AER
ACTUALITÉS EN RÉANIMATION

Prise en charge de la dyspnée
« chez le patients intubé »

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R3S

☑ I declare the following conflicts of interest:

- ISIS medical *(congress registration fees)*
- SOS Oxygène *(congress registration fees)*
- Fisher and Paykel *(lectures)*

Disclaimer: All patients gave consent to be filmed and showed for educational or research purpose

Definition

Definition: Task Force ERS/ESICM 2024

Dyspnoea in acutely ill mechanically ventilated adult patients: an ERS/ESICM statement

Alexandre Demoule[1,2], Maxens Decavele[1,2], Massimo Antonelli[3], Luigi Camporota[4], Fekri Abroug[5], Dan Adler[6,7], Elie Azoulay[8], Metin Basoglu[9], Margaret Campbell[10], Giacomo Grasselli[11,12], Margaret Herridge[13], Miriam J. Johnson[14], Lionel Naccache[15,16], Paolo Navalesi[17,18], Paolo Pelosi[19,20], Richard Schwartzstein[21], Clare Williams[22], Wolfram Windisch[23], Leo Heunks[24,26] and Thomas Similowski[2,25,26]

*"the **symptom** that conveys an **upsetting** or **distressing** experience of **breathing awareness**"*

*Perception **désagréable** et **angoissante** de sa respiration*

Demoule A, Eur Respir J, 2024

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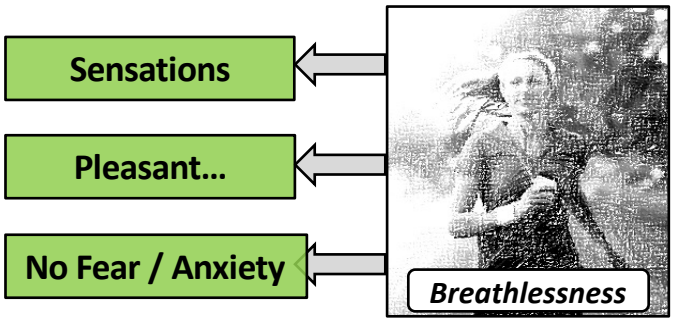

Demoule A, Eur Respir J, 2024

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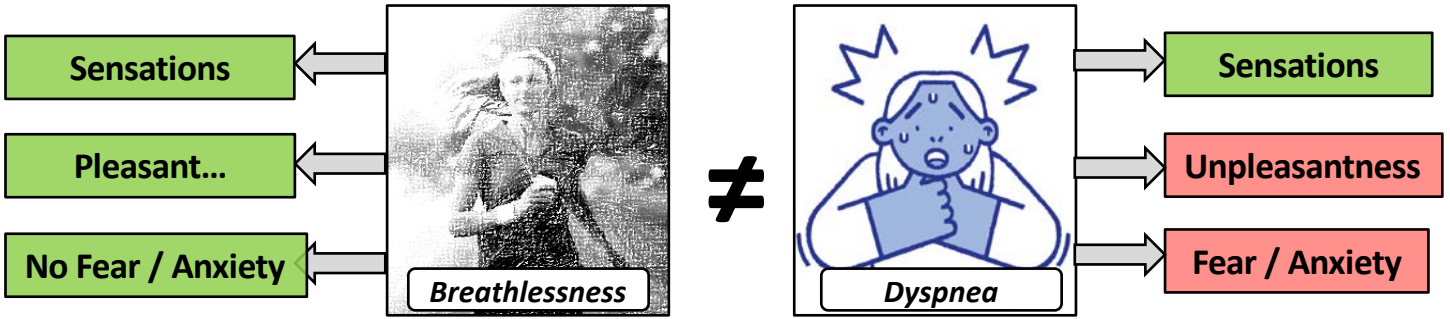


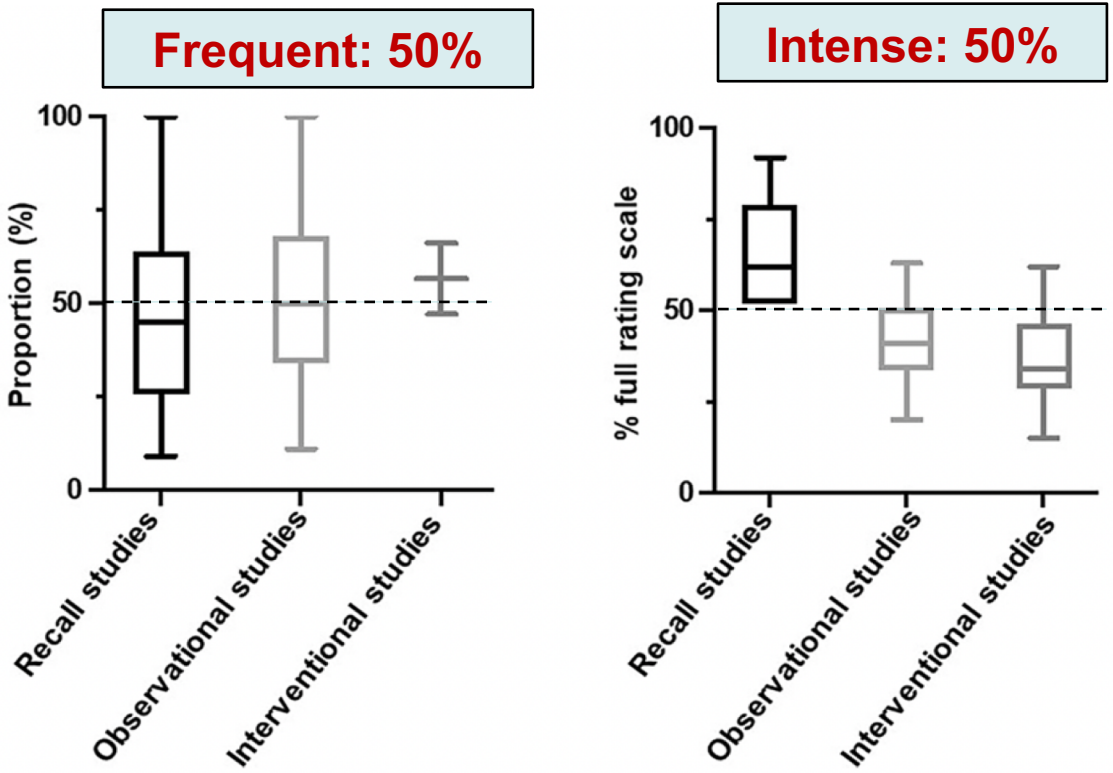
Demoule A, Eur Respir J, 2024

Definition: Task Force ERS/ESICM 2024

« ...c'était comme si j'allais mourir étouffé »

Narrative review of about 50 articles

Dyspnea in mechanically ventilated ICU patients



Demoule A, Eur Respir J, 2024

Epidemiology: Prevalence - Intensity

Self-reported symptoms experienced by intensive care unit patients: a prospective observational multicenter study

Christin Saltnes-Lillegård[1,2*], Tone Rustøen[2,3], Sigrid Beitland[4], Kathleen Puntillo[5], Milada Hagen[3,6], Anners Lerdal[7,8] and Kristin Hofsø[1,3,9]

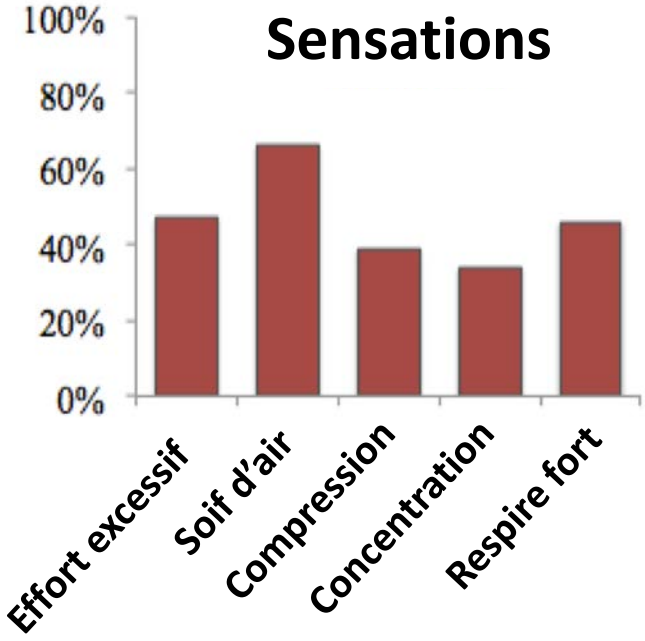
- 353 patients
- 40% intubés

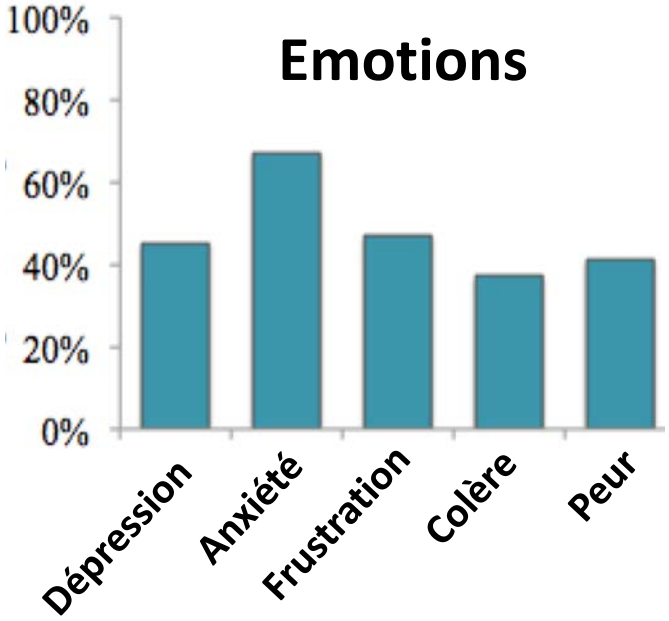
Dyspnée est un symptôme stressant ++

Symptoms	Presence n(%)	Mean* intensity	95%CI**	Mean* distress	95%CI**
Thirst	425 (64)	6.05	5.81–6.30	4.75	4.39–5.12
Tiredness	422 (64)	5.77	5.55–5.99	3.50	3.13–3.87
Pain	241 (36)	4.61	4.31–4.90	4.90	4.51–5.29
Shortness of breath	237 (36)	5.33	5.02–5.64	5.08	4.64–5.51
Anxiousness	165 (25)	5.96	5.57–6.35	5.46	4.95–5.98

Saltnes-Lillegard C, Intensive Care Med, 2023

Sensations et émotions associées dyspnée

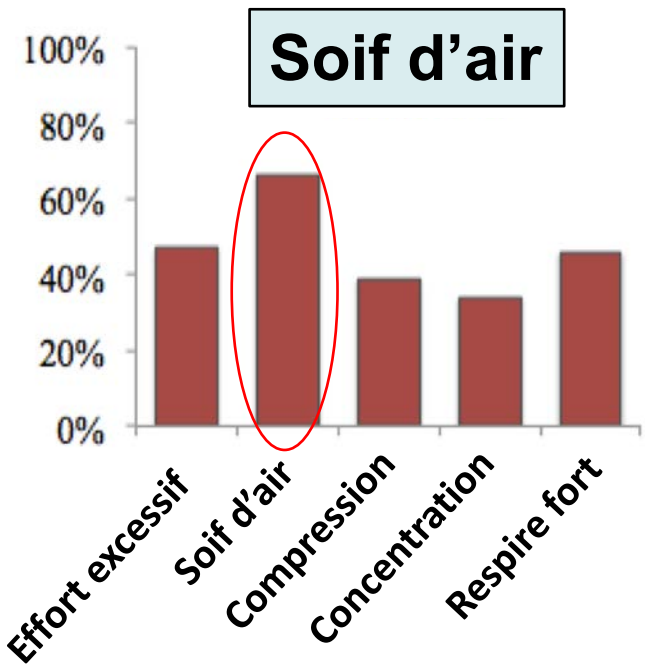


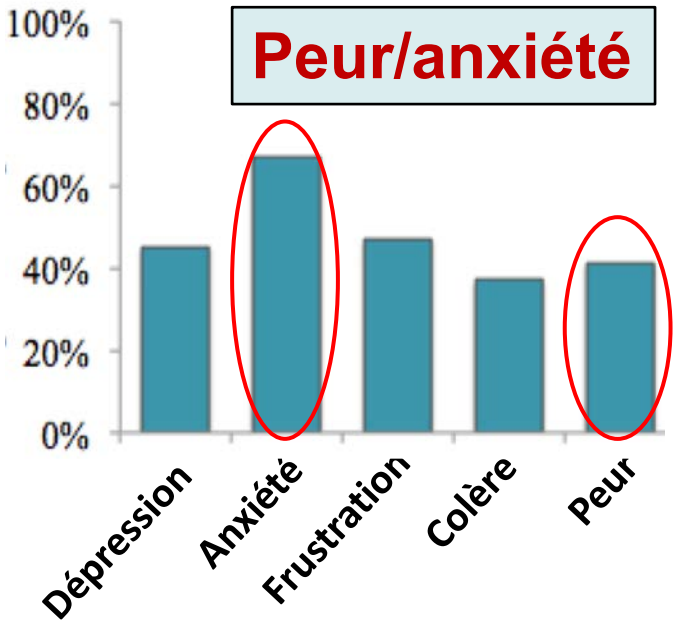


- 120 patients
- Réanimation
- IRA
- 69 dyspnéiques

Decavèle M, Resp Care, 2022

Sensations et émotions associées dyspnée





- 120 patients
- Réanimation
- IRA
- 69 dyspnéiques

Decavèle M, Resp Care, 2022

Consequences: Psychological - PTSD

Emotion of fear/anxiety

- Intubated dyspneic patients
- **75% anxiety / fear**
- **OR 10** vs. non-dyspneic
- **Fear of dying of suffocation**

Schmidt M, Crit Care Med, 2011
Demoule A, Am J Respir Crit Care Med, 2022

Consequences: Psychological - PTSD

Prevalence, Intensity, and Clinical Impact of Dyspnea in Critically Ill Patients Receiving Invasive Ventilation

Alexandre Demoule[1,2,3], David Hajage[4,5], Jonathan Messika[6], Samir Jaber[7], Hassimiou Diallo[4,5], Maxime Coutrot[3,8,9], Achille Kouatchet[10], Elie Azoulay[11], Muriel Fartoukh[3,12,13,14], Sami Hraiech[15,16], Pascal Beuret[17], Michael Darmon[11], Maxens Decavèle[1,2,3], Jean-Damien Ricard[18], Gerald Chanques[7], Alain Mercat[10], Matthieu Schmidt[3,8,9], and Thomas Similowski[1,19]; for the REVA Network (Research Network in Mechanical Ventilation)

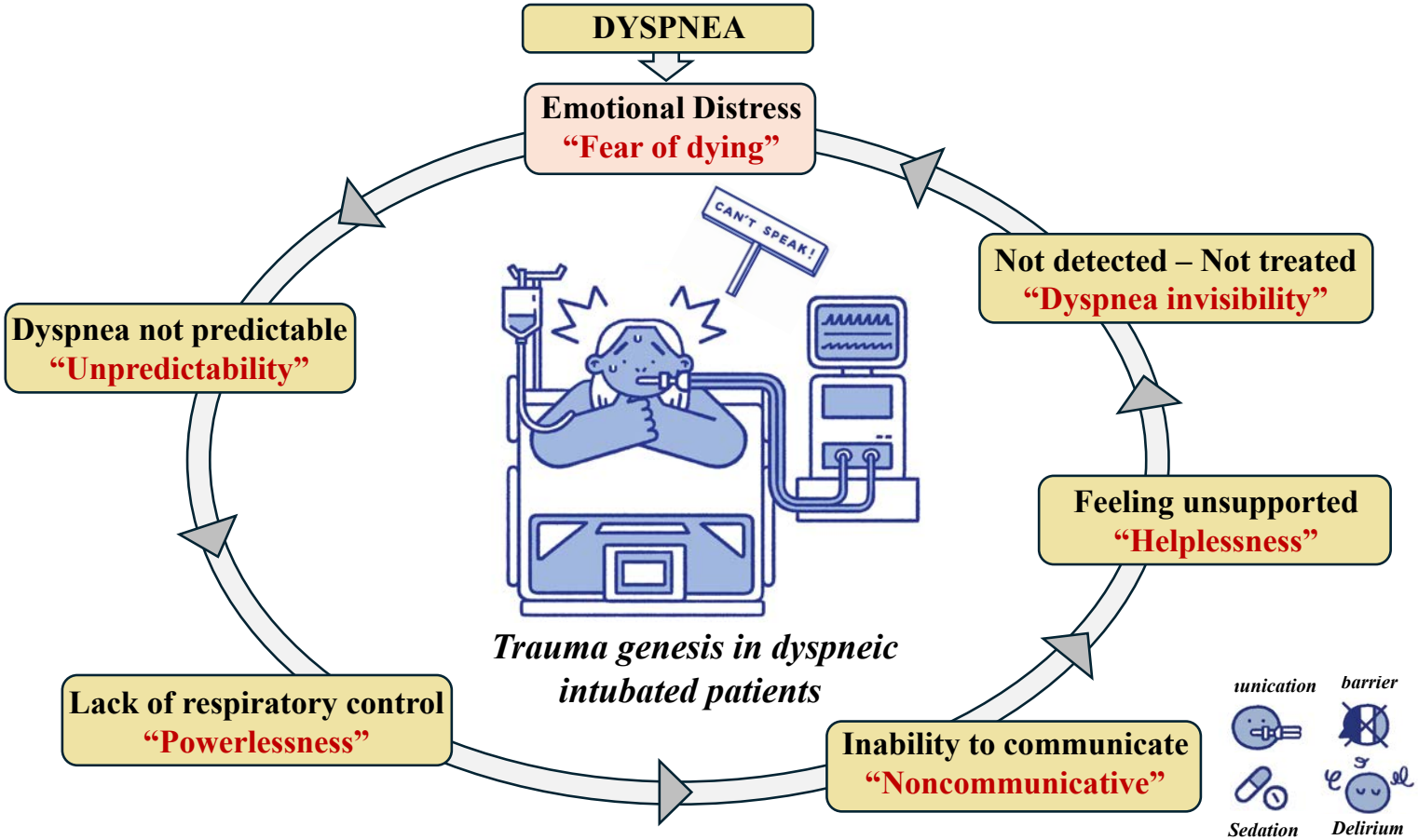
Dyspnea and **post-traumatic stress disorders (DYSTRESS study)**

- 612 intubated patients
- Dyspnea first awakening and during SBTs

- **PTSD: 29%** (dyspneic) **vs. 13%** (non dyspneic)
- **Dyspnea repetition: OR 1.07**

Demoule A, Am J Respir Crit Care Med, 2022

Consequences: Psychological - PTSD



Kemoun G, Curr Opin Crit Care, 2025

« Chapitre préliminaire : Droits de la personne »

Article L1110-5

Version du 4 Février 2016:

Toute personne a,... le droit de recevoir,... le meilleur apaisement possible de la **souffrance**

www.legifrance.gouv 2020

Consequences: Ethics – Human rights

EDITORIAL
BREATHLESSNESS

Effective management of breathlessness: a review of potential human rights issues

Metin Başoğlu

EUROPEAN RESPIRATORY journal
OFFICIAL SCIENTIFIC JOURNAL OF THE ERS

2017

Chest clinic

CHEST CLINIC

OPINION

The active identification and management of chronic refractory breathlessness is a human right

David C Currow,[1] Amy P Abernethy,[1,2] Danielle N Ko[3]

Thorax
AN INTERNATIONAL JOURNAL OF RESPIRATORY MEDICINE

2014

Dyspnea assessment at bedside

- Gold-standard: self-report (VAS, NS, Borg...)

Dyspnea assessment at bedside

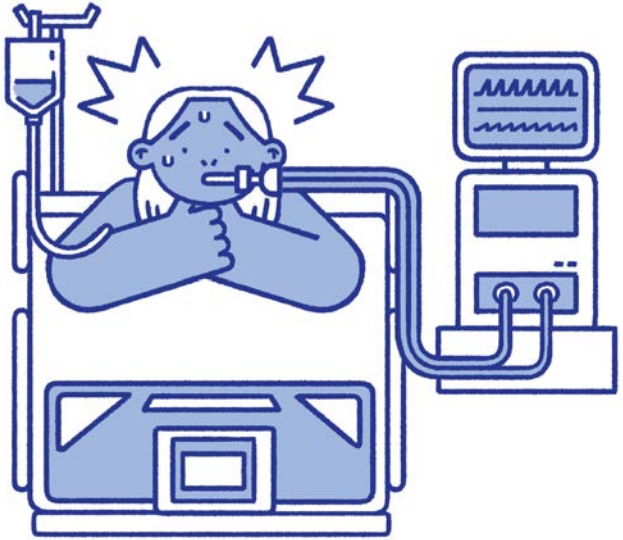
- Gold-standard: self-report (VAS, NS, Borg...)
- **Not possible** in **> 50%** of cases

Verbal communication

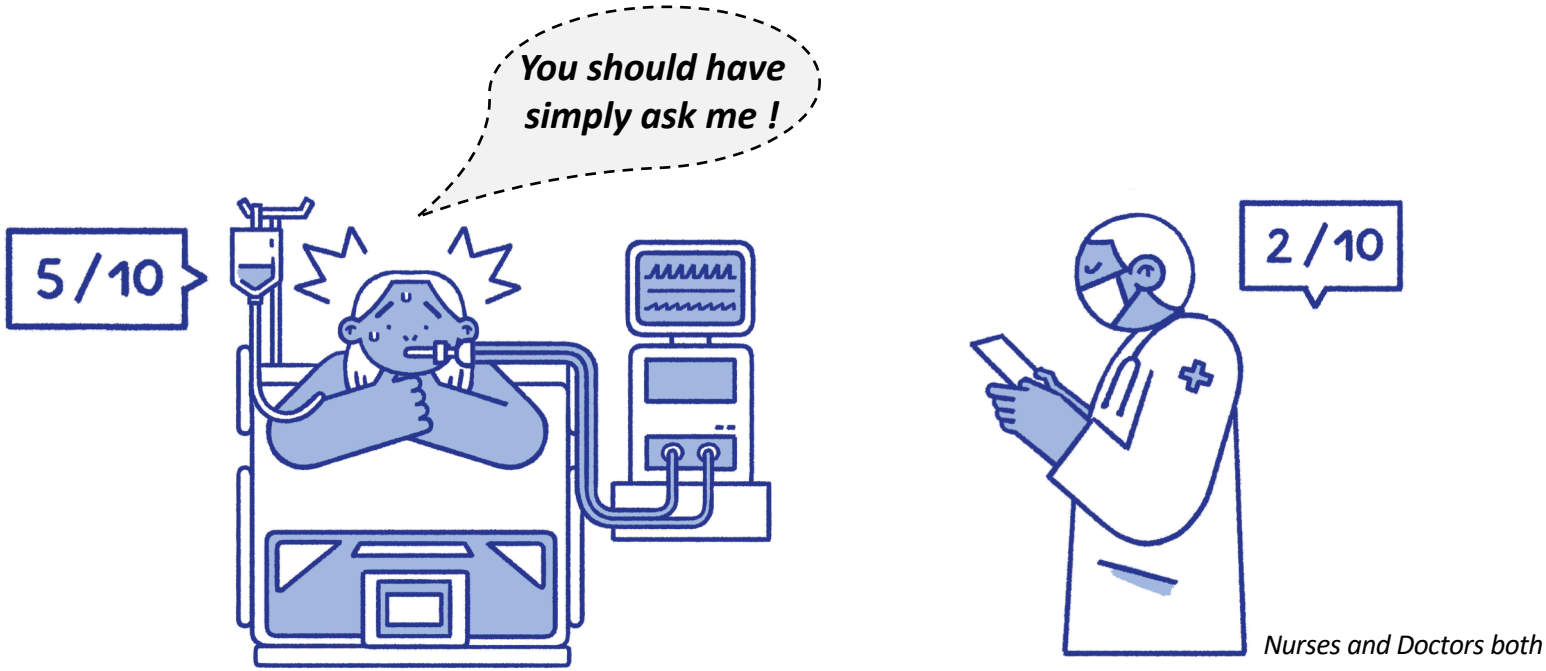
Language barrier

Sedation

Delirium



Marked underestimation of dyspnea intensity by stakeholders



Dyspnea Invisibility

Haugdahl HS, Am J Respir Crit Care Med, 2015

Echelle observationnelle de dyspnée

Mechanical Ventilation - Respiratory Distress Observation Scale (MV-RDOS)

Standardiser l'observation de la détresse respiratoire

Decavèle M, Eur Respir J, 2018

Echelle observationnelle de dyspnée

Mechanical Ventilation - Respiratory Distress Observation Scale (MV-RDOS)

Variables	Score
0-	**3,3**
1- Fréquence cardiaque (battements/min)	**+ (Fréquence cardiaque)/65**
2- Utilisation des muscles du cou à l'inspiration	
si présente	**+ 1**
si absente	**- 1**
3- Paradoxe abdominal pendant l'inspiration	
si présent	**+ 1**
si absent	**- 1**
4- Expression faciale de peur	
si présente	**+ 1**
si absente	**- 1**
5- Fréquence respiratoire (cycles/min)	**+ (Fréquence respiratoire)/50**

Decavèle M, Eur Respir J, 2018

Echelle observationnelle de dyspnée

Mechanical Ventilation - Respiratory Distress Observation Scale (MV-RDOS)

Variables	Score
0- neuro-végétative	**3,3**
1- Fréquence cardiaque (battements/min)	**+ (Fréquence cardiaque)/65**
2- Utilisation des muscles du cou à l'inspiration	
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Decavèle M, Eur Respir J, 2018

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commande ventilatoire

Decavèle M, Eur Respir J, 2018

Echelle observationnelle de dyspnée

Mechanical Ventilation - Respiratory Distress Observation Scale (MV-RDOS)

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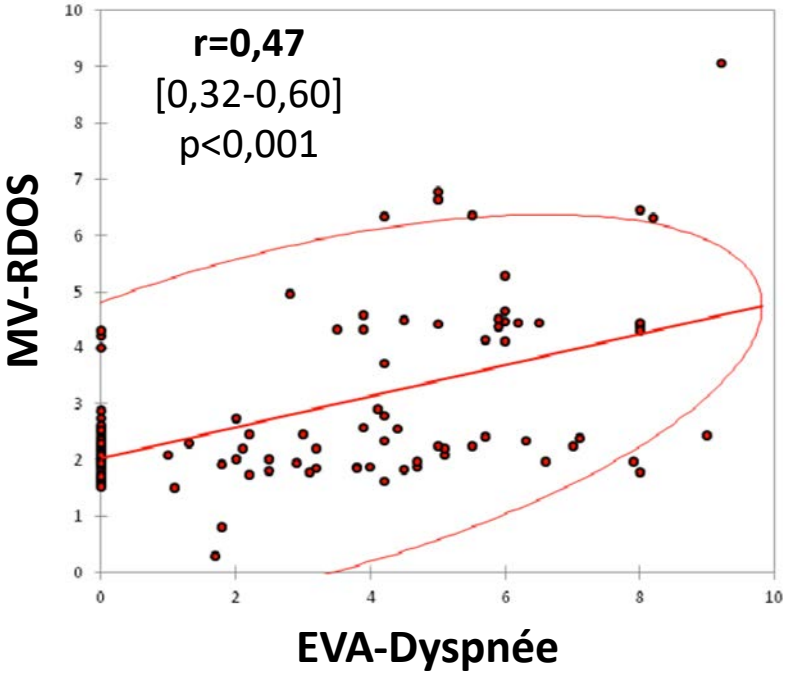
si absente	
5- Fréquence respiratoire (cycles/min)	

émotions

Decavèle M, Eur Respir J, 2018

Corrélation MV-RDOS et EVA-D



MV-RDOS ≥ 3 = EVA-D ≥ 3

AUC 0.80

MV-RDOS prédit
dyspnée cliniquement importante

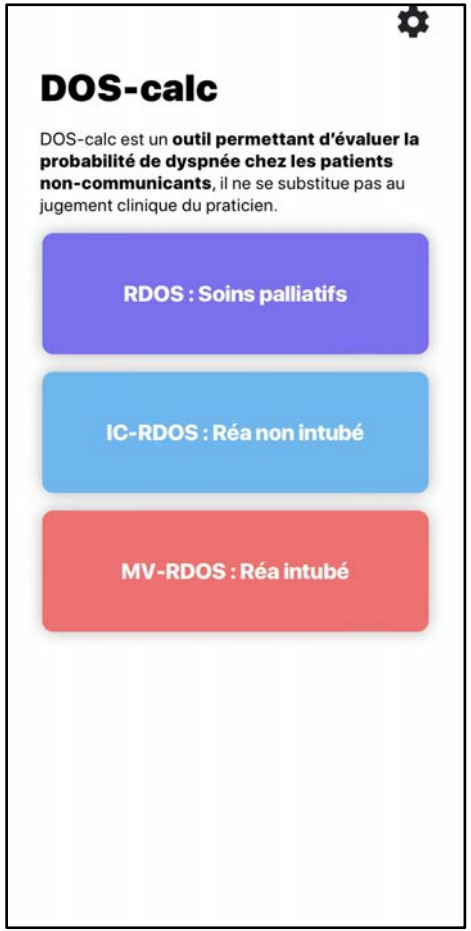
Decavèle M, Eur Respir J, 2018
Decavèle M, Am J Respir Crit Care Med, 2023

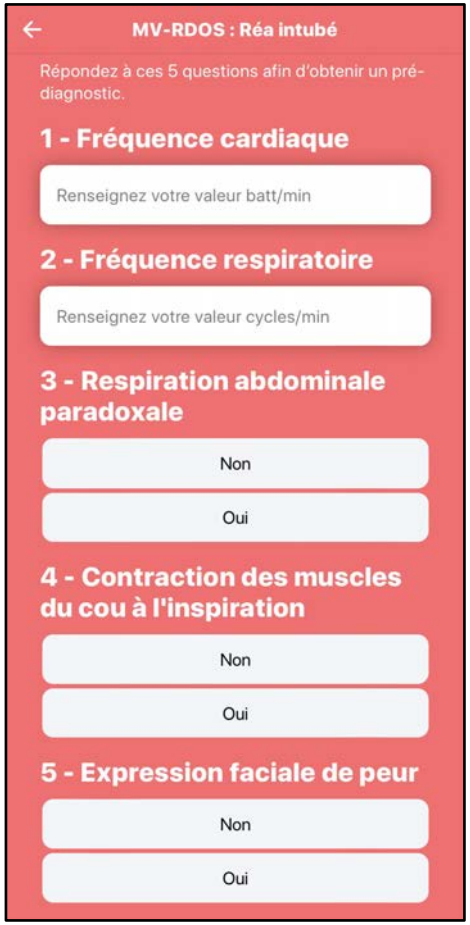
Detection: Observation scales

Application Smartphone

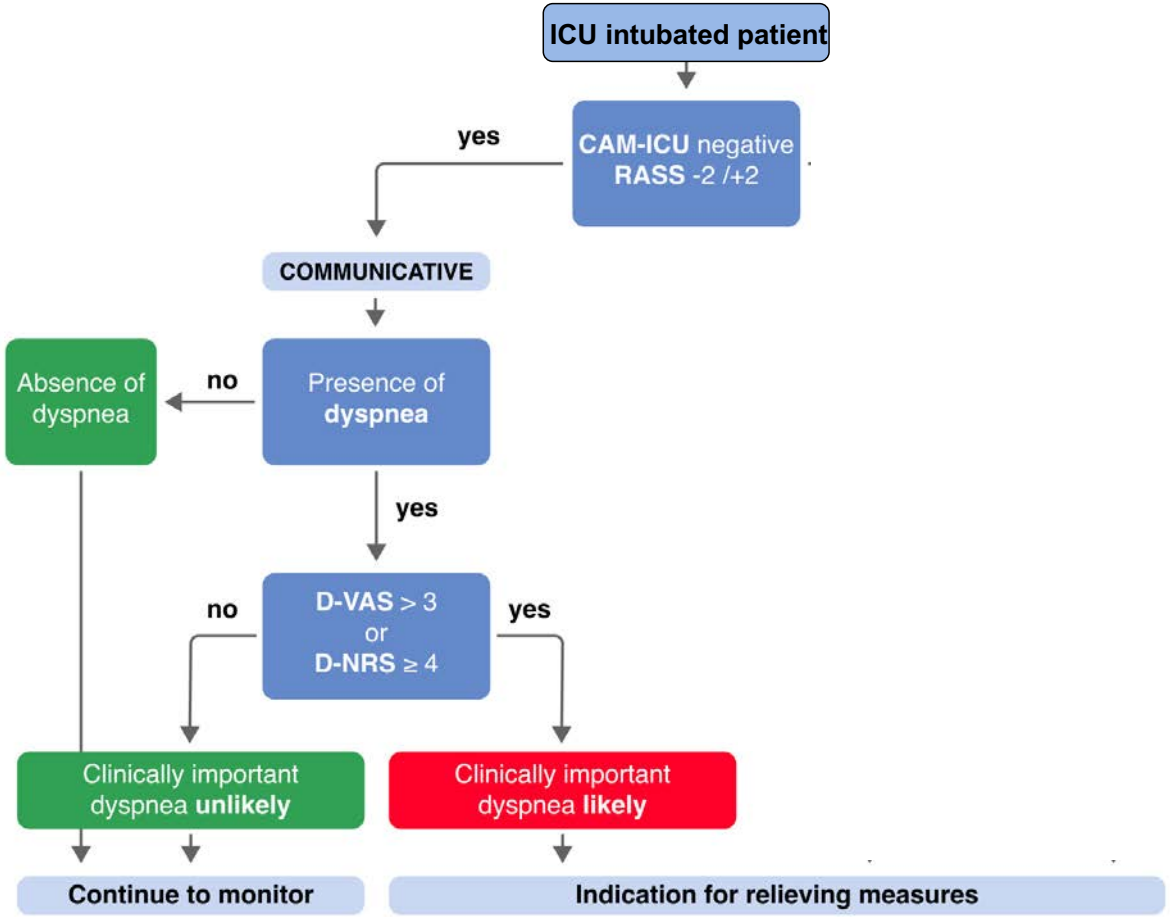
DOS-Calc

DOS-Calc





Detection: Clinical algorithm



Demoule A, Eur Respir J, 2024

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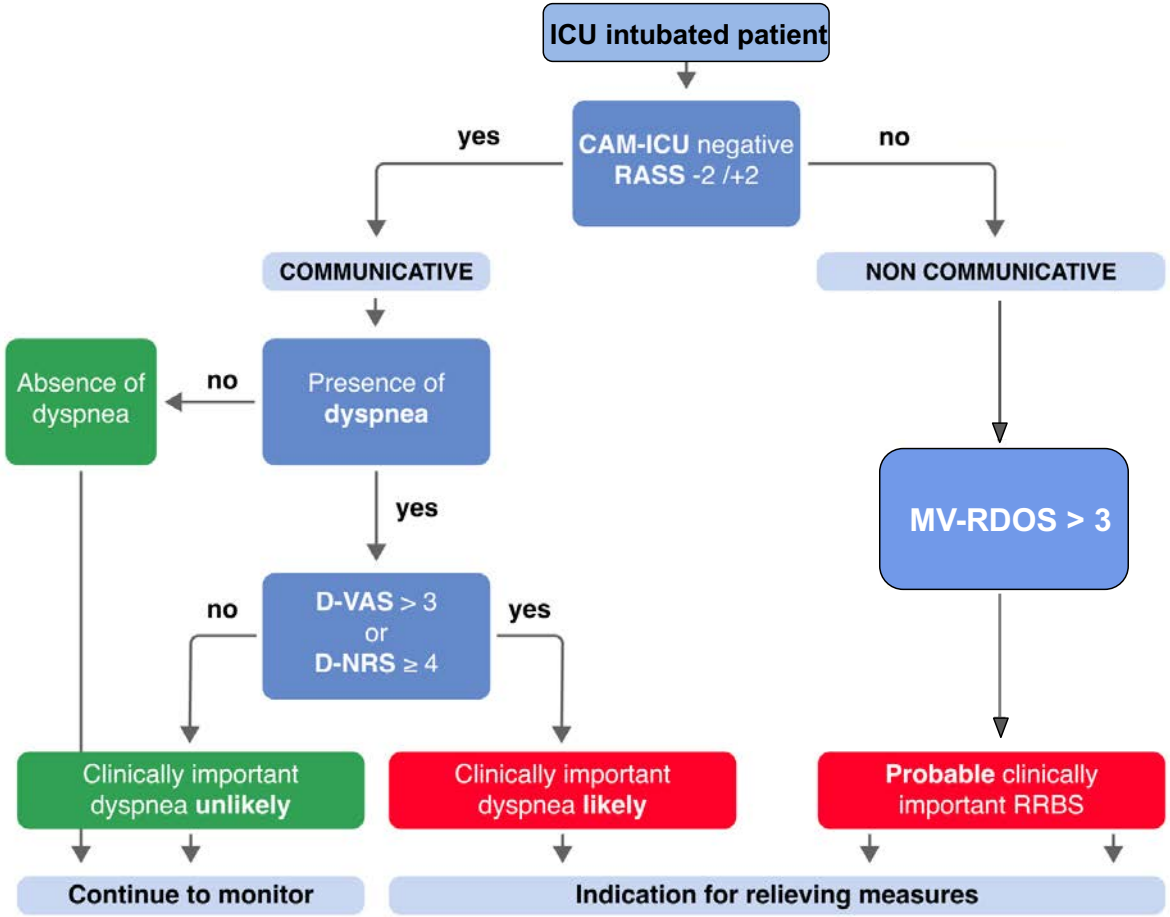


Demoule A, Eur Respir J, 2024

Traitements Dyspnée

« SOUL »

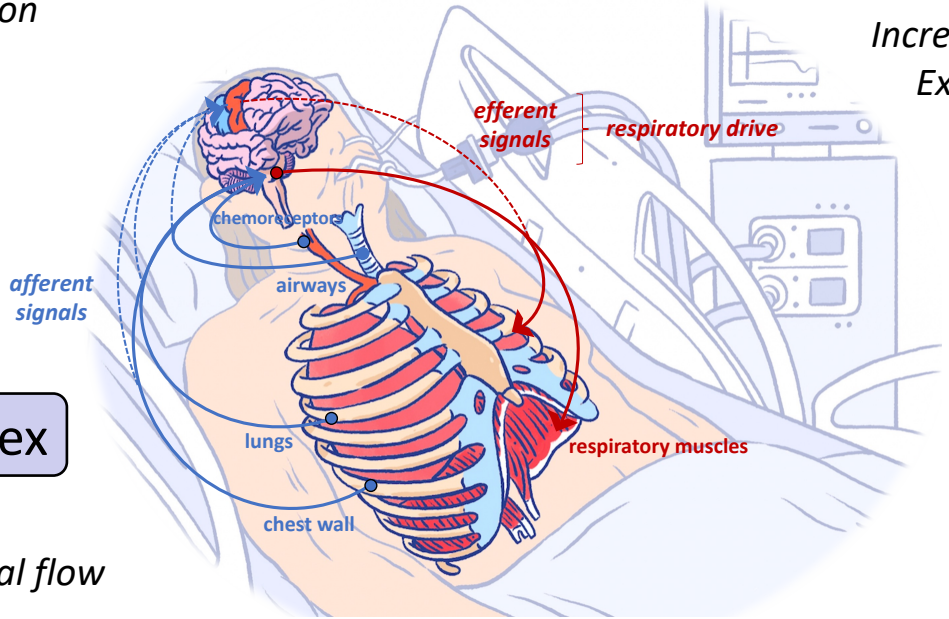
Silencing insular cortex

Relaxing music, Hypnosis, VR
Distraction, Relaxation
Directed empathy

« SENSE »

Fooling sensory cortex

Vagous nerve
Trigeminal nerve: air face, nasal flow



« DRIVE »

Adjusting ventilator settings

*Increase **inspiratory trigger sensibility***
*PEEP to **compensate PEEPi***
*Increase **inspiratory slope***
*Expiratory **trigger sensibility***
*Increase **FiO_2***
*Increase **inspiratory flow***
Switch** to **pressure mode

Demoule A, Eur Respir J, 2024

1

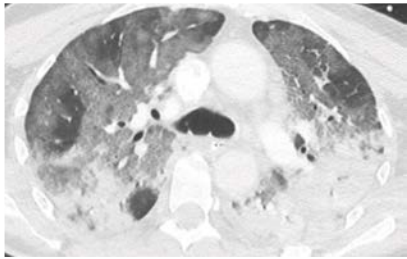
Mesures non pharmacologiques (IDE)

- Rassurance à type d'empathie dirigée
- Installation dans le lit (posturage)
- Aspirations trachéales
- Changement de filtres / circuit

Smith TA, BMJ Support Palliat Care, 2019

Traitements : Comment traiter la dyspnée

Men, 65 years-old (185cm), COPD, viral pneumonia, HFT 90%, labored breathing
Intubation for protective ventilation. Severe ARDS PaO_2/FiO_2 120
Neuromuscular blockade, Prone positioning



Volume controlled mode - **ACV**

Pressure →

Flow →

Volume →

Vt : 6 ml/kg PBW
RR : 28 /min
PEEP : 10 cmH2O
Flow : 60 L/min
Alarm Pmax : 60 cmH2O

No asynchronies
MV-RDOS 2,3

Traitements : Comment traiter la dyspnée

H24, decrease FiO2, supine position – Alarm Vmexp Low

Most likely diagnostic hypothesis ?

A- Double triggering

B- Ineffective triggering

C- Circuit disconnected

D- Obstructed circuit

E- Cough

Traitements : Comment traiter la dyspnée

H24, decrease FiO2, supine position – Alarm Vmexp Low

Most likely diagnostic hypothesis ?

A- Double triggering

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C- Circuit disconnected

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E- Cough

Traitements : Comment traiter la dyspnée

H24, decrease FiO2, supine position – Alarm Vmexp Low

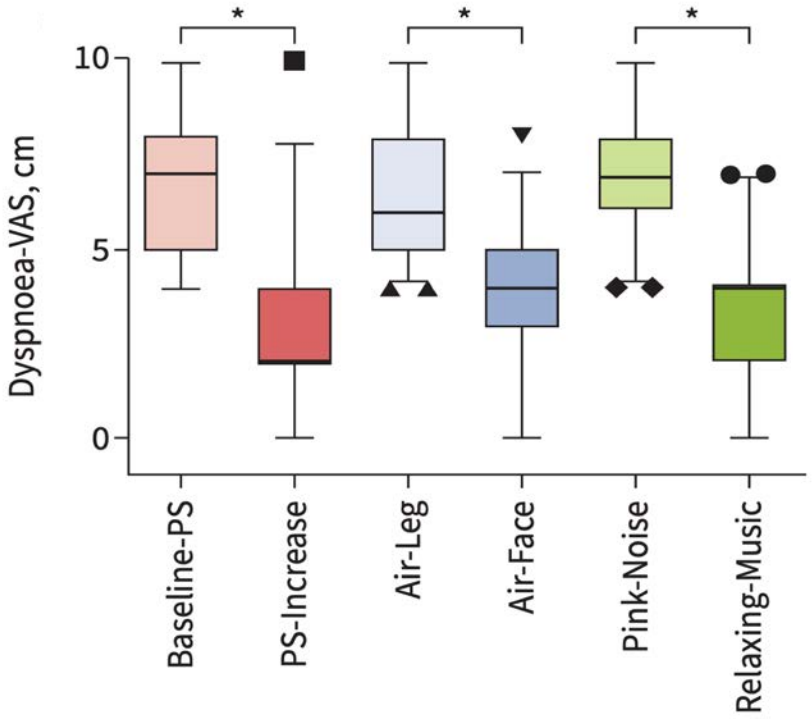
2

Autres mesures non pharmacologiques (IDE)

- Air sur le visage (ventilateur)
- Brumisateur
- Ouverture fenêtre
- Suggestion ajustements réglages respirateur
- Musique relaxante
- *Appel médecin pour éliminer urgence médicale*

Traitements : Tromper le cerveau !!

Sensory interventions to relieve dyspnoea in critically ill mechanically ventilated patients



- 46 patients
- 9 VNI
- Dyspnéiques

Bureau C, Eur Respir J, 2024

3

Ajustements réglages respirateur

- **Augmentation AI / Volume courant**
- PEEP pour compenser PEEP intrinsèque
- Diminuer consigne début expiration
- Augmenter sensibilité trigger inspiratoire
- Augmenter rampe pressurisation
- Augmenter FiO_2
- Augmenter débit inspiratoire VAC (60L/min)
- Switch VAC → VSAI ++

Demoule A, Similowski T, Eur Respir J, 2024

3

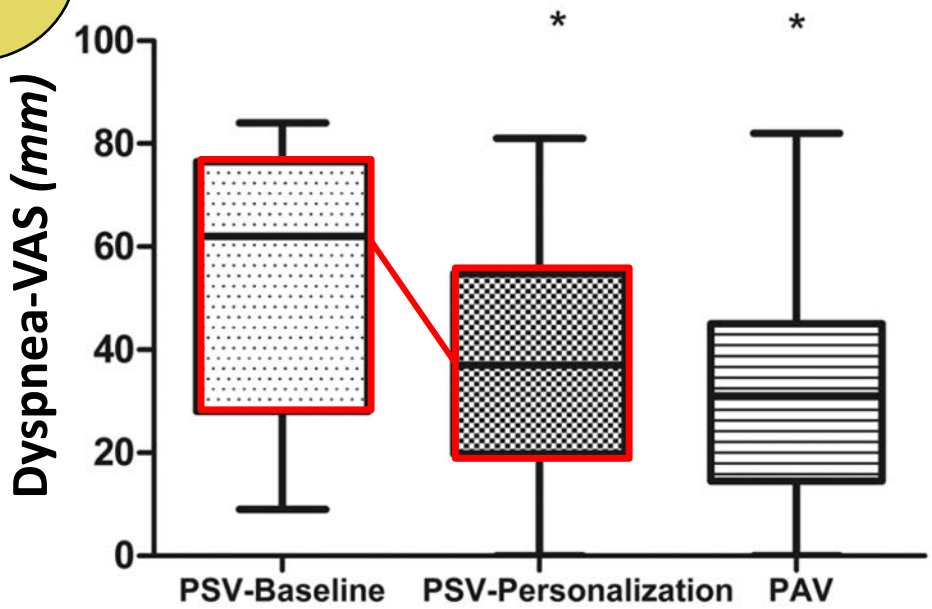
Ajustements réglages respirateur

- A
- P ue
- D
- A toire
- A
- A
- Augmenter débit inspiratoire VAC (60L/min)
- **Switch VAC → VSAI ++**

Demoule A, Similowski T, Eur Respir J, 2024

3

Increase in pressure support – Proportional modes



- 34 intubated patients
- Communicative
- Respiratory distress
- ICU Recovering phase

50% Dyspnea-VAS reduction

	7 cmH_2O	14 cmH_2O	
Tidal volume	**7 ml/kg**	**8 ml/kg**	**9 ml/kg**

Bureau C, Ann Intensive Care, 2021

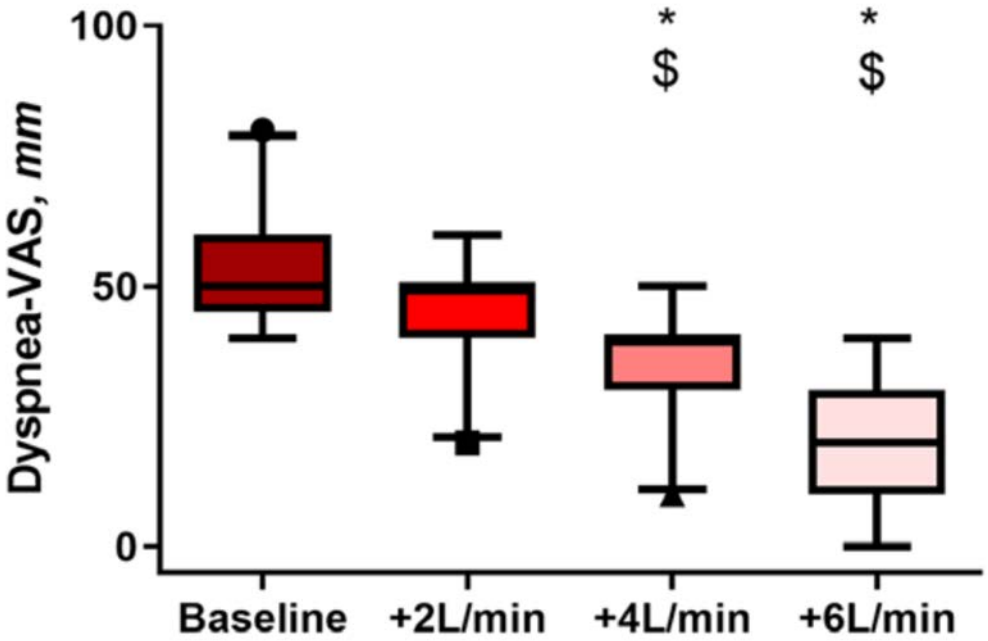
Traitements : Optimisation des réglages du ventilateur

3

Augmentation AI

3

Ajustements débit balayage sous ECMO



PaCO2	37	33	32	34

Bureau C, Anesthesiology, 2024

4

Traiter une cause curable de dyspnée persistante

Diminuer l'élastance

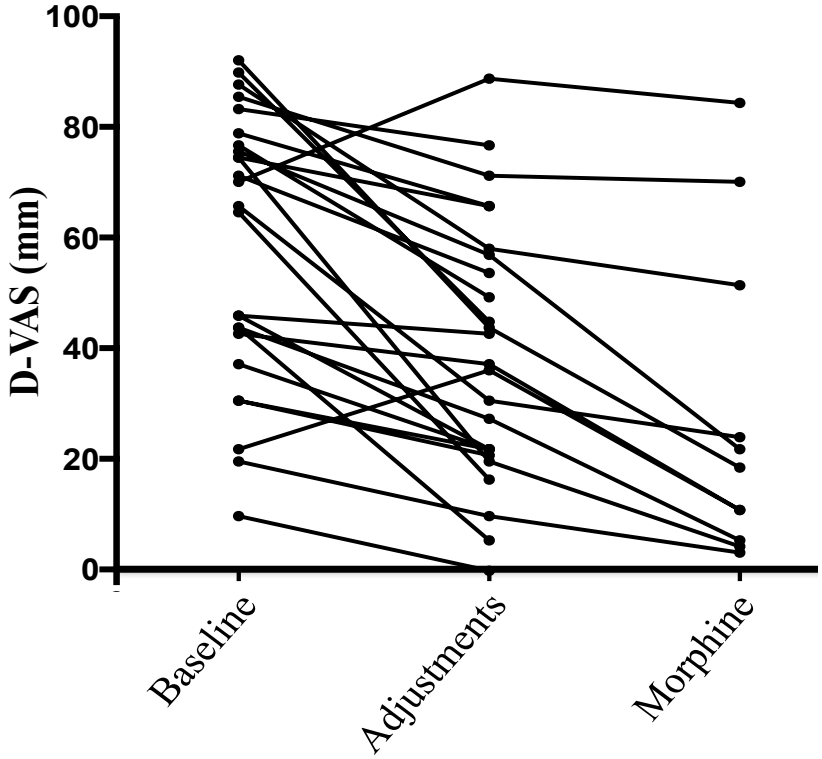
- Epanchement pleural
- Traitement OAP
- Traitement pneumonie
- Levée atélectasie

Diminuer les résistances

- Bronchodilatateurs
- Aspirations endoscopiques
- Corticoïdes

5

Interventions pharmacologiques



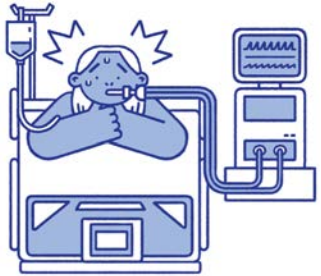
- 50 patients intubés
- 25 reçus morphine
- Après réglages ventilateur

Decavèle M, Am J Respir Crit Care Med, 2023

La phase intermédiaire – du confort au servage ventilatoire

Ecoute empathique

Rassurance



Diffuser with essential oils

Relaxing music

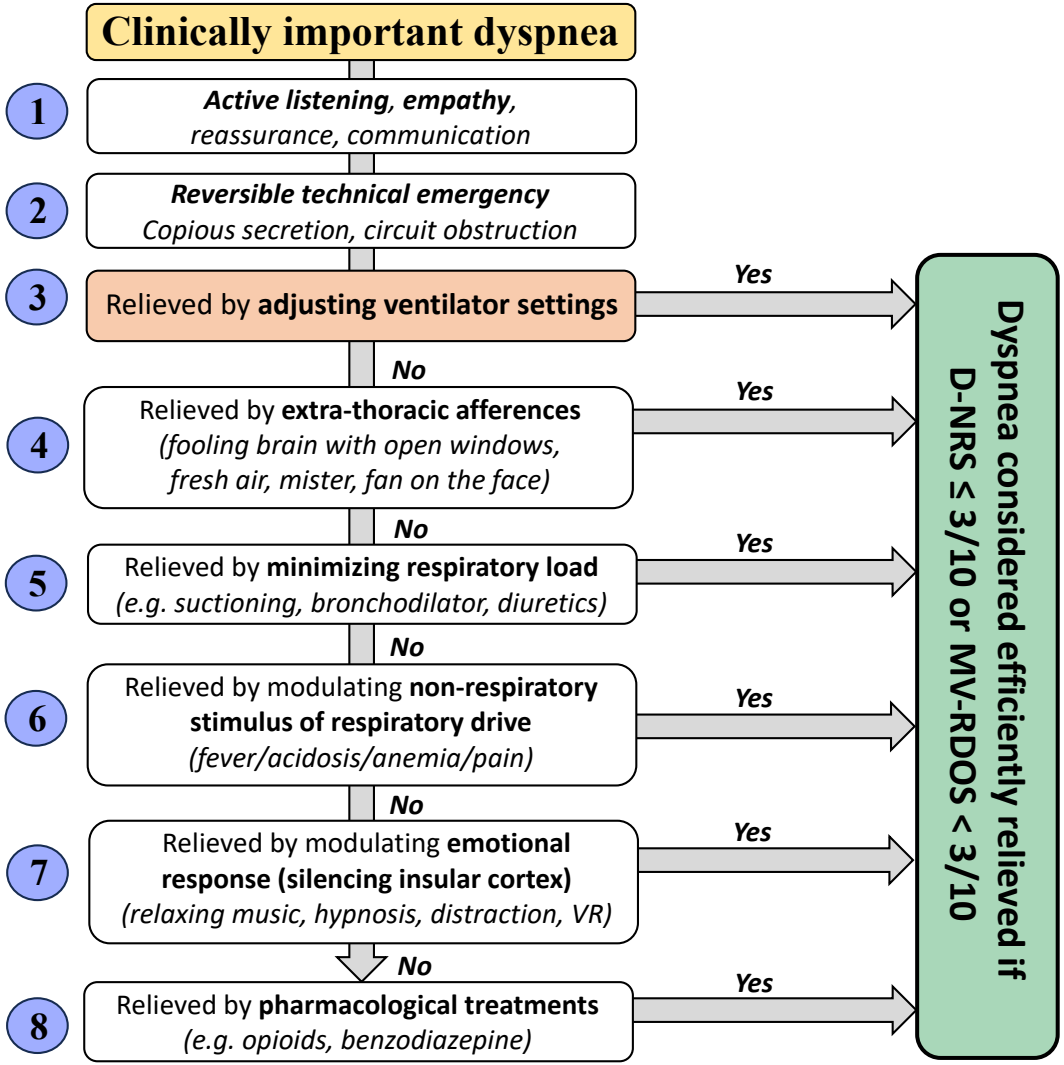
Visual distraction

Fan

Water spray

Open windows

…


Clinically important dyspnea
1
Active listening, empathy, reassurance, communication
2
Reversible technical emergency
Copious secretion, circuit obstruction
3
Relieved by adjusting ventilator settings
Yes
No
4
Relieved by extra-thoracic afferences
(fooling brain with open windows, fresh air, mister, fan on the face)
Yes
No
5
Relieved by minimizing respiratory load
(e.g. suctioning, bronchodilator, diuretics)
Yes
No
6
Relieved by modulating non-respiratory stimulus of respiratory drive
(fever/acidosis/anemia/pain)
Yes
No
7
Relieved by modulating emotional response (silencing insular cortex)
(relaxing music, hypnosis, distraction, VR)
Yes
No
8
Relieved by pharmacological treatments
(e.g. opioids, benzodiazepine)
Yes
Dyspnea considered efficiently relieved if D-NRS ≤ 3/10 or MV-RDOS < 3/10

Thank you for attention

UMR-S 1158

C Morélot-Panzini
MC Niérat

T Similowski

A Demoule

ICU Team

ICU R3S

M Dres
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