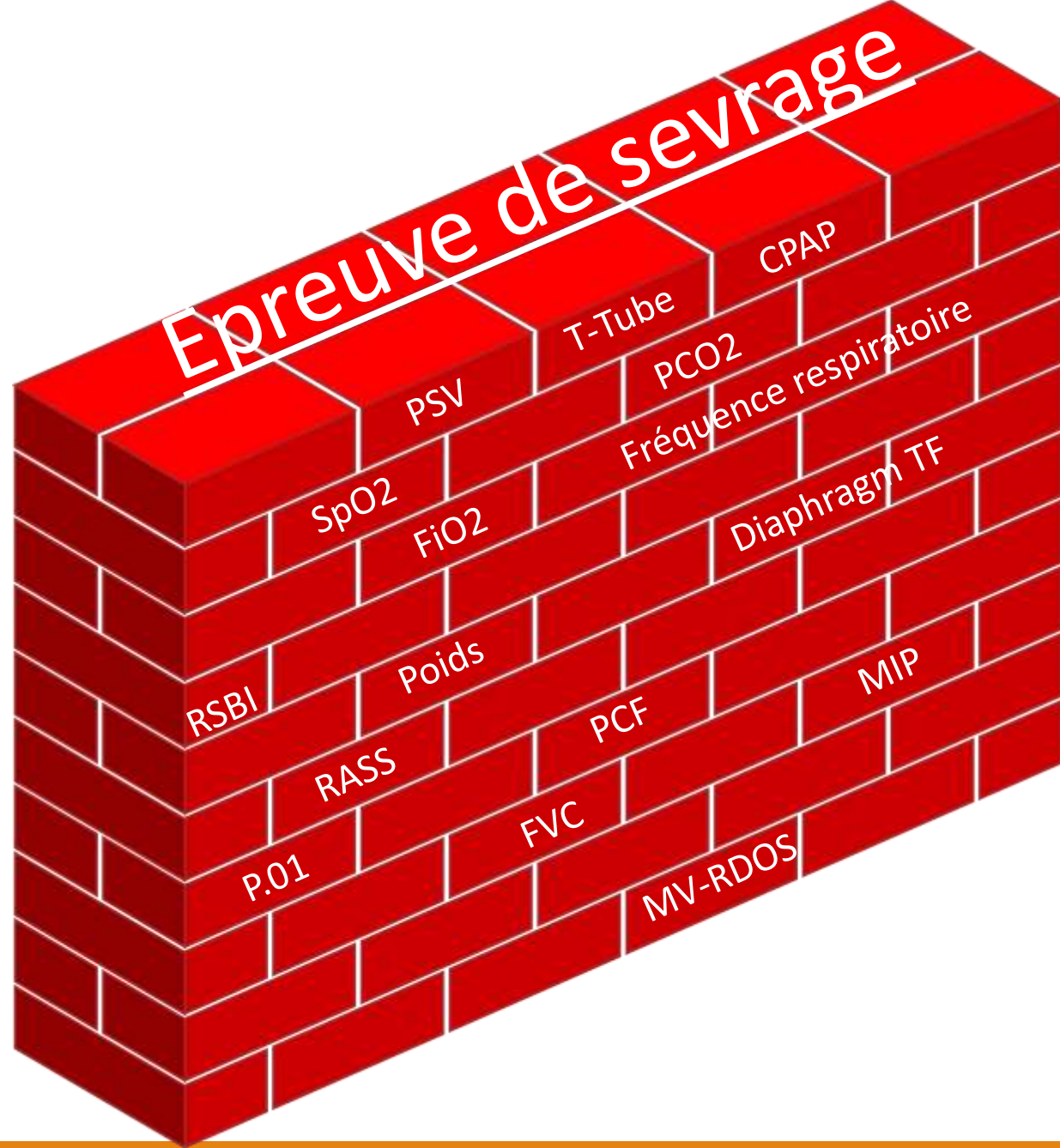
Asdia: Financement recherche



Contexte

Peu de choses sont plus appréciées par le patient en réanimation que le processus d'extubation!





Protocole de sevrage ou Epreuve de sevrage?

PROTOCOLE DE SEVRAGE

Standardiser les actions thérapeutiques afin d'optimiser le temps passé sous ventilation mécanique depuis l'arrêt de la sédation du patient.

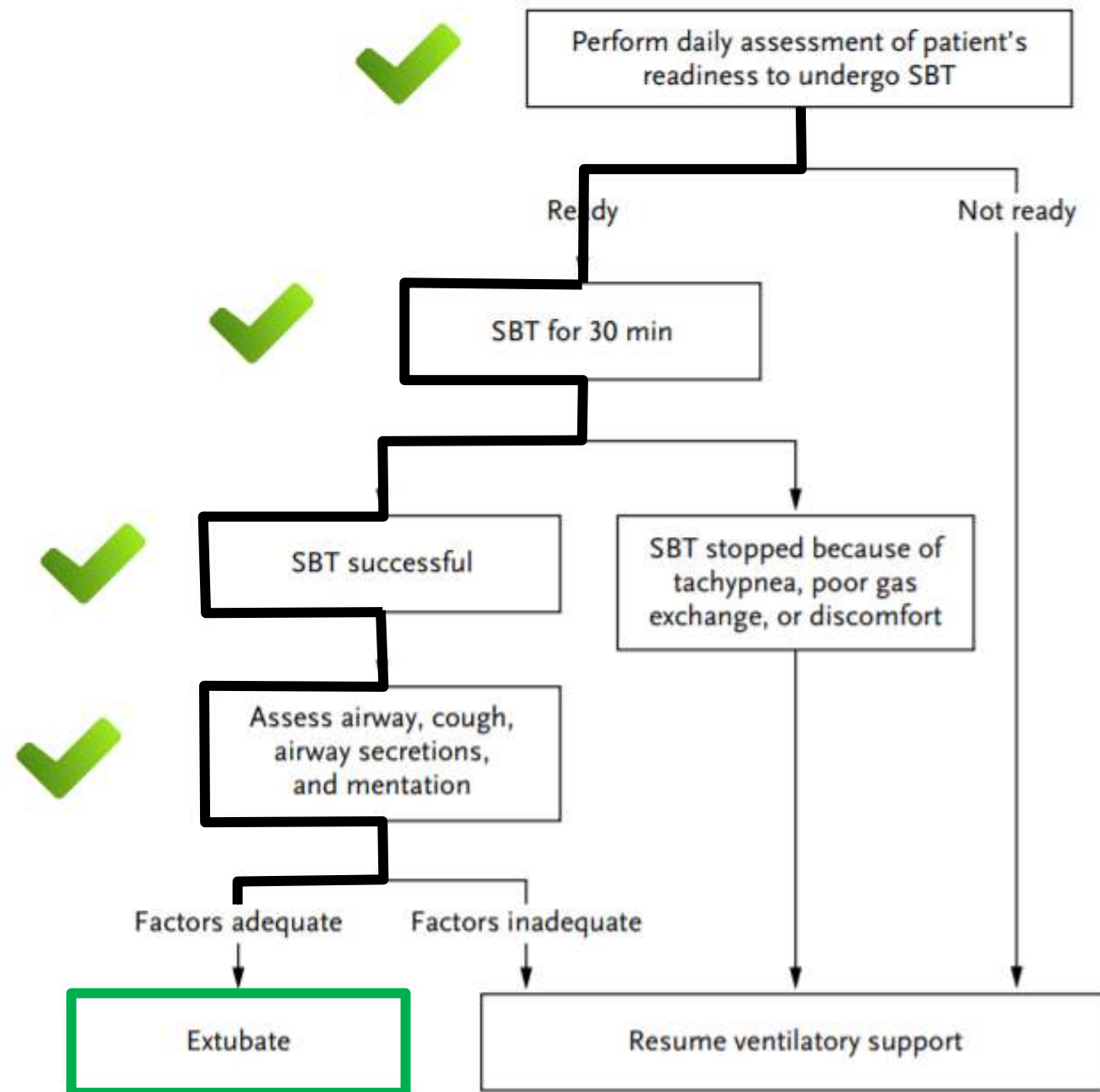
EPREUVE DE SEVRAGE

Effectuer selon l'une des 3 modalités décrites ci dessous, un test compris entre 30 et 120 minutes visant à décider si le patient peut être extubé.

1. T-Tube (Sans pression positive mais avec O2)
2. Low PSV (Aide inspiratoire inférieure à 10cmH2O)
3. CPAP (Sans AI mais avec une Pep de 5 à 10cmH2O)

**AMERICAN THORACIC SOCIETY
DOCUMENTS**

**An Official American Thoracic Society/American College of Chest
Physicians Clinical Practice Guideline: Liberation from Mechanical
Ventilation in Critically Ill Adults**
Rehabilitation Protocols, Ventilator Liberation Protocols, and Cuff Leak Tests



SBT 30 et 120 min

```
graph TD; A[SBT 30 et 120 min] --> B[PSV]; A --> C[T-Tube]; A --> D[CPAP];
```

PSV

Sous estime les résistances

T-Tube

Ne détermine pas la
protection des Voies
aériennes

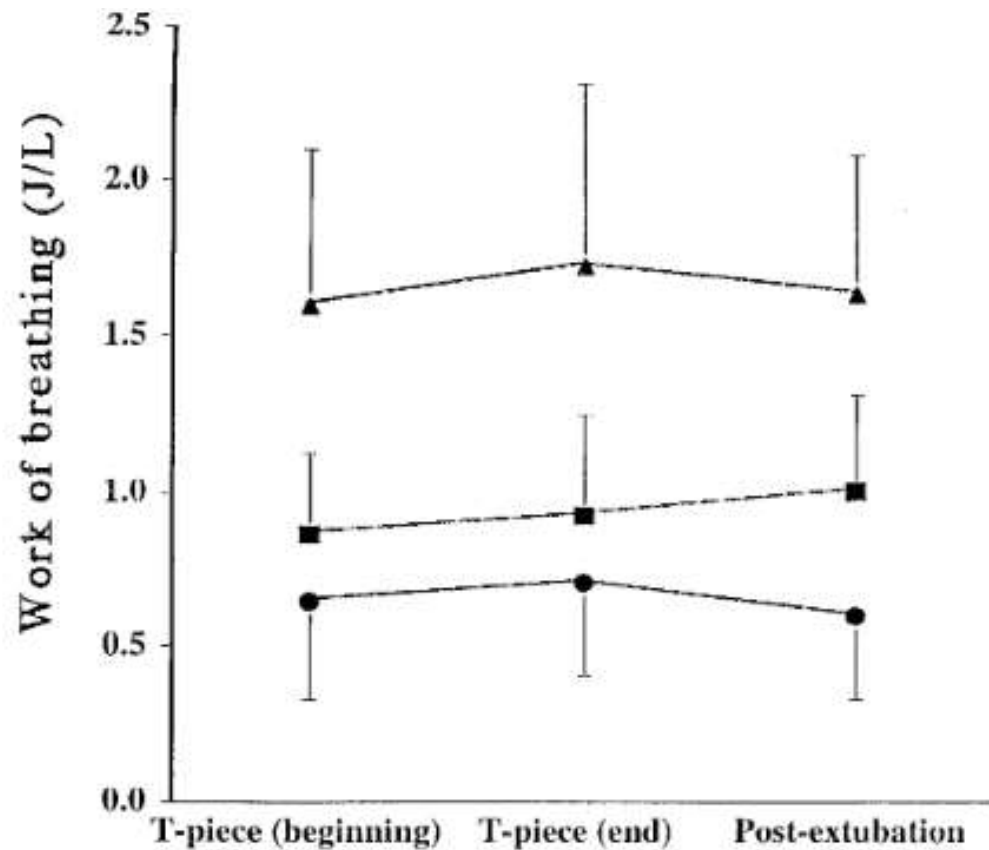
CPAP

Améliore le débit cardiaque

PSV

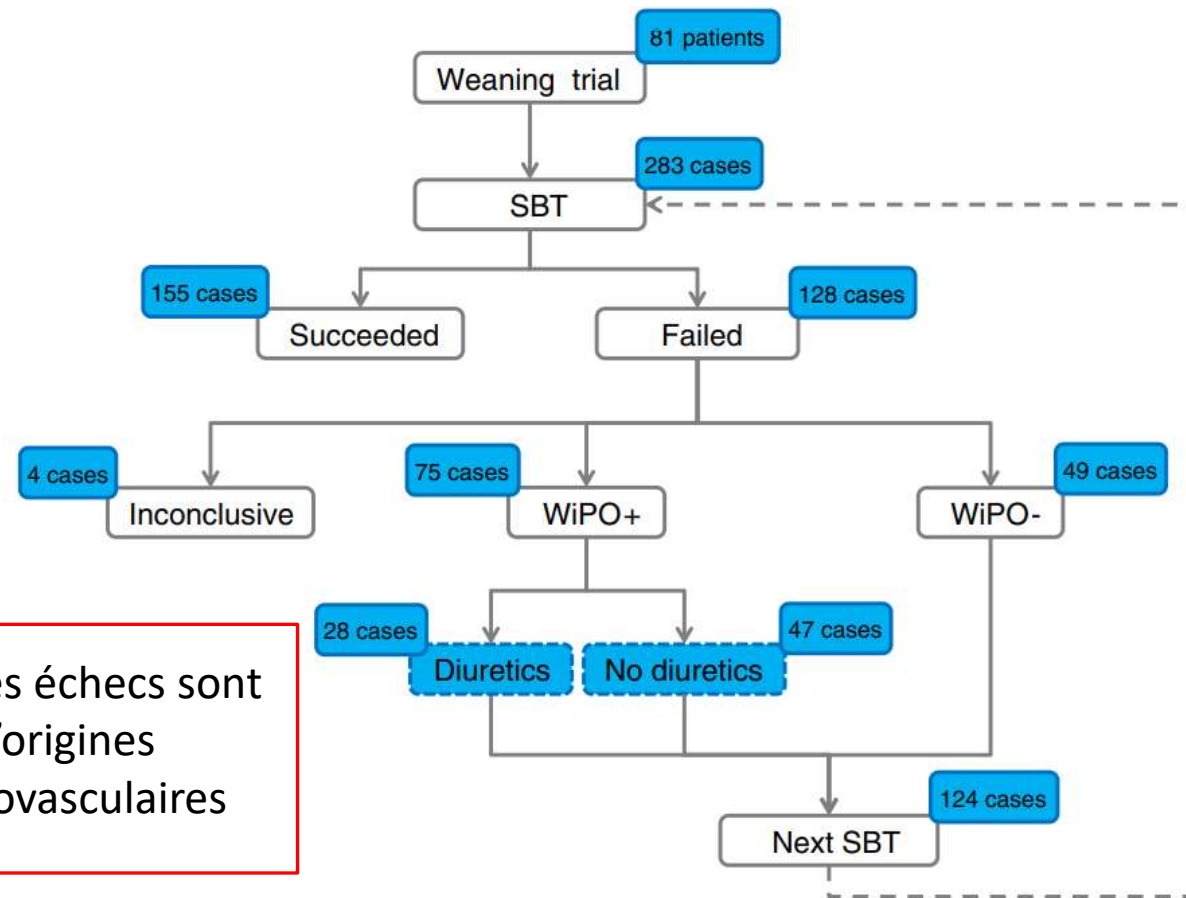
T-Tube

CPAP



Strauss, Am J Respir Crit Care Med, 1998

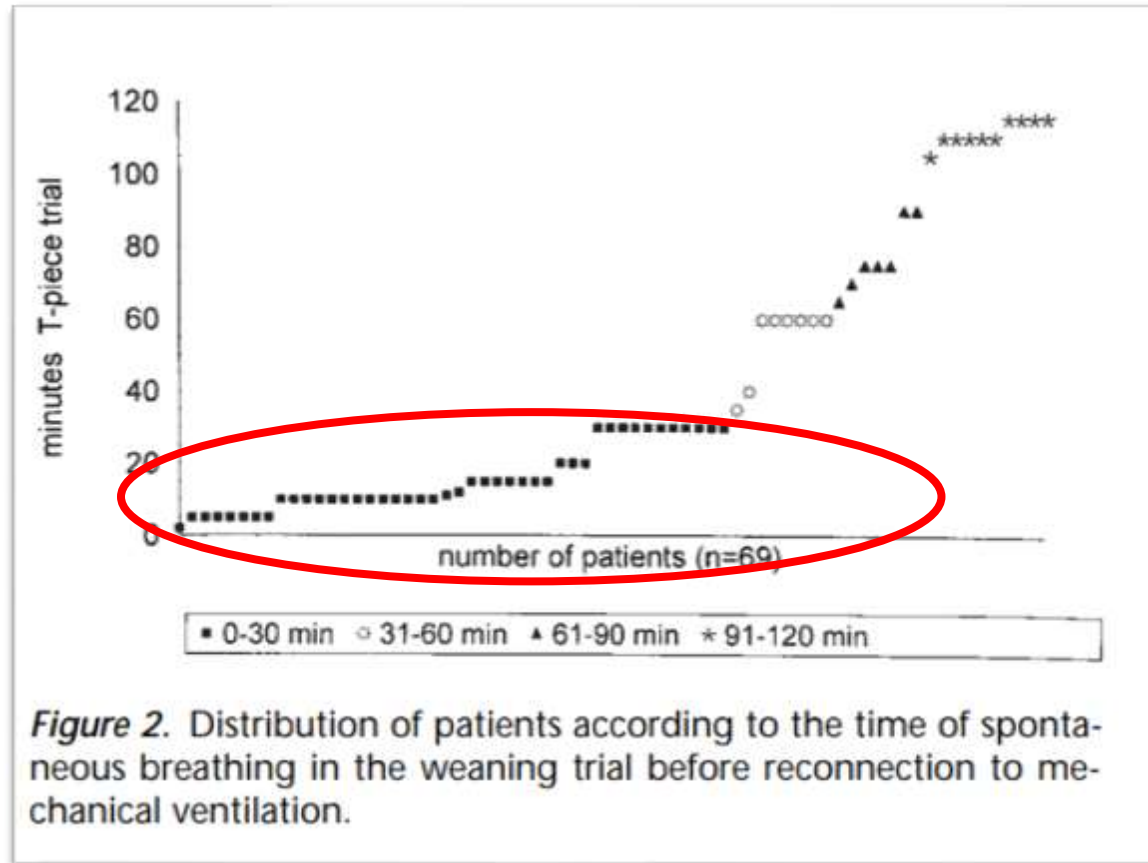
59% des échecs sont d'origines cardiovasculaires



Liu, Crit Care, 2016

Pourquoi une durée si longue?

Les premières
minutes
suffiraient



Pourquoi une durée si longue?

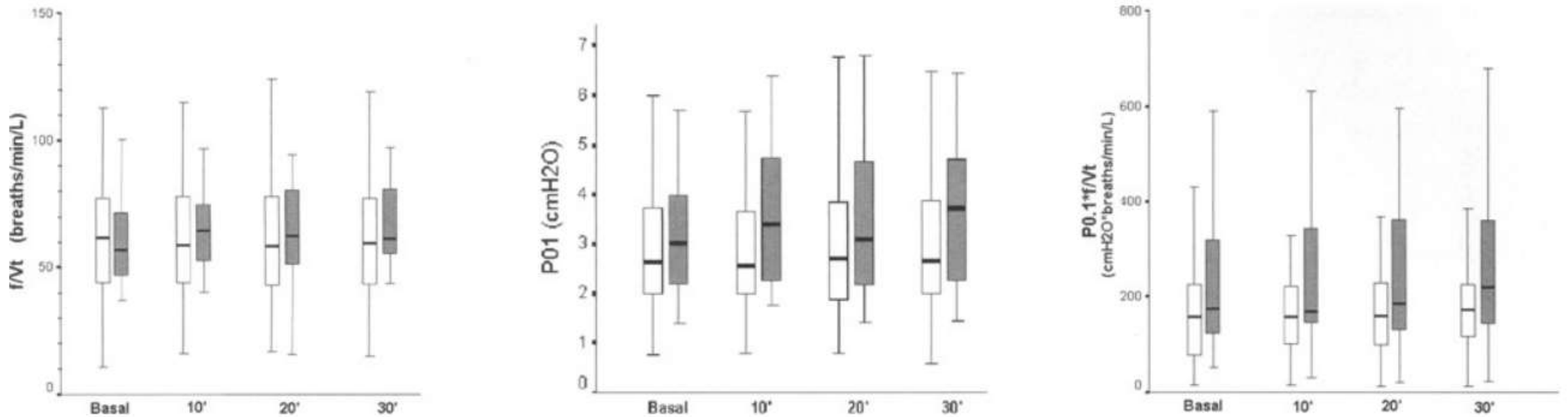


Fig. 2 Box and whisker plots of the time course of the three diagnostic parameters during the 30-min breathing trial, expressed as median (*horizontal line*), 25–75% percentiles (*box*), and range

(*bar*). *Open boxes*: successfully extubated patients, *dashed boxes*: reintubated patients

Pourquoi une durée si longue?

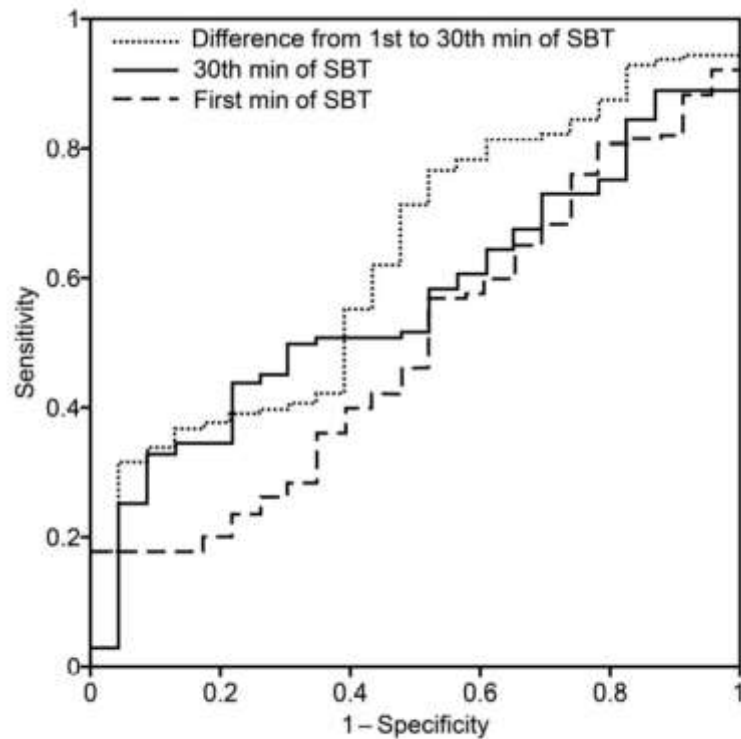
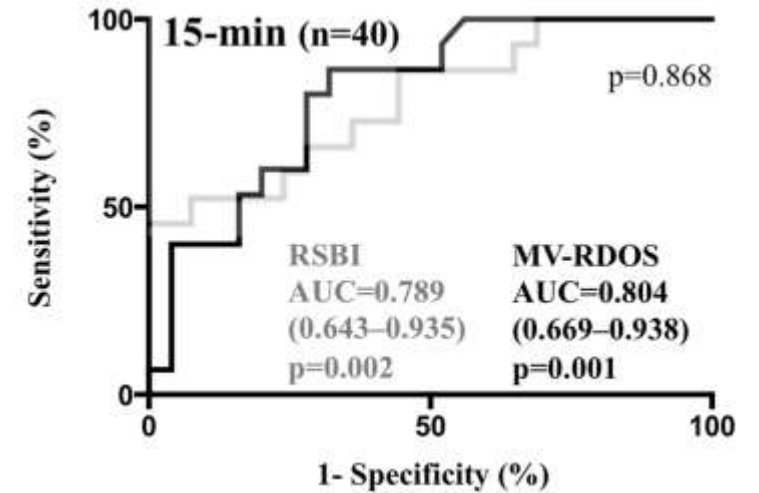
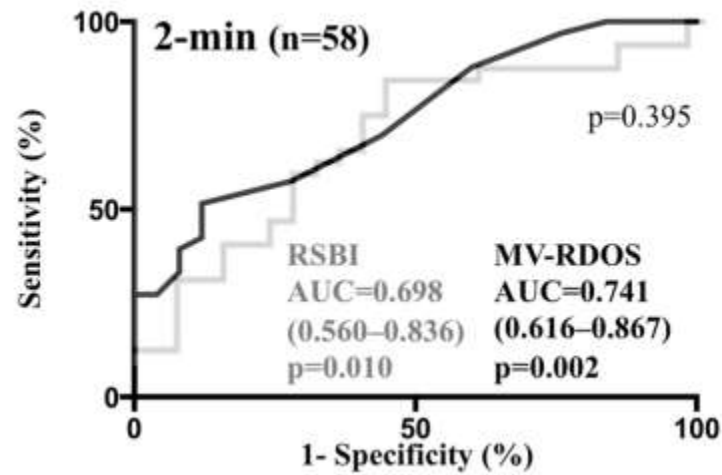
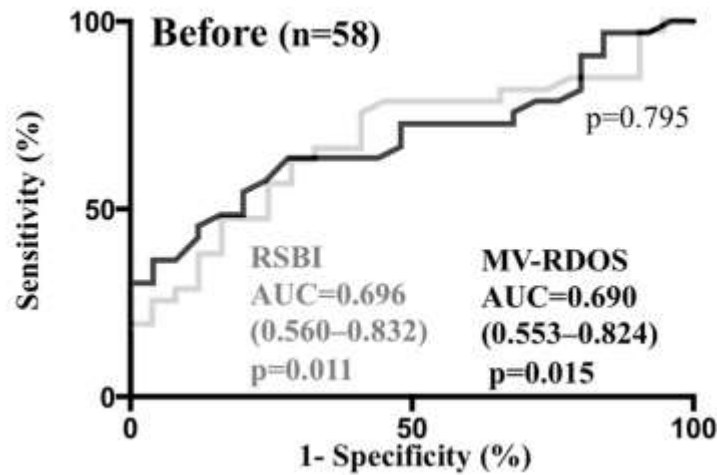


Fig. 1. Receiver operating characteristic curve of modified integrative weaning index. SBT = spontaneous breathing trial.

Bonniatti, Respir Care, 2014

Pourquoi une durée si longue?



Bon bah alors, comment le réaliser?

The NEW ENGLAND JOURNAL *of* MEDICINE

ORIGINAL ARTICLE

Spontaneous-Breathing Trials with Pressure-Support Ventilation or a T-Piece

A.W. Thille, A. Gacouin, R. Coudroy, S. Ehrmann, J.-P. Quenot, M.-A. Nay, C. Guitton, D. Contou, G. Labro, J. Reignier, G. Pradel, G. Beduneau, L. Dangers, C. Saccheri, G. Prat, G. Lacave, N. Sedillot, N. Terzi, B. La Combe, J.-P. Mira, A. Romen, M.-A. Azais, A. Rouzé, J. Devaquet, A. Delbove, M. Dres, J. Bourenne, A. Lautrette, J. de Keizer, S. Ragot, and J.-P. Frat, for the REVA Research Network*

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1000 patients à risques d'échec
d'extubation nécessaires à inclure

PSV

Vs

T-TUBE

PSV Vs T-TUBE



60 minutes d'épreuve

1. Fréquence respiratoire inférieure à 35 c/min
2. $SpO_2 > 90\%$ avec $FiO_2 < 40\%$ et $P_{ep} < 8 \text{ cmH}_2\text{O}$
3. $PaO_2/FiO_2 > 150$
4. Bonne force de toux
5. Bon état de conscience (RASS -2 to 1)
6. Pas de sédation
7. Pas d'amine



Vs

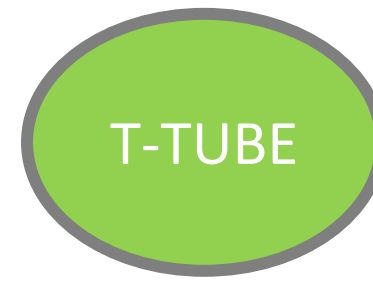


Table 2. Primary and Secondary Outcomes.

Outcome	Pressure-Support Ventilation (N = 484)	T-Piece (N = 485)	Absolute Difference (95% CI)*	P Value
Primary outcome				
Median total time alive and without exposure to invasive ventilation at day 28 (IQR) — days	27 (24 to 27)	27 (23 to 27)	0 (–0.5 to 1)	0.31
Secondary outcomes				
Median total time alive and without exposure to invasive or noninvasive ventilation at day 28 (IQR) — days	25 (21 to 26)	25 (20 to 26)	0 (0 to 1)	—
Successful initial spontaneous-breathing trial — no. (%)	383 (79.1)	348 (71.7)	7.4 (2.0 to 12.8)	—
Level of weaning difficulty — no. (%)				—
Simple weaning: extubation <24 hr after the initial spontaneous-breathing trial	376 (77.7)	350 (72.2)	5.5 (0.01 to 10.9)	—
Difficult weaning: extubation 24 hr to 7 days after the initial spontaneous-breathing trial	97 (20.0)	108 (22.2)	–2.2 (–7.4 to 2.9)	—
Prolonged weaning: extubation >7 days after the initial spontaneous-breathing trial	11 (2.3)	27 (5.6)	–3.3 (–5.9 to –0.8)	—

Secondary outcomes				
Median total time alive and without exposure to invasive or noninvasive ventilation at day 28 (IQR) — days	25 (21 to 26)	25 (20 to 26)	0 (0 to 1)	—
Successful initial spontaneous-breathing trial — no. (%)	383 (79.1)	348 (71.7)	7.4 (2.0 to 12.8)	—
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Difficult weaning: extubation 24 hr to 7 days after the initial spontaneous-breathing trial	97 (20.0)	108 (22.2)	-2.2 (-7.4 to 2.9)	—
Prolonged weaning: extubation >7 days after the initial spontaneous-breathing trial	11 (2.3)	27 (5.6)	-3.3 (-5.9 to -0.8)	—
Extubation ≤7 days after the initial spontaneous-breathing trial — no. (%)	473 (97.7)	458 (94.4)	3.3 (0.8 to 5.9)	—
Extubation after one spontaneous-breathing trial without reintubation within 72 hr — no. (%)	318 (65.7)	302 (62.3)	3.4 (-2.6 to 9.4)	—
Respiratory failure ≤7 days after extubation — no./total no. with at least one extubation attempt in the ICU (%)	92/481 (19.1)	75/477 (15.7)	3.4 (-1.4 to 8.2)	—
Reintubation ≤7 days after extubation — no./total no. with at least one extubation attempt in the ICU (%)	72/481 (14.9)	65/477 (13.6)	1.3 (-3.1 to 5.8)	—
Median length of the ICU stay (IQR) — days	12 (7 to 21)	11 (6 to 19)	1 (-1 to 2)	—
Death — no. (%)				
In the ICU	36 (7.4)	35 (7.2)	0.2 (-2.4 to 3.3)	—
By day 28	46 (9.5)	57 (11.7)	-2.2 (-6.2 to 1.7)	—
By day 90	80 (16.5)	91 (18.7)	-2.2 (-7.0 to 2.6)	—

Table 3. Adverse Events and Reasons for Reintubation.

Event or Reason	Pressure-Support Ventilation (N = 484)	T-Piece (N = 485)	P Value
Death without an extubation attempt — no. of patients (%)	2 (0.4)	5 (1.0)	0.45
Adverse event after extubation — no. of patients (%)			
Upper-airway obstruction	25 (5.2)	22 (4.5)	0.65
Cardiogenic pulmonary edema	18 (3.7)	12 (2.5)	0.26
Cardiac arrest	3 (0.6)	6 (1.2)	0.31
Reintubation in the ICU — no. of patients (%)	78 (16.1)	71 (14.6)	0.52
Reason for reintubation — no. of patients/total no. (%)*			
Upper-airway obstruction	13/78 (16.7)	11/71 (15.5)	0.82
Cardiogenic pulmonary edema	8/78 (10.3)	6/71 (8.5)	0.69
Aspiration	5/78 (6.4)	8/71 (11.3)	0.31
Pneumonia	8/78 (10.3)	12/71 (16.9)	0.25
Atelectasis	10/78 (12.8)	4/71 (5.6)	0.13
Pleural effusion	3/78 (3.8)	1/71 (1.4)	0.62
Copious secretions	28/78 (35.9)	22/71 (31.0)	0.49
Ineffective cough	21/78 (26.9)	13/71 (18.3)	0.19
Weakness of respiratory muscles	17/78 (21.8)	14/71 (19.7)	0.72
Alveolar hypoventilation	6/78 (7.7)	5/71 (7.0)	0.86
Hypercapnic coma	7/78 (9.0)	0	0.01
Septic shock	5/78 (6.4)	4/71 (5.6)	0.99
Cardiogenic shock	1/78 (1.3)	1/71 (1.4)	0.99
Hemorrhagic shock	1/78 (1.3)	2/71 (2.8)	0.61
Indication for surgery	6/78 (7.7)	8/71 (11.3)	0.47
Cardiac or respiratory arrest	3/78 (3.8)	6/71 (8.5)	0.31

* Each patient may have had several reasons for reintubation.



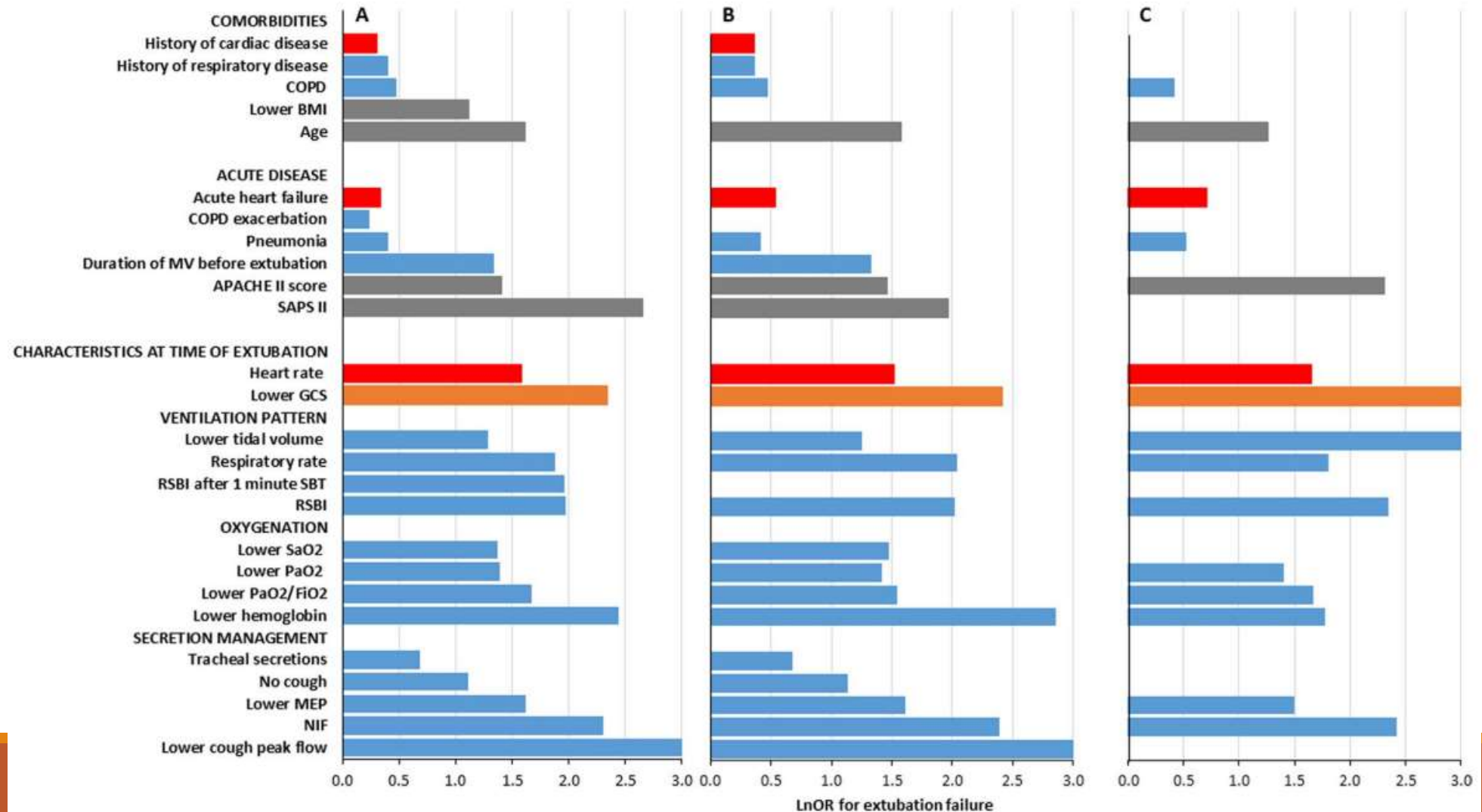
Prediction of extubation outcome in critically ill patients: a systematic review and meta-analysis

Flavia Torrini^{1,2†}, Ségolène Gendreau^{1,2†}, Johanna Morel^{1,2}, Guillaume Carteaux^{1,2,3}, Arnaud W. Thille^{4,5}, Massimo Antonelli⁶ and Armand Mekontso Dessap^{1,2,3*}

Overall analysis

Studies defined extubation failure as death or reintubation

Studies defined extubation failure as 48h



Si on devait faire mieux: l'indispensable!

1. Protocole de sevrage ventilatoire

- a) Evaluer quotidiennement la nécessité de sédation (Stopper et réintroduire/2 si besoin)
- b) Essayer tous les jours possibles de ventiler les patients en mode spontané
- C) Evaluer les risques d'échec d'extubation par l'état de conscience, la capacité à déglutir et tousser et la force des muscles inspiratoires

2. Epreuve de sevrage

- a) Cibler particulièrement les patients à risques (risques insuffisance cardiaque)
- b) La raccourcir le plus possible
- C) Reventiler les patients 1h avant extubation

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-

Intensive Care Med (2017) 43:1660–1667
DOI 10.1007/s00134-017-4911-0

ORIGINAL

Reconnection to mechanical ventilation for 1 h after a successful spontaneous breathing trial reduces reintubation in critically ill patients: a multicenter randomized controlled trial



M. Mar Fernandez^{1*} , Alejandro González-Castro², Monica Magret³, M. Teresa Bouza⁴, Marcos Ibañez⁵, Carolina García⁶, Begoña Balerdi⁷, Arantxa Mas⁸, Vanesa Arauzo⁹, José M. Añón¹⁰, Francisco Ruiz¹¹, José Ferreres¹², Roser Tomás¹³, Marta Alabert¹⁴, Ana Isabel Tizón¹⁵, Susana Altaba¹⁶, Noemi Llamas¹⁷ and Rafael Fernandez¹⁸

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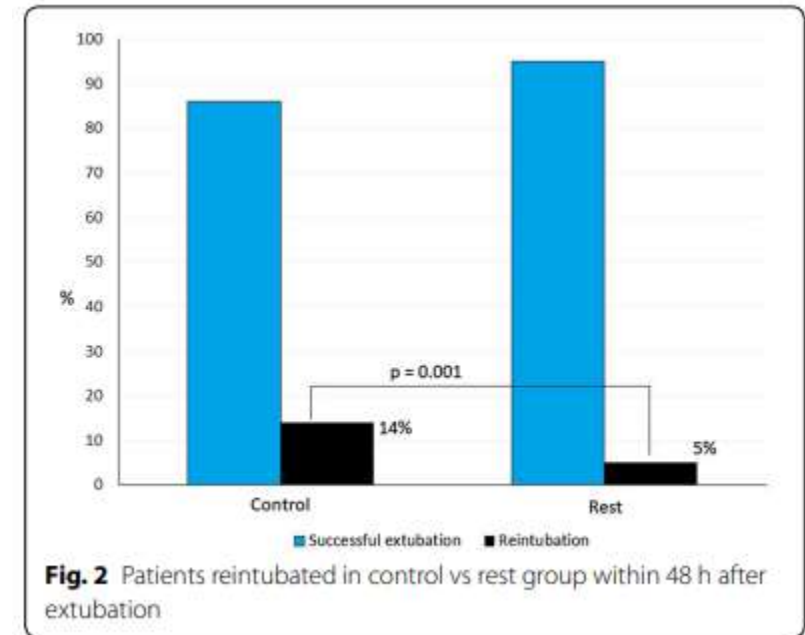
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Conclusion

« La pratique de la médecine devrait être dictée par la prise de mesures simples pour prévenir les événements peu fréquents qui conduisent à une catastrophe clinique plutôt que d'employer des approches qui sont commodes pour les praticiens et qui réussissent chez la plupart des patients. »

Extubation and the Myth of “Minimal Ventilator Settings”.

M. Tobin, Am J Respir Crit Care Med, 2012



Conclusion

« Ne soyez pas une autre brique dans le mur »

Pink Floyd 1979





Merci de votre attention