AER
ACTUALITÉS EN RÉANIMATION

17.11.2022

Nouvelles approches en sédation-analgésie

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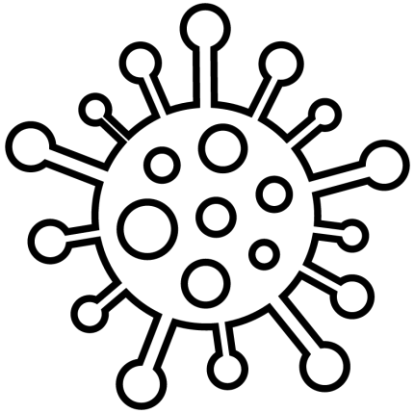


Sedation Usage in COVID-19 Acute Respiratory Distress Syndrome: A Multicenter Study

Annals of Pharmacotherapy 2021

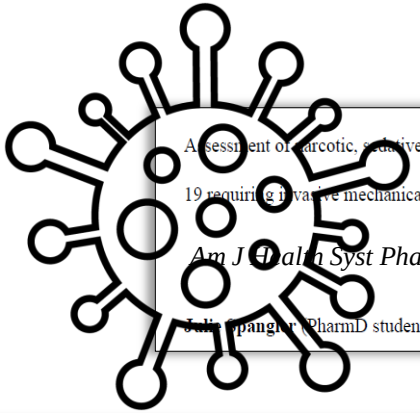
Natalie Tapaskar, MD[1], Daniel Colon Hidalgo, MD, MPH[2],

NEUROLOGIC CRITICAL CARE

Association of Sedation, Coma, and In-Hospital Mortality in Mechanically Ventilated Patients With Coronavirus Disease 2019–Related Acute Respiratory Distress Syndrome: A Retrospective Cohort Study*

Karuna Wongtangman, MD[1,2]

Crit Care Med : September 2021



Assessment of narcotic, sedative, and neuromuscular blocker needs of patients with COVID-19 requiring invasive mechanical ventilation

Am J Health Syst Pharm 2021

Julia Spangler (PharmD student)

PLOS ONE

RESEARCH ARTICLE

High sedation needs of critically ill COVID-19 ARDS patients—A monocentric observational study

Armin Niklas Flinspach[1]*, Hendrik Booke[1], Kai Zacharowski[1], Ümniye Balaban[2], Eva Herrmann[2], Elisabeth Hannah Adam[1]

The Use of Analgesia and Sedation in Mechanically Ventilated Patients With COVID-19 ARDS

Anesth & Analg 2021

microorganisms

MDPI

Article

Use of Sedatives and Neuromuscular-Blocking Agents in Mechanically Ventilated Patients with COVID-19 ARDS

Amédée Ego *, Lorenzo Peluso, Julie Gorham, Alberto Diosdado, Giovanni Restuccia, Jacques Creteur and Fabio Silvio Taccone

NEUROLOGIC CRITICAL CARE

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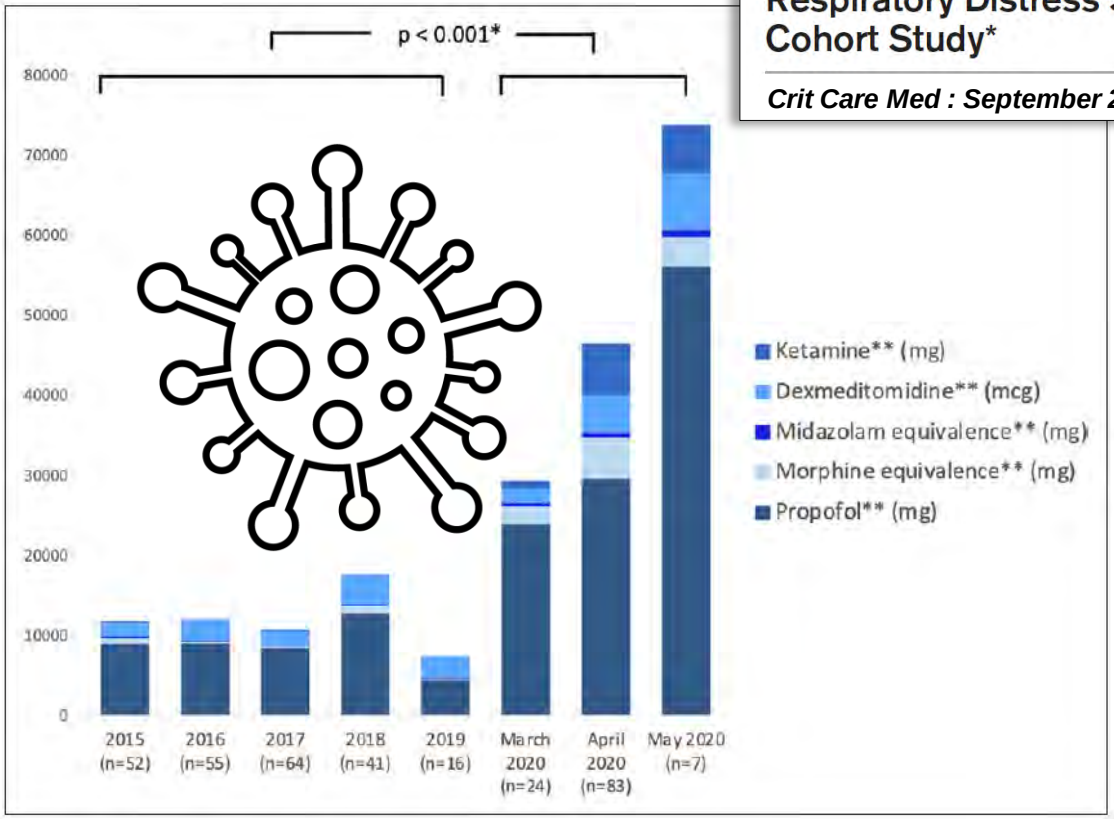
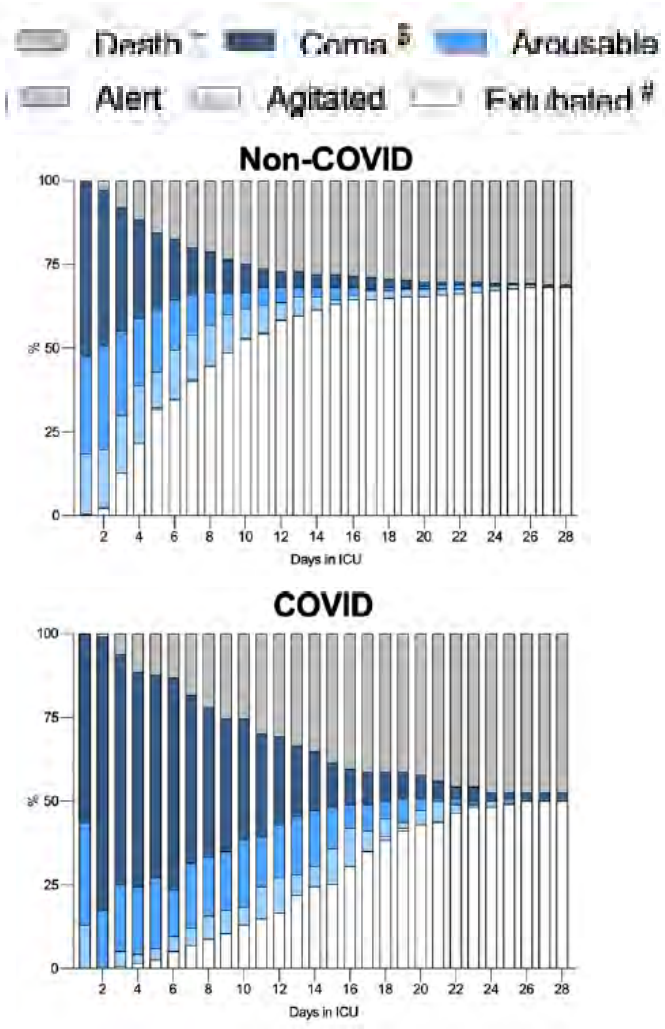




NEUROLOGIC CRITICAL CARE

Association of Sedation, Coma, and In-Hospital Mortality in Mechanically Ventilated Patients With Coronavirus Disease 2019–Related Acute Respiratory Distress Syndrome: A Retrospective Cohort Study*

Karuna Wongtangman, MD[1,2]

Crit Care Med : September 2021

SDRA COVID

- Sédation + profonde
- Posologie + élevée + prolongée
- Mortalité + élevée
- Analyse ajustée : **surmortalité liée à la sursédation et non au COVID**

dx.doi.org/10.1016/
j.ajem.2015.05.003

Induction/intubation

Sedation

Mechanical ventilation

Length of stay in the ICU

Length of stay in the hospital, long term quality of life and survival

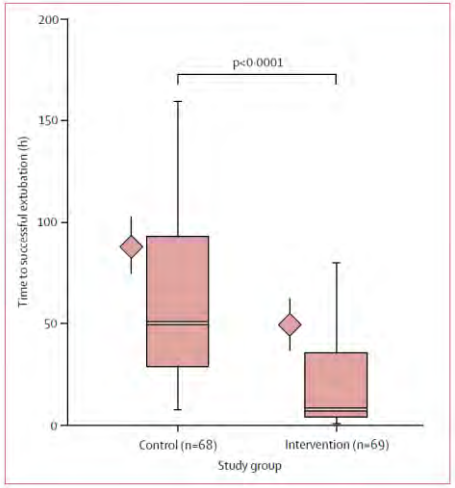
www.thelancet.com/respiratory Vol 5 October 2017

Immediate interruption of sedation compared with usual sedation care in critically ill postoperative patients (SOS-Ventilation): a randomised, parallel-group clinical trial

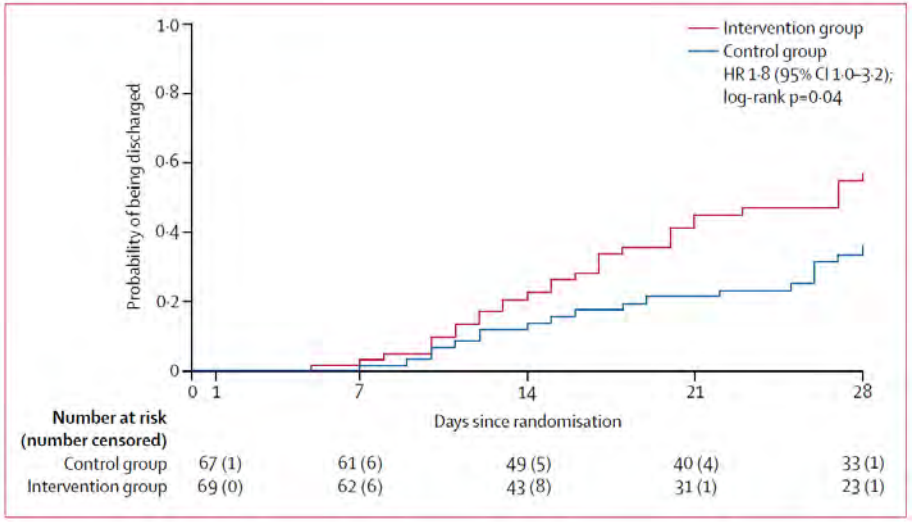
*Gerald Chanques, Matthieu Conseil, Claire Roger, Jean-Michel Constantin, Albert Prades, Julie Carr, Laurent Muller, Boris Jung, Fouad Belafia, Moussa Cissé, Jean-Marc Delay, Audrey de Jong, Jean-Yves Lefrant, Emmanuel Futier, Grégoire Mercier, Nicolas Molinari, Samir Jaber, on behalf of the SOS-Ventilation study investigators**

L'nterruption immédiate de sédation = faisable et définitive chez 70% des patients admis en réa. pour choc septique en postop. de péritonite, sans ARDS sévère

↓ Délai d'extubation



↑ Retour à domicile vivant à J28



2008–2018: Ten years of gradual changes in the sedation guidelines for critically ill patients

Anaesth Crit Care Pain Med 37 (2018) 509–511

2000	2008	2013	2018
Sedation targeted	Sedation goal = comfort (not coma) in most patients	Pain -top priority if present-	Pain -multimodal approach-
	Analgesia targeted	Agitation	Agitation
		Delirium	Delirium
			Immobility
			Sleep disruption

Special Article

Society of Critical Care Medicine
The Intensive Care Professionals

Résumé cadre : Recommandations de Pratiques Cliniques pour la Prévention et la Gestion de la Douleur, de l'Agitation/Sédation, de la Confusion Mentale, de l'Immobilité, et des Altérations du Sommeil chez les Patients Adultes en Soins Critiques.

reco "PADIS" 2018
endossées SFAR-SRLF 2020

eCASH
—early Comfort promoting Analgesia minimizing Sedation with maximal Humanism

JL Vincent et al. ICM 2016

A2F bundle

P Pandharipande et al. Crit Care 2010

***A2F** global bundle : concepts intriqués*

Analgésie prioritaire, prévention et gestion douleur

Bien réaliser épreuves d'éveil & ventilation spont.

Choix des drogues (éviter benzos), adaptation poso

Delirium : monitorage et gestion

Exercices/mobilisation/réhabilitation précoce

Famille impliquée, autonome

"Chez plus de 25000 patients et 100 hôpitaux, le bundle A2F a été associé de manière dose-répondante (marge de compliance avec le bundle) à une amélioration de la survie, de la durée de séjour, du coma et de la confusion, des coûts, réadmissions en réa, et de l'autonomie à la sortie."

Barnes-Daly et al., Crit Care Med 2017
Pun et al., Crit Care Med 2019

A

B

C

D

E

F

SDRA?

COVID-19?

A

B

C

D

E

F

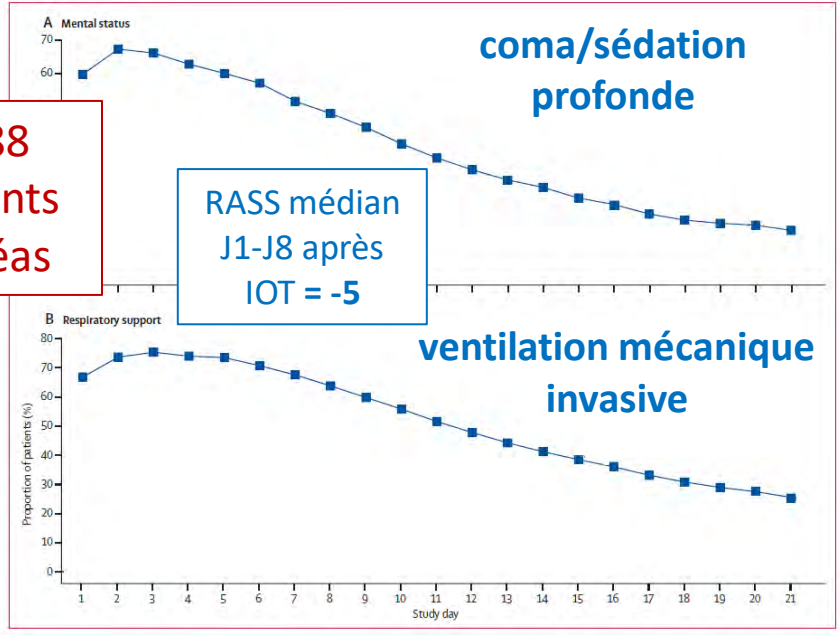
Lancet Respir Med 2021

Prevalence and risk factors for delirium in critically ill patients with COVID-19 (COVID-D): a multicentre cohort study

Brenda T Pun, Rafael Badenes*, Gabriel Heras La Calle, Onur M Orun, Wencong Chen, Rameela Raman, Beata-Gabriela K Simpson, Stephanie Wilson-Linville, Borja Hinojal Olmedillo, Ana Vallejo de la Cueva, Mathieu van der Jagt, Rosalía Navarro Casado, Pilar Leal Sanz, Günseli Orhun, Carolina Ferrer Gómez, Karla Núñez Vázquez, Patricia Piñeiro Otero, Fabio Silvio Taccone, Elena Gallego Curto, Anselmo Caricato, Hilde Woien, Guillaume Lacave, Hollis R O'Neal Jr, Sarah J Peterson, Nathan E Brummel, Timothy D Girard, E Wesley Ely, Pratik P Pandharipande, for the COVID-19 Intensive Care International Study Group†*

%

2088 patients 69 réas



%

A(éval. douleur) = 73%

B

C(éval. sédation) = 98%

D(éval. delirium) = 83%

E

F

Lancet Respir Med 2021

Prevalence and risk factors for delirium in critically ill patients with COVID-19 (COVID-D): a multicentre cohort study

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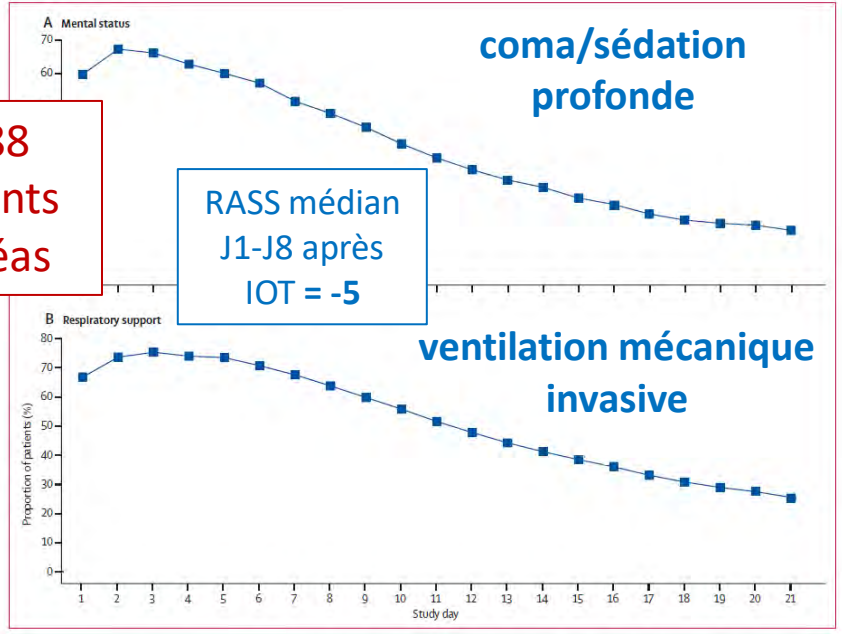

coma/sédation profonde

RASS médian J1-J8 après IOT = **-5**

%

ventilation mécanique invasive

A(éval. douleur) = 73%

B(stop séd.+EVS) **< 25%**

C(éval. sédation) = 98%
(éviter benzo) **= 52%**

D(éval. delirium) = 83%

E(exercice précoce) **= 34%**

F(famille autorisée) **= 8%**

Lancet Respir Med 2021

Prevalence and risk factors for delirium in critically ill patients with COVID-19 (COVID-D): a multicentre cohort study

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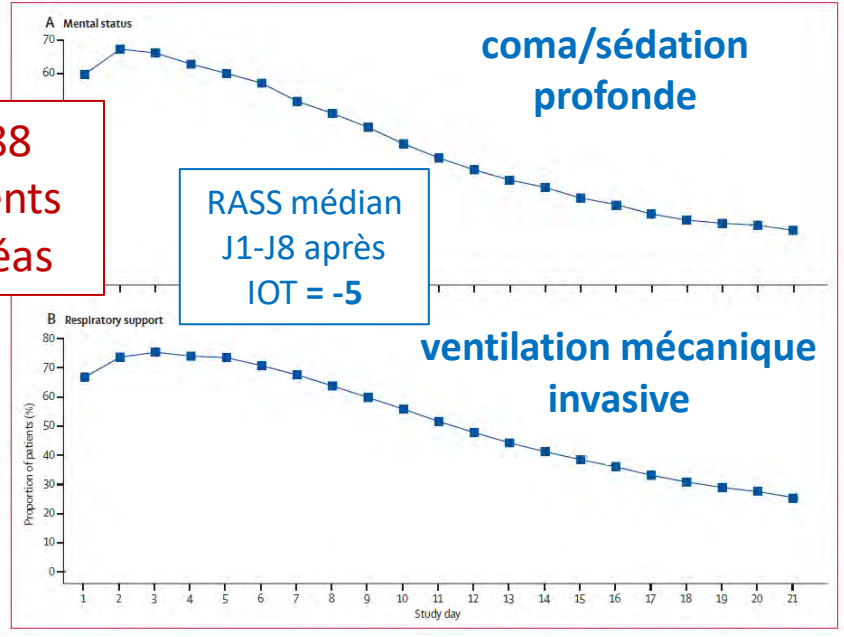
2088 patients
69 réas



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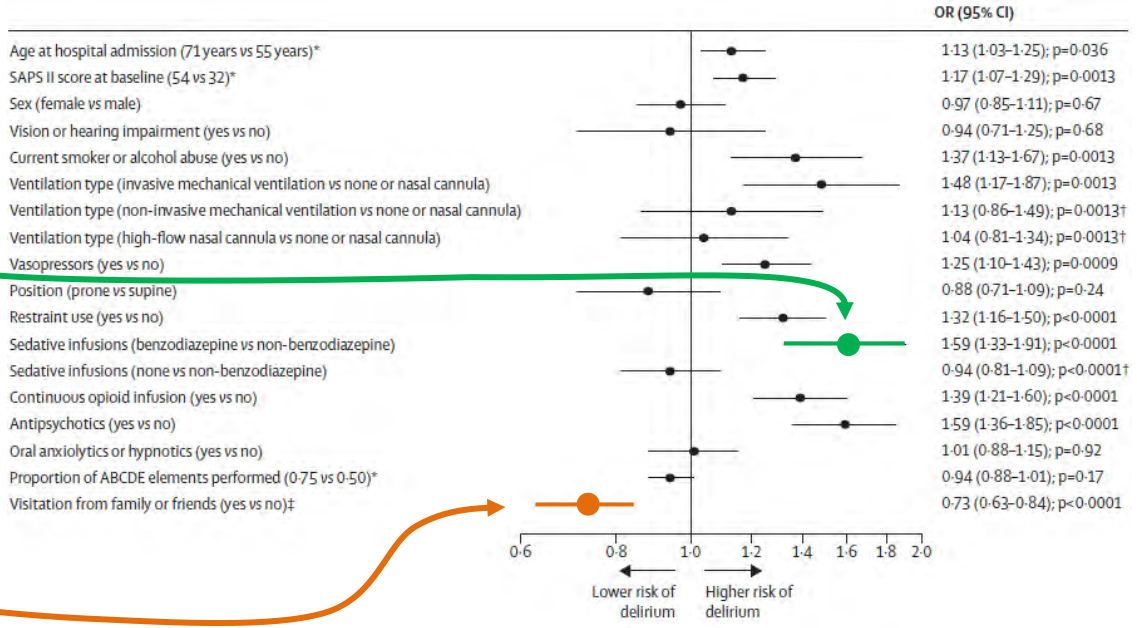
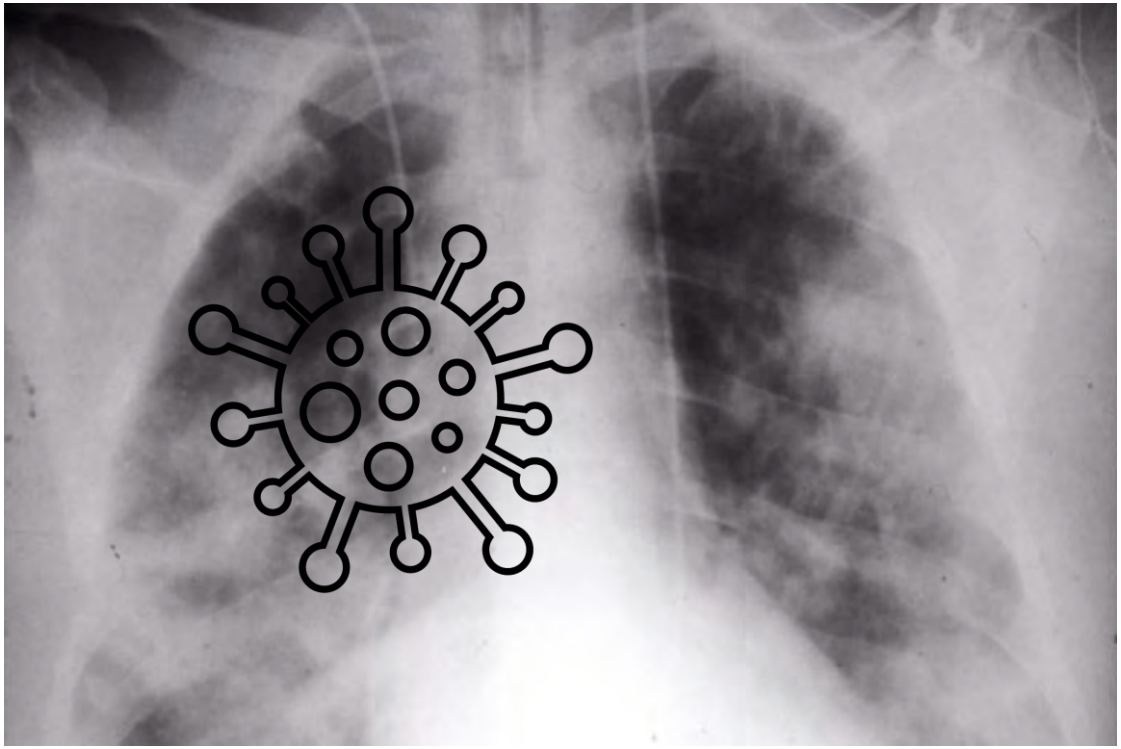




Ces concepts de minimisation de la sédation peuvent-ils être appliqués en cas de SDRA sévère?

PROBLEMATIQUES ACTUELLES

1. Sédation profonde et prolongée est associée avec ↑ durée de ventilation, séjour en réa et hôpital, utilisation des ressources
2. Pandémie de COVID-19
3. Manque de lits de réa
4. Pénurie de sédatifs et curares

Raisons pouvant expliquer la sursédation liée au COVID ?

- ✓ Risque de contamination ?
- ✓ Charge de travail ?
- ✓ Ratio IDE en sous effectif ?

NEUROLOGIC CRITICAL CARE

Association of Sedation, Coma, and In-Hospital Mortality in Mechanically Ventilated Patients With Coronavirus Disease 2019–Related Acute Respiratory Distress Syndrome: A Retrospective Cohort Study*

Karuna Wongtangman, MD[1,2]

Crit Care Med : September 2021

Reasons for the Overuse of Sedatives and Deep Sedation for Mechanically Ventilated Coronavirus Disease 2019 Patients

To the Editor:

Zhongxiang Xiao, MD
Leping Zhao, MD

We read with great interest the study by Wongtangman et al (1) published in a recent issue of *Critical Care Medicine*, which investigated the potential mediators of high mortality rate of coronavirus

The authors reply:

Karuna Wongtangman, MD[1,2]
Matthias Eikermann, MD, PhD[1]

We appreciate the comments by Xiao and Zhao (1) on our newly article published recently in *Critical Care Medicine* (2). Our group and others reported that patients with coronavirus disease 2019 (COVID-19)–induced acute respiratory distress syndrome (ARDS) received higher doses of hypnotics than patients with ARDS of other etiologies and experienced higher acute brain dysfunction (3, 4). Our study (2) adds the important information that overuse of sedatives increases the risk of prolonged coma, which increases the vulnerability to a fatal outcome.

Raisons pouvant expliquer la sursédation liée au COVID ?

- ✓ Risque de contamination
- ✓ Charge de travail
- ✓ Ratio IDE en sous effectif
- ✓ **Encéphalopathie COVID ?**

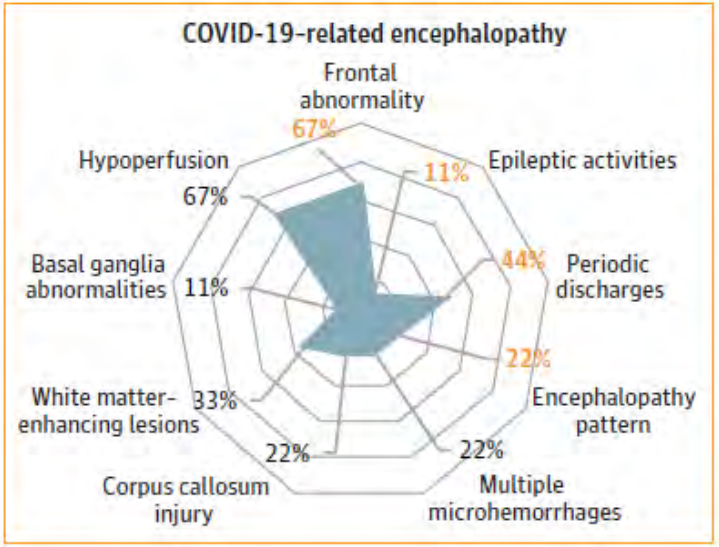
Spécifique, sans autre facteur d'encéphalopathie **chez 1%** des patients nécessitant une hospitalisation

JAMA Network | Open

Original Investigation | Infectious Diseases

Association of Clinical, Biological, and Brain Magnetic Resonance Imaging Findings With Electroencephalographic Findings for Patients With COVID-19

Virginie Lambrecq, MD, PhD; Aurélie Hanin, PharmD; Esteban Munoz-Musat, MD; Lydia Chougar, MD; Salimata Gassama, MD; Cécile Delorme, MD; Louis Cousyn, MD; Alaina Borden, MD; Maria Damiano, MD, PhD; Valerio Frazzini, MD, PhD; Gilles Huberfeld, MD, PhD; Frank Landgraf, MD; Vi-Huong Nguyen-Michel, MD; Phintip Pichit, MD; Aude Sangare, MD; Mario Chavez, PhD; Capucine Morélot-Panzini, MD, PhD; Elise Morawiec, MD; Mathieu Raux, MD, PhD; Charles-Edouard Luyt, MD, PhD; Pierre Rufat, MD; Damien Galanaud, MD, PhD; Jean-Christophe Corvol, MD, PhD; Catherine Lubetzki, MD, PhD; Benjamin Rohaut, MD, PhD; Sophie Demeret, MD; Nadya Pyatigorskaya, MD, PhD; Lionel Naccache, MD, PhD; Vincent Navarro, MD, PhD; for the Cohort COVID-19 Neurosciences (CoCo Neurosciences) Study Group



Raisons pouvant expliquer la sursédation liée au COVID ?

- ✓ Risque de contamination
- ✓ Charge de travail
- ✓ Ratio IDE en sous effectif
- ✓ **Encéphalopathie COVID ?**

Incidence Delirium en réa identique selon COVID+ ou - **facteur Top#1 = Sédation**

Neurology®
The most widely read and highly cited peer-reviewed neurology journal
The Official Journal of the American Academy of Neurology

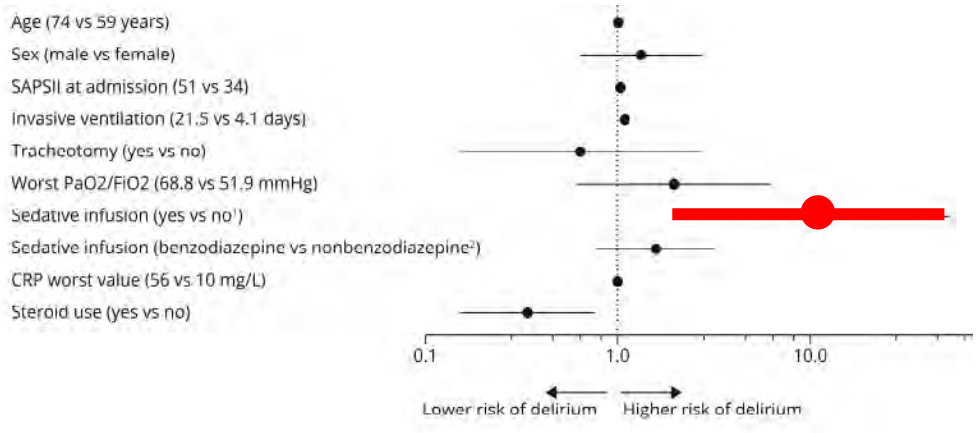
AMERICAN ACADEMY OF NEUROLOGY.

Neurology Publish Ahead of Print
DOI: 10.1212/WNL.0000000000201162

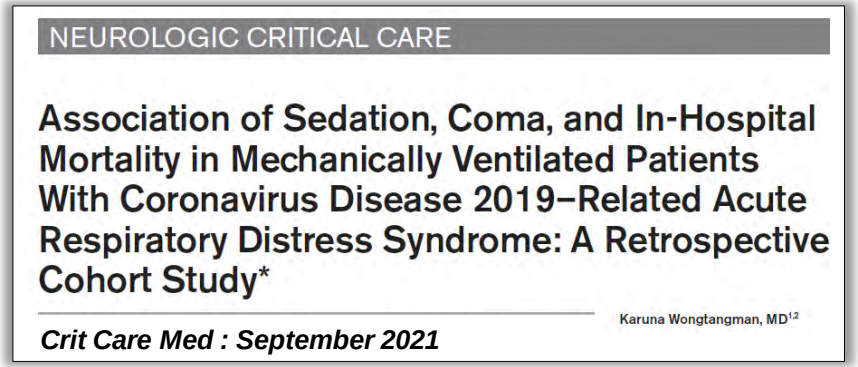
Delirium in Adults With COVID-19–related ARDS: Comparison With Other Etiologies

Author(s):
Raphael Bernard-Valnet, MD, PhD[1]; Eva Favre, RN, MScN[2]; Adriano Bernini, PhD[3]; Mauro Oddo, MD[4]; Jean-Daniel Chiche, MD, PhD[2]; Renaud A. Du Pasquier, MD[1]; Andrea Rossetti, MD, FAES[1] on behalf of CORO-NEURO-ICU study group

in press 2022



Raisons pouvant expliquer la sursédation liée au COVID ?



NEUROLOGIC CRITICAL CARE

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Karuna Wongtangman, MD[1,2]

Crit Care Med : September 2021

- ✓ Risque de contamination ?
- ✓ Charge de travail ?
- ✓ Ratio IDE en sous effectif ?
- ✓ Encéphalopathie COVID ?
- ✓ **Demande ventilatoire très élevée asynchronie patient/ventilateur ?**

Paramètres évalués :

PaO2/FiO2

Ventilation minute

pH

SOFA

Courbes du ventilateur?

Clinique?

Intensive Care Med (2020) 46:2342–2356
https://doi.org/10.1007/s00134-020-06307-9

REVIEW

Analgesia and sedation in patients with ARDS

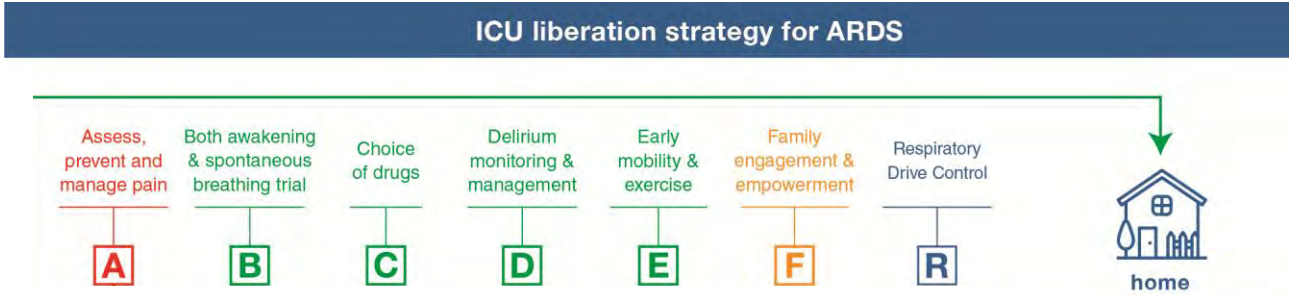
Gerald Chanques[1,2*], Jean-Michel Constantin[3], John W. Devlin[4,5], E. Wesley Ely[6,7,8], Gilles L. Fraser[9], Céline Gélinas[10], Timothy D. Girard[11], Claude Guérin[12,13], Matthieu Jabaudon[14,15], Samir Jaber[1,2], Sangeeta Mehta[16], Thomas Langer[17,18], Michael J. Murray[19], Pratik Pandharipande[20], Bhakti Patel[21], Jean-François Payen[22], Kathleen Puntillo[23], Bram Rochwerg[24], Yahya Shehabi[25,26], Thomas Strøm[27,28], Hanne Tanghus Olsen[27] and John P. Kress[21]

Analgesia and sedation

A2F-**R** bundle for patients with ARDS

Respiratory Drive Control

R



A2F-R bundle for patients with ARDS

Respiratory Drive Control

R

ICU liberation strategy for ARDS

- A — Assess, prevent and manage pain
- B — Both awakening & spontaneous breathing trial
- C — Choice of drugs
- D — Delirium monitoring & management
- E — Early mobility & exercise
- F — Family engagement & empowerment
- R — Respiratory Drive Control

home

Ventilator's factors

1 TOP PRIORITY

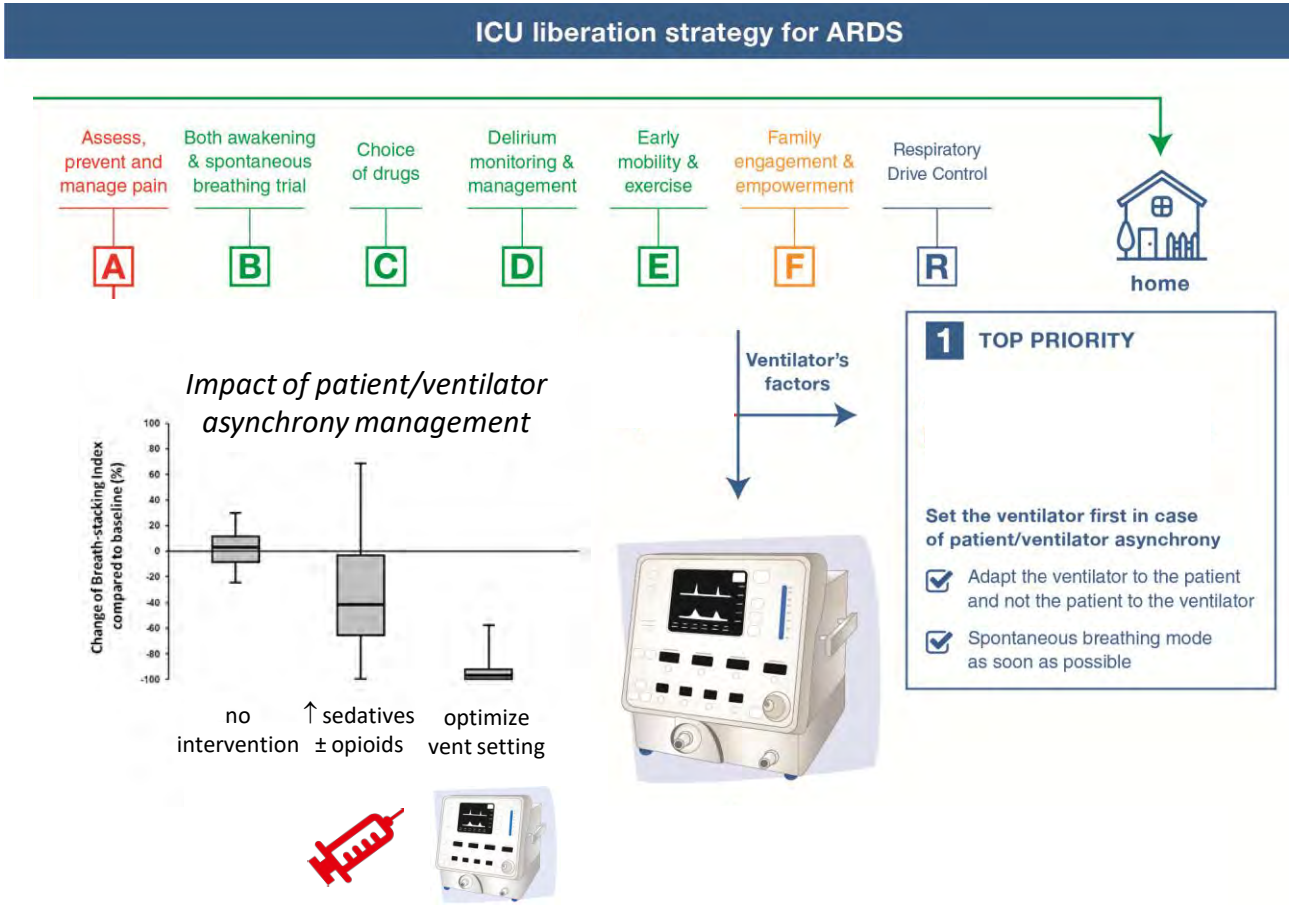
Set the ventilator first in case of patient/ventilator asynchrony

- ☑ Adapt the ventilator to the patient and not the patient to the ventilator
- ☑ Spontaneous breathing mode as soon as possible

A2F-R bundle for patients with ARDS

Respiratory Drive Control

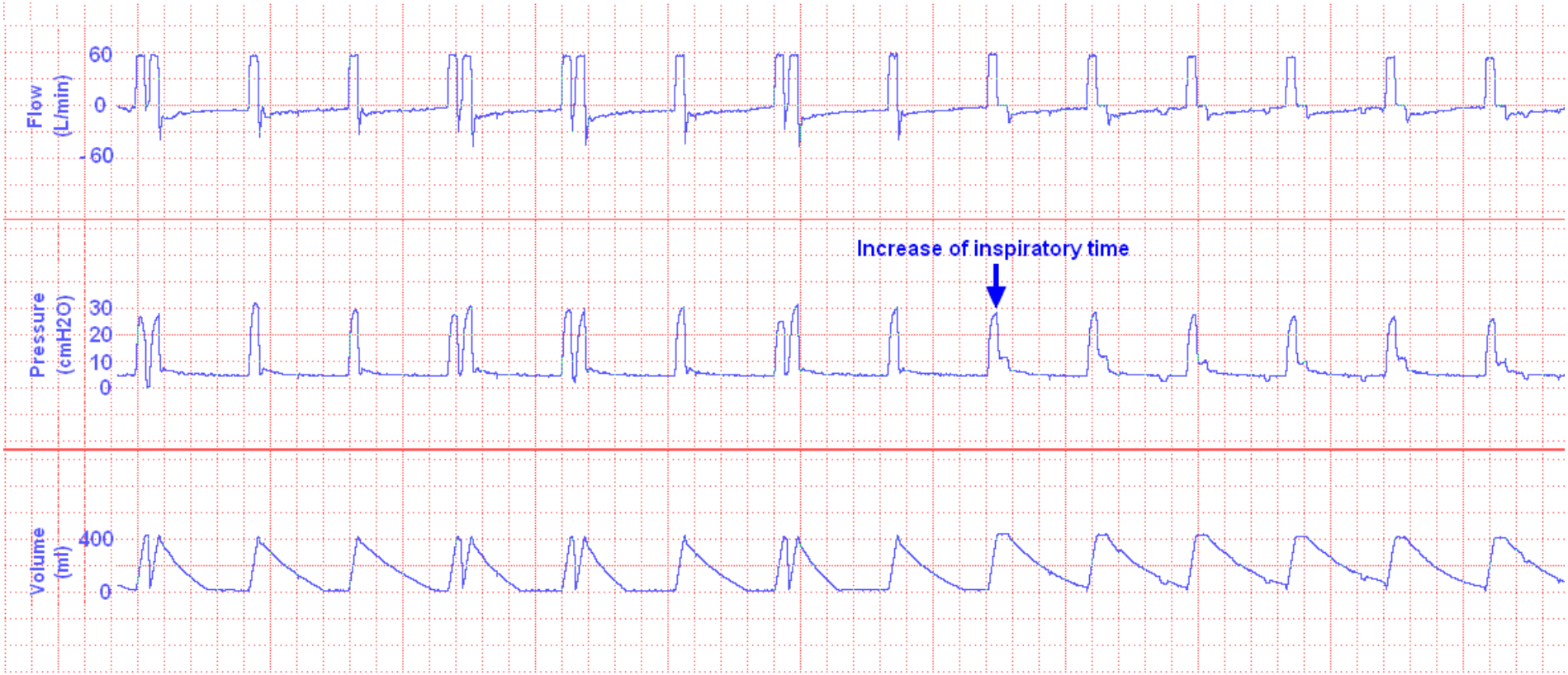
R



Chanques, Kress et al. CCM 2013

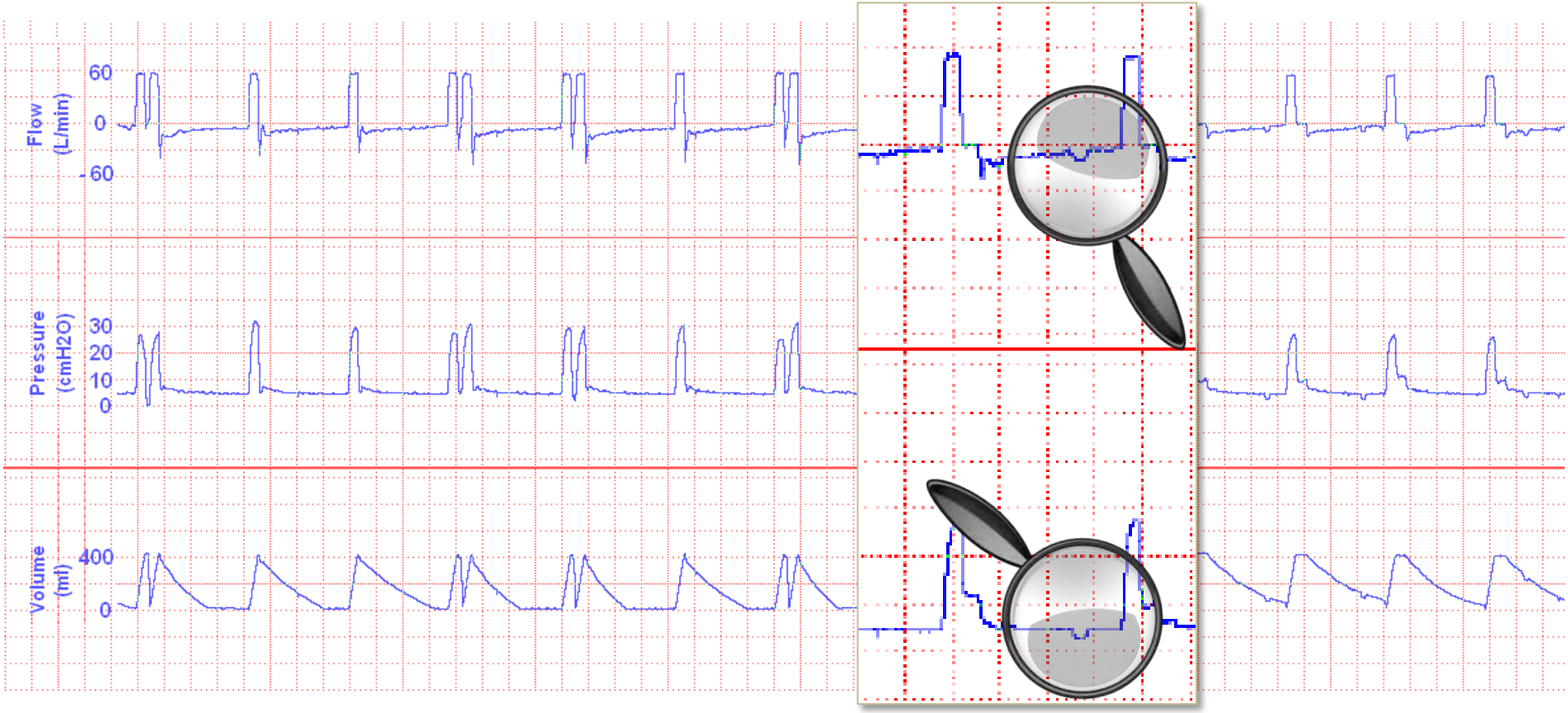
Double stacking asynchrony in ACV mode,
related to a short inspiratory time setting (0.5 sec)

Suppression of double stacking after ↑
inspiratory time setting up to 1.0 sec



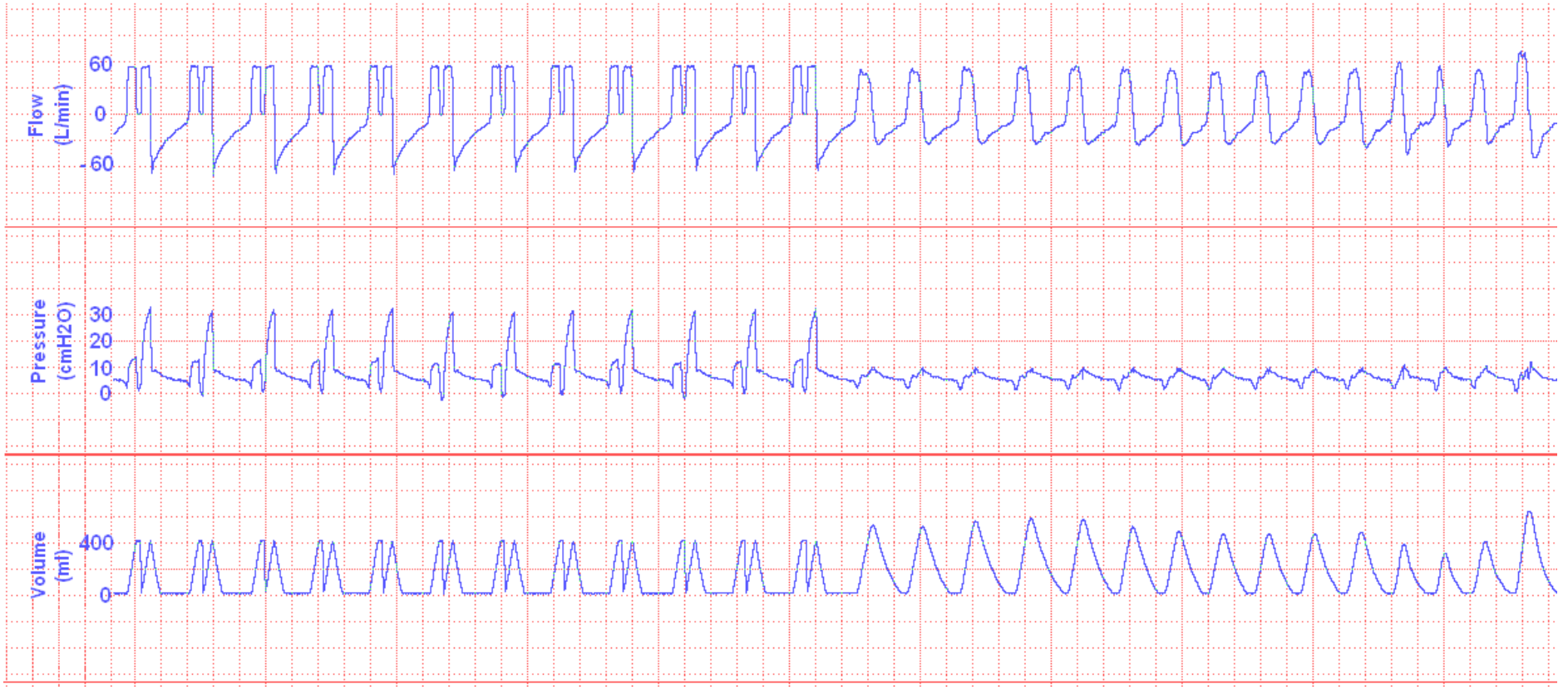
Double stacking asynchrony in ACV mode, related to a short inspiratory time setting (0.5 sec)

Undelivered breath (wasting effort) related to a low sensible inspiratory trigger



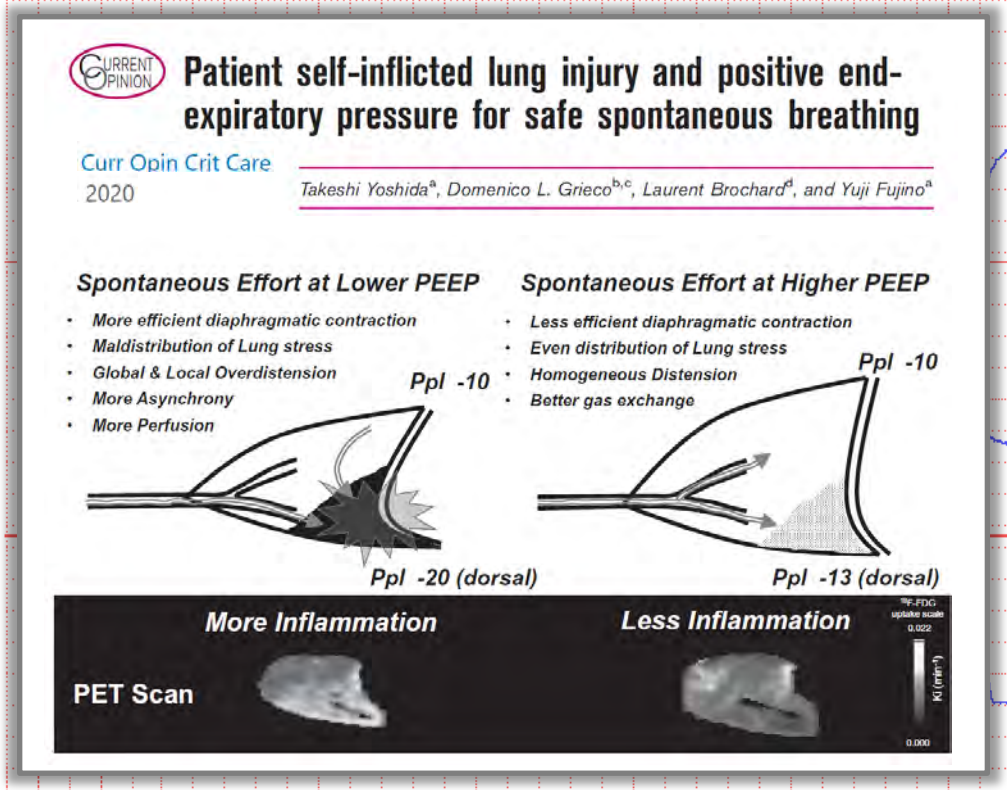
Double stacking asynchrony in ACV,
related to a high patient's respiratory drive

Suppression of double stacking after switching to
a spontaneous ventilation mode (VS-PEP, PSV)



Double stacking asynchrony related to a high patient's respiratory drive

Suppression of double stacking after switching to a spontaneous ventilation mode (VS-PEP, PSV)



CURRENT OPINION

Patient self-inflicted lung injury and positive end-expiratory pressure for safe spontaneous breathing

Curr Opin Crit Care
2020

Takeshi Yoshida[a], Domenico L. Grieco[b,c], Laurent Brochard[d], and Yuji Fujino[a]

Spontaneous Effort at Lower PEEP

- More efficient diaphragmatic contraction
- Maldistribution of Lung stress
- Global & Local Overdistension
- More Asynchrony
- More Perfusion

Ppl -10

Ppl -20 (dorsal)

Spontaneous Effort at Higher PEEP

- Less efficient diaphragmatic contraction
- Even distribution of Lung stress
- Homogeneous Distension
- Better gas exchange

Ppl -10

Ppl -13 (dorsal)

More Inflammation

Less Inflammation

PET Scan

Check persistent high patient's effort that may alter lungs and diaphragm (factors associated with ↑ transpulmonary pressures):

- ✓clinical exam (inspiratory efforts)
- ✓high P 0.1 (negative airway occlusion pressure at 0.1 sec)
- ✓high Tidal volumes / low PEEP
- ✓oesophageal pressure monitoring

High Respiratory Drive and Excessive Respiratory Efforts Predict Relapse of Respiratory Failure in Critically Ill Patients with COVID-19

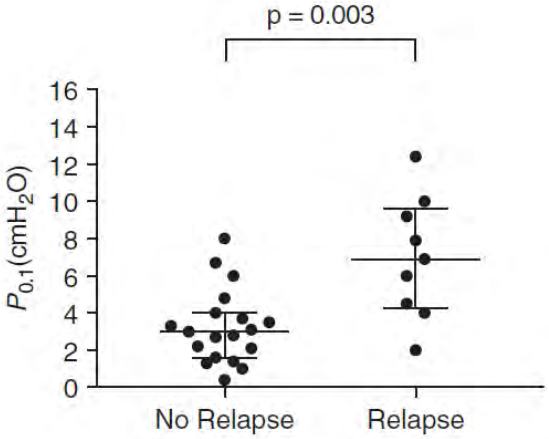
Am J Respir Crit Care Med 2020 Oct 15;202(8):1173-1178

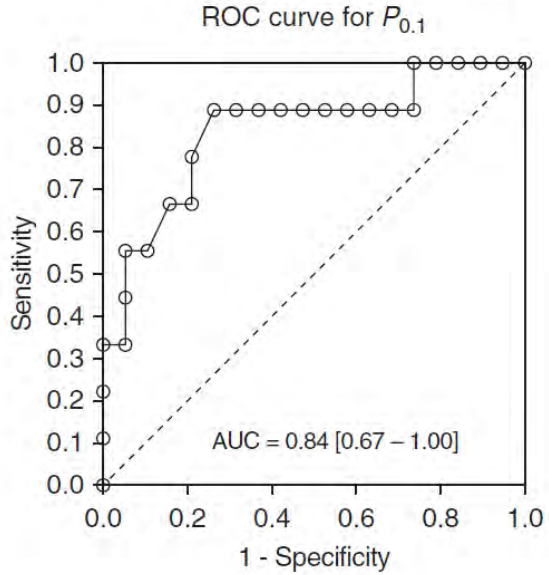
Pierre Esnault, Michael Cardinale, Sami Hraiech, Philippe Goutorbe, Karine Baumstrack, Eloi Prud'homme, Julien Bordes, Jean-Marie Forel, Eric Meaudre, Laurent Papazian, Christophe Guervilly

P0.1 ≥ 4 cmH2O au passage en VS

Risque de dégradation respiratoire
= 8/13 (62%) [*vs.* 1/15 (7%) si < 4 cmH2O]

Sensibilité 89%
Spécificité 74%
VPP 62%
VPN 93%

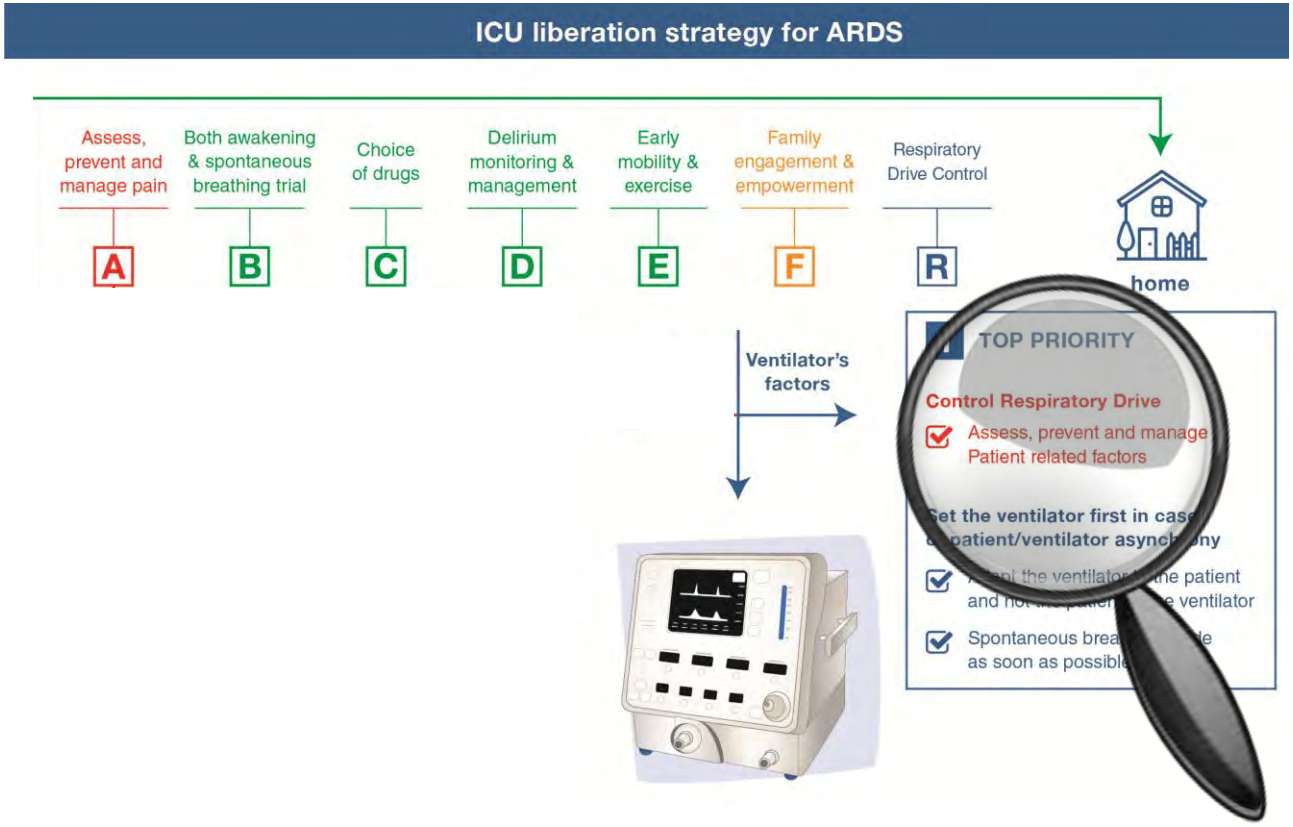




A2F-R bundle for patients with ARDS

Respiratory Drive Control

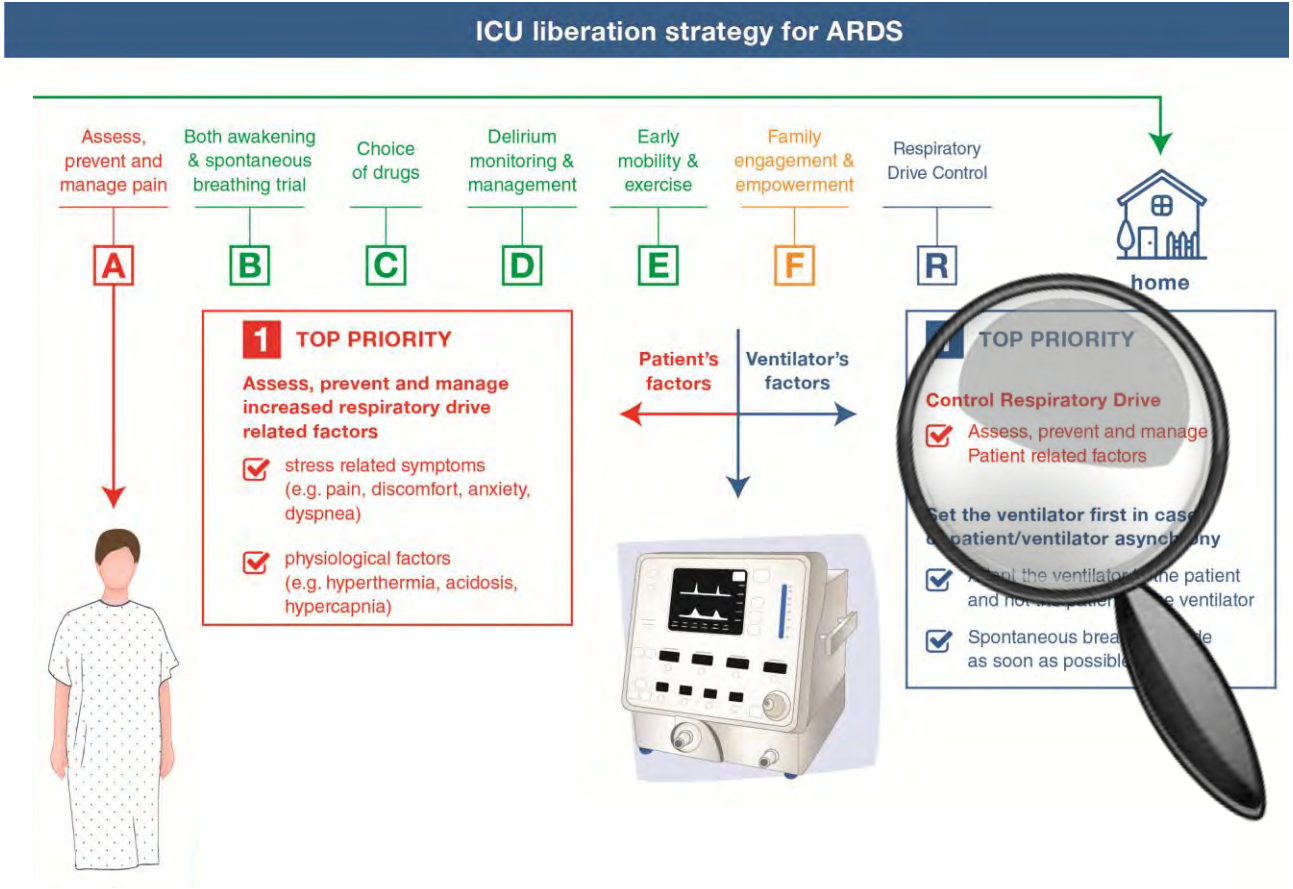
R



A2F-R bundle for patients with ARDS

Respiratory Drive Control

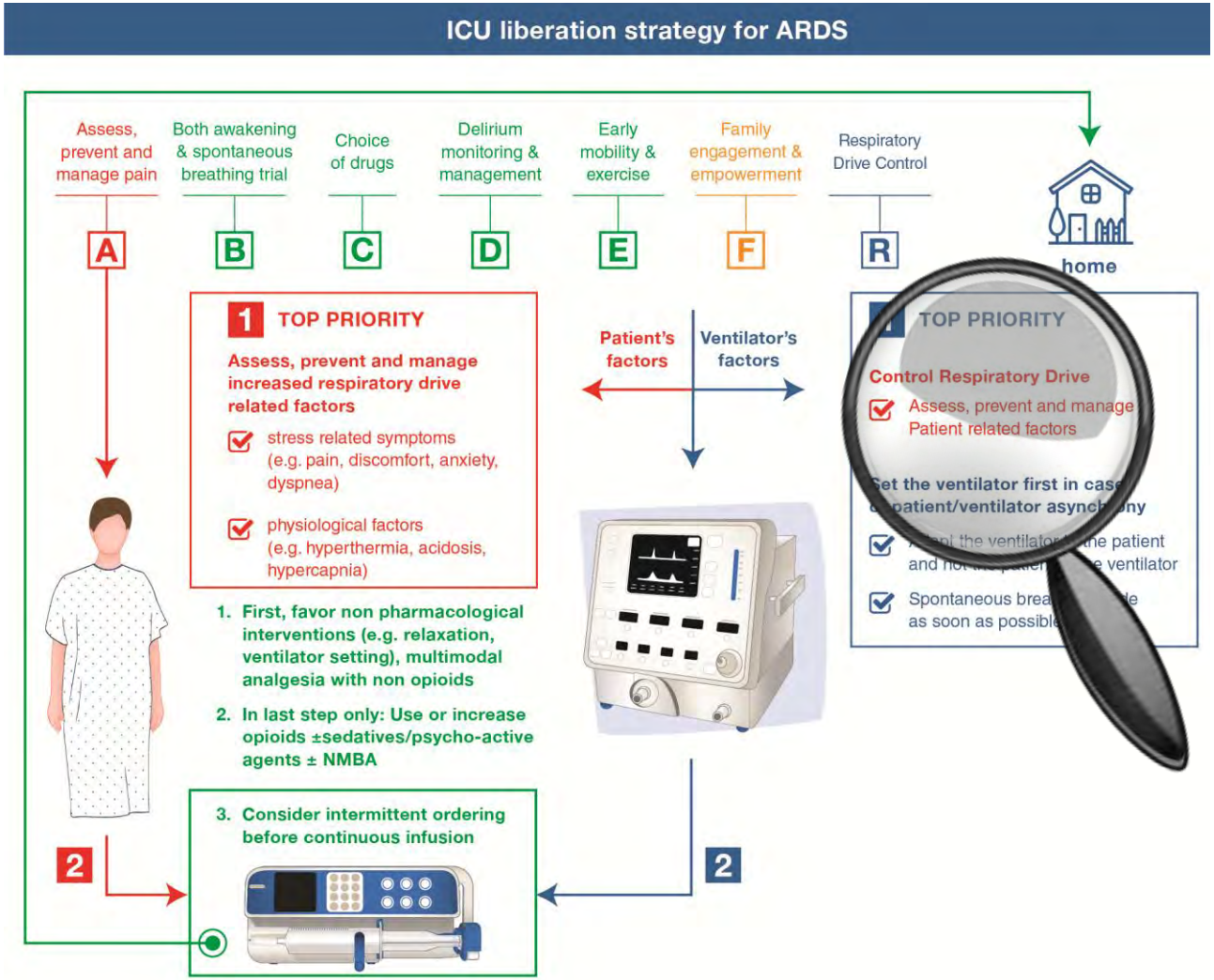
R



A2F-R bundle for patients with ARDS

Respiratory Drive Control

R



Raisons pouvant expliquer la sursédation liée au COVID ?

- ✓ Risque de contamination ?
- ✓ Charge de travail ?
- ✓ Ratio IDE en sous effectif ?
- ✓ Encéphalopathie COVID ?
- ✓ Demande ventilatoire très élevée asynchronie patient/ventilateur ?
- ✓ **Interactions pharmacologiques ?**

PHARMA-FLASH
ISSN 0378-7958
Volume 29, N°4, 2002

Interactions médicamenteuses et cytochromes P450

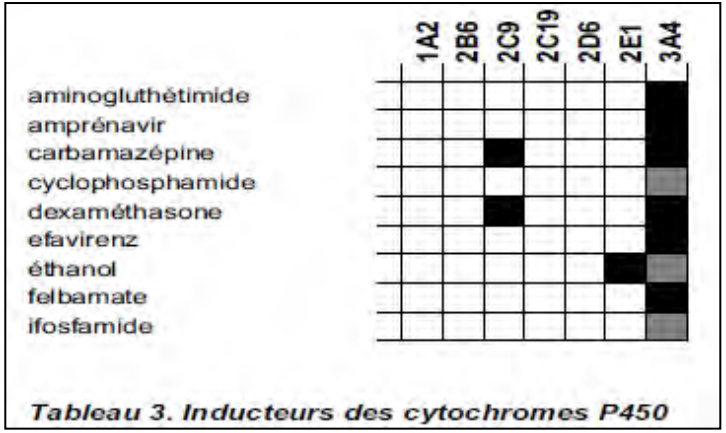


Tableau 3. Inducteurs des cytochromes P450

Raisons pouvant expliquer la sursédation liée au COVID ?

PHARMA-FLASH
ISSN 0378-7958
Volume 29, N°4, 2002

Interactions médicamenteuses et cytochromes P450

- ✓ Risque de contamination ?
- ✓ Charge de travail ?
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- ✓ Encéphalopathie COVID ?
- ✓ Demande ventilatoire très élevée
  asynchronie patient/ventilateur ?
- ✓ **Interactions pharmacologiques ?**

Substrats du 3A4

midazolam
fentanyl
sufentanil
alfentanil

→ **Dexa** ↑ leur métabolisme

↓ **aussi l'action du rocuronium**

Review Article

Common anti-COVID-19 drugs and their anticipated interaction with anesthetic agents

Shagun B. Shah, Uma Hariharan[1], Rajiv Chawla

Rajiv Gandhi Cancer Institute and Research Centre, Sector-5, Rohini, [1]Dr. Ram Manohar Lohia Hospital and PGIMER, CHS, New Delhi, India

Inducteur du cytochrome P450

Tocilizumab

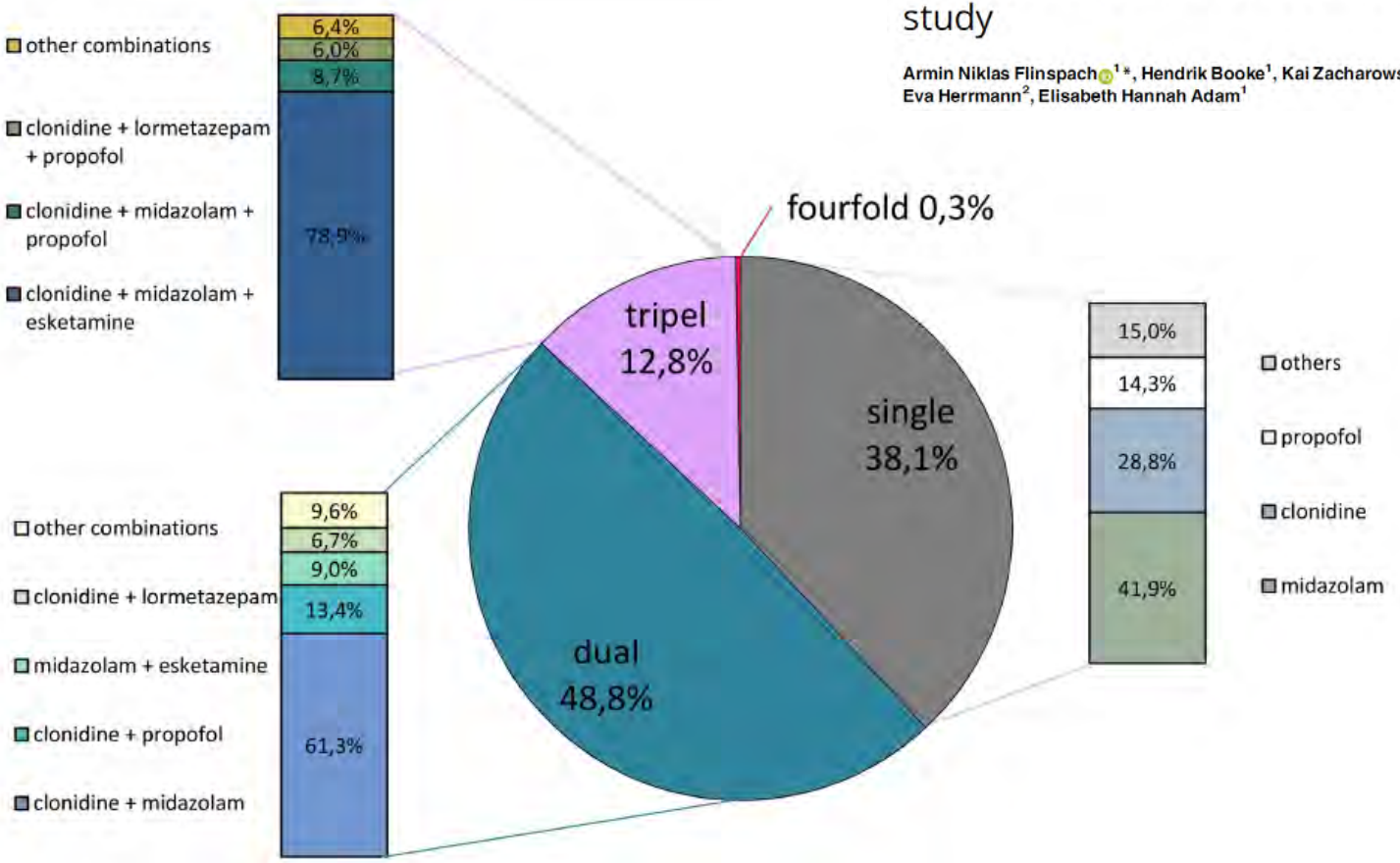
From an anesthesiologist's perspective reduced blood levels of opioids (fentanyl, sufentanil, methadone, naltrexone, oxycodone), lignocaine, and sedative-hypnotics (diazepam, midazolam, alprazolam, clonazepam, triazolam, mephobarbital)[70,71] due to tocilizumab co-administration may hamper intra- and postoperative analgesia and ICU-sedation.

PLOS ONE

RESEARCH ARTICLE

High sedation needs of critically ill COVID-19 ARDS patients—A monocentric observational study

Armin Niklas Flinspach[1]*, Hendrik Booke[1], Kai Zacharowski[1], Ümniye Balaban[2], Eva Herrmann[2], Elisabeth Hannah Adam[1]



Les cosédatifs ?

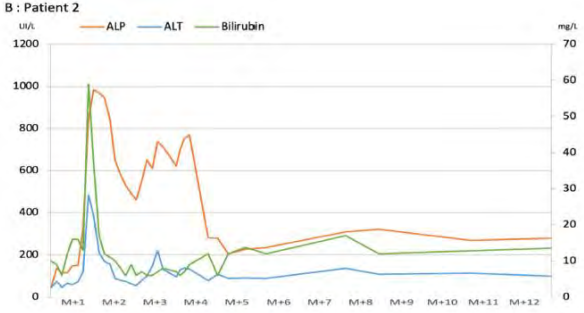
Cholangitis in three critically ill patients after a severe CoVID-19 infection

Cyrille Gourjault[a,*,1], Hassan Tarhini[a,*,1], Mayda Rahi[a], Michael Thy[a], Diane Le Pluart[a], Christophe Rioux[a], Marion Parisey[c], Sophie Ismael[a], Ali al rida Aidibi[d], Valerie Paradis[e,f], Jade Ghosn[a,b], Yazdan Yazdanpanah[a,b], François-Xavier Lescure[a,b], Anne Gervais[a]

Kétamine
(eskétamine?)

Main characteristics of patients presenting with cholangitis post Covid-19 infection.

	Patient 1	Patient 2	Patient 3
Ketamine (grams)	25	27	6
ASAT (UI/L)	55	58	118
ALAT (UI/L)	23	44	39
GGT (UI/L)	48	62	25
ALP (UI/L)	80	41	31
Bilirubin (µmol/L)	18	10	21
LDH (UI/L)	630	695	5 260
ICU stay Period (days)	23	52	74



ACCPM 2018

Low doses of ketamine reduce delirium but not opiate consumption in mechanically ventilated and sedated ICU patients: A randomised double-blind control trial

Sebastien Perbet [a,b], Franck Verdonk [c,d], Thomas Godet [a,b], Matthieu Jabaudon [a,b], Christian Chartier [a], Sophie Cayot [a], Renaud Guerin [a], Dominique Morand [a], Jean-Etienne Bazin [a], Emmanuel Futier [a,b], Bruno Pereira [e], Jean-Michel Constantin [a,b,*]

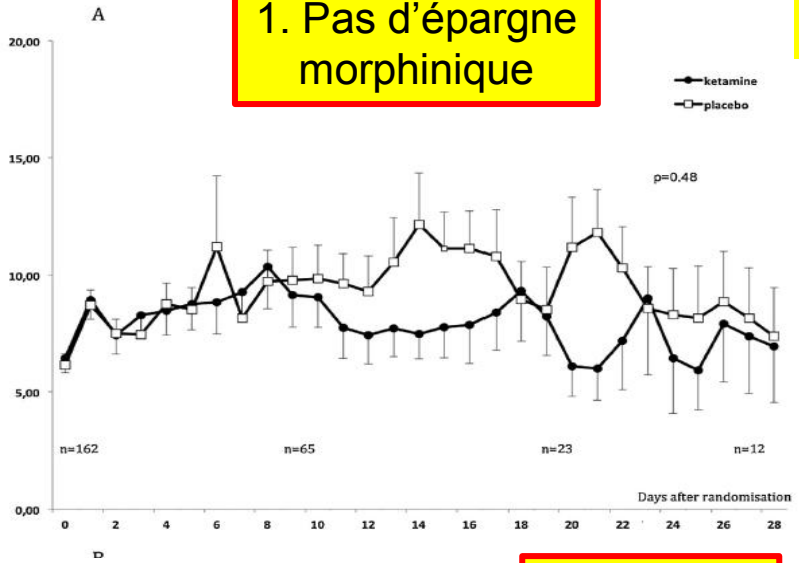
Protocole d'analgosédation ciblé sur BPS (poso mini efficace)

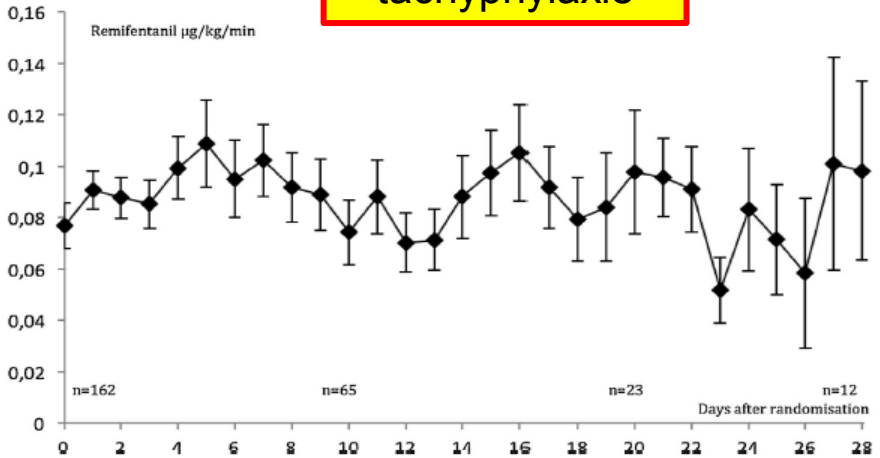
1. Pas d'épargne morphinique

mais…

2. Pas de tachyphylaxie

Dose de remifenta





Jours de réa →

Jours de réa →

NEUROLEPTANALGÉSIE

Anglais : neuroleptanalgesia

Espagnol : neuroleptanalgesia

Étymologie : grec νεῦρον *neûron* nerf, ληπτικός *lêptikós* qui prend ou reçoit volontiers, ἀν *an* an– privatif et ἄλγος *álgos* souffrance, douleur physique

n. f. Anesthésie générale obtenue en combinant l'action sédative d'un neuroleptique (type dropéridol ou chlorpromazine) et l'action antalgique d'un analgésique central (type morphinique). Permet d'obtenir des conditions d'indifférence au milieu et à la douleur, permettant de pratiquer des interventions chirurgicales avec un niveau d'anesthésie dite subconsciente (sans anesthésie générale profonde).

On peut y adjoindre un hypnotique (type barbiturique, benzodiazépine ou protoxyde d'azote) reproduisant ainsi le « cocktail lytique » décrit par H. Laborit et P. Huguenard dans la pratique de l'hibernothérapie.

Dernière modification de cette page le 02 mars 2017

Académie nationale de Pharmacie
Santé Publique - Médicament - Produits de santé - Biologie - Santé et environnement

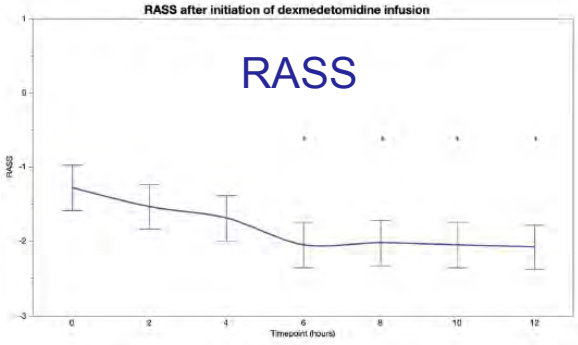
RESEARCH ARTICLE

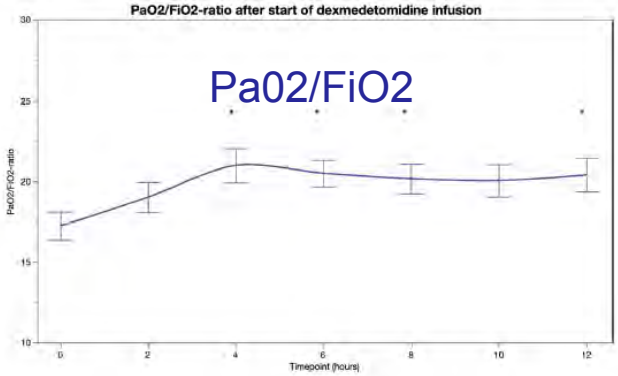
acta Anaesthesiologica Scandinavica

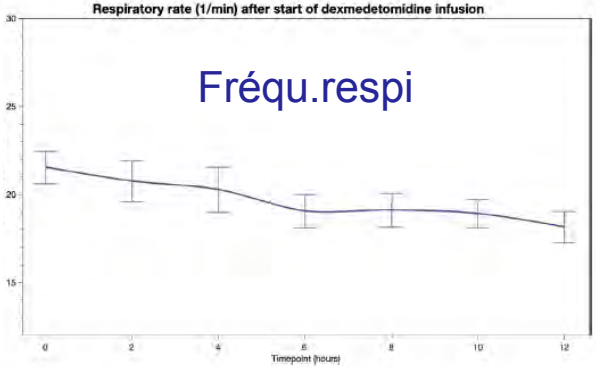
Hemodynamic and respiratory effects of dexmedetomidine sedation in critically ill Covid-19 patients: A retrospective cohort study

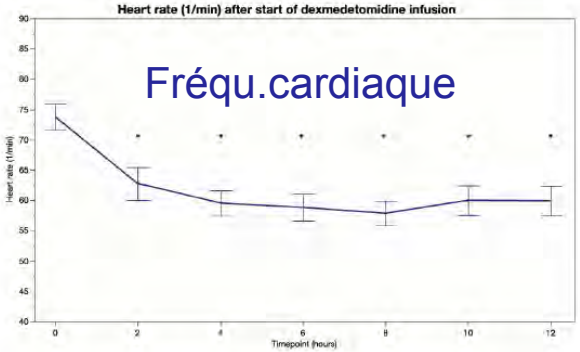
Panu Uusalo[1,2] | Mika Valtonen[1,2] | Mikko J. Järvisalo[1,2]

n=39









The NEW ENGLAND JOURNAL of MEDICINE

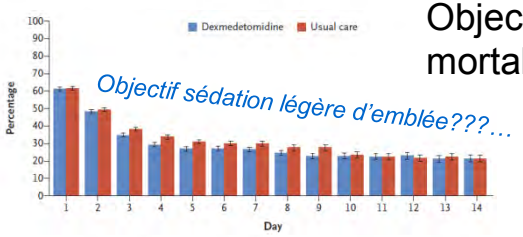
2019
spice3

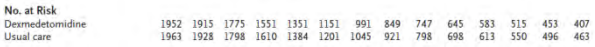
ORIGINAL ARTICLE

Early Sedation with Dexmedetomidine in Critically Ill Patients

Y. Shehabi, B.D. Howe, R. Bellomo, Y.M. Arabi, M. Bailey, F.E. Bass, S. Bin Kadiman, C.J. McArthur, L. Murray, M.C. Reade, I.M. Seppelt, J. Takala, M.P. Wise, and S.A. Webb

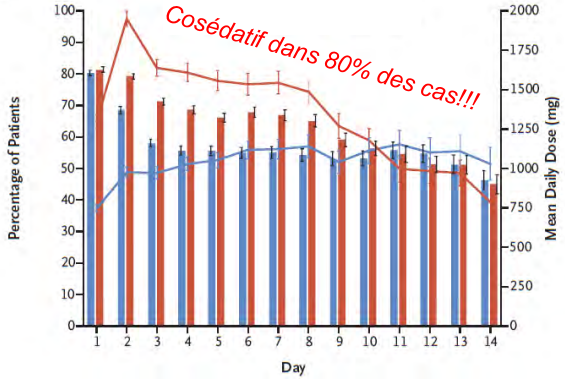
Sédation Profonde (%)
>50%
J1-J2





Objectif 1 : mortalité J90

Propofol



The NEW ENGLAND JOURNAL of MEDICINE

2021
mends2

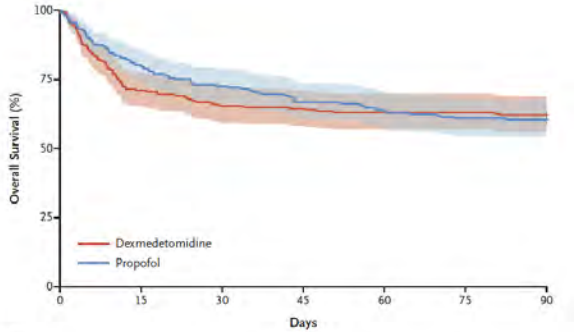
ORIGINAL ARTICLE

Dexmedetomidine or Propofol for Sedation in Mechanically Ventilated Adults with Sepsis

C.G. Hughes, P.T. Mailloux, J.W. Devlin, J.T. Swan, R.D. Sanders, A. Anzueto, J.C. Jackson, A.S. Hoskins, B.T. Pun, O.M. Orun, R. Raman, J.L. Stollings, A.L. Kiehl, M.S. Duprey, L.N. Bui, H.R. O'Neal, Jr., A. Snyder, M.A. Gropper, K.K. Guntupalli, G.J. Stashenko, M.B. Patel, N.E. Brummel, T.D. Girard, R.S. Dittus, G.R. Bernard, E.W. Ely, and P.P. Pandharipande, for the MENDS2 Study Investigators*

Objectif sédation légère RASS -2 = OK

Objectif 1 : J sans coma ni delirium à J14
Objectif 2 : mortalité J90…



ICM 2022

ICM RAPID PRACTICE GUIDELINES

Use of dexmedetomidine for sedation in mechanically ventilated adult ICU patients: a rapid practice guideline

Morten H. Møller[1*], Waleed Alhazzani[2,3], Kimberley Lewis[2], Emilie Belley-Cote[4], Anders Granholm[1], John Centofanti[5], William B. McIntyre[6,7], Jessica Spence[3,8], Zainab Al Duhailib[9], Dale M. Needham[10], Laura Evans[11], Annika Reintam Blaser[12,13], Margaret A. Pisani[14], Frederick D'Aragon[15,16], Manu Shankar-Hari[17], Mohammed Alshahrani[18], Giuseppe Citerio[19], Rakesh C. Arora[20], Sangeeta Mehta[21], Timothy D. Girard[22], Otavio T. Ranzani[23,24], Naomi Hammond[25,26], John W. Devlin[27,28], Yahya Shehabi[29,30], Pratik Pandharipande[31] and Marlies Ostermann[32]

DEX 1ère intention si les bénéfices à réduire le delirium sont > EIM hémodynamiques

RECOMMENDATION

In invasively mechanically ventilated adult ICU patients, we **suggest** using dexmedetomidine over other sedative agents, if the desirable effects including a reduction in delirium are valued over the undesirable effects including an increase in hypotension and bradycardia

KEY PRACTICAL ISSUES

- Use of dexmedetomidine should be based on an assessment of the **balance between the desirable and undesirable effects**, the **available resources**, and the **clinical context**.
- **Continuous cardiovascular monitoring** is imperative, and health care professionals caring for these patients should be **well-trained** and familiar with the treatment of common cardiovascular adverse events, including bradycardia and hypotension.
- Use of dexmedetomidine may be associated with **cost savings** in some settings.
- Long-term physical, cognitive and mental health outcomes, generalisability to low resource settings, preventive vs. therapeutic use of dexmedetomidine, and identification of the specific subgroups of patients who may or may not benefit from sedation with dexmedetomidine were identified as **research priorities**.

POPULATION

INCLUSION CRITERIA
- Adults
- Invasive mechanical ventilation
- ICU setting

EXCLUSION CRITERIA
- Children
- Non-invasive mechanical ventilation

INTERVENTION

Sedation with intravenous (IV) **dexmedetomidine** in any dose and for any duration

COMPARATOR

Other forms of pharmacological sedation (propofol, benzodiazepines, or opioids), usual care, or placebo.

DEXMEDETOMIDINE VS OTHER SEDATIVE AGENTS

OUTCOME	DEXMEDETOMIDINE (events)	EVENTS PER 1000 PEOPLE / MEAN DIFFERENCE	OTHER SEDATIVE AGENTS (events)	CERTAINTY OF EVIDENCE
DELIRIUM	1138	108 FEWER	1294	MODERATE
MORTALITY	1014	0 FEWER	998	HIGH
DURATION OF MECHANICAL VENTILATION (HOURS)	-	1.8 FEWER	-	MODERATE
BRADYCARDIA	522	55 MORE	176	MODERATE
HYPOTENSION	775	38 MORE	547	LOW
SELF-EXTUBATION	106	11 MORE	97	MODERATE
ADVERSE EVENTS	634	33 MORE	413	LOW
ICU LENGTH OF STAY (DAYS)	-	0.3 FEWER	-	LOW

Article Spécial

Devlin et al. Crit Care Med 2018
Recommandations PADIS
(Pain Agitation Delirium Immobility & Sleep disruption) SCCM 2018
Traduction/endossement SFAR/SRLF 2020

Résumé cadre : Recommandations de Pratiques Cliniques pour la Prévention et la Gestion de la Douleur, de l'Agitation/Sédation, de la Confusion Mentale, de l'Immobilité, et des Altérations du Sommeil chez les Patients Adultes en Soins Critiques.

Est-ce que la dexmedetomidine, lorsque comparée au propofol, doit être utilisée pour la sédation chez les patients adultes intubés ventilés en réanimation?

Recommandation : Nous suggérons d'utiliser **soit le propofol, soit la dexmédétomidine** plutôt que les benzodiazépines pour la sédation des patients adultes intubés ventilés en réanimation (recommandation conditionnelle, qualité de preuve faible).

Impact :

- durée de sevrage ventilatoire (ppf, dex versus bzd)
- delirium (dex versus bzd)

Choisir les médicaments : *hypnotiques (ou sédatifs)*

Hypnotiques de 1ère intention

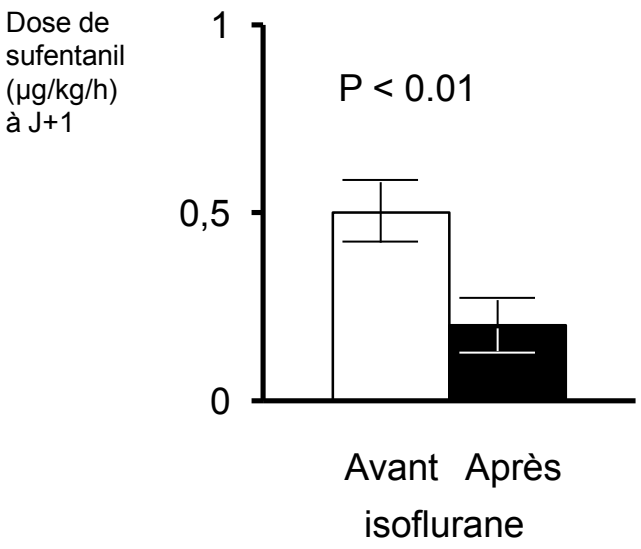
	Midazolam	Propofol	Dexmédétomidine
Avantages	• La meilleure stabilité hémodynamique • Facilité d'administration (bolus, titration, IVSE)	• Sédation « on/off » si courte durée • Facilité d'administration (bolus, titration, IVSE)	• Maintien communication (moins de delirium?) • Coanalgésique??
2de intention ou si choc instable			
Risques	• Retard de réveil • Retard extubation • Delirium • Le + amnésiant…	• Hypertriglycéridémie (solution 1%>2%) • Contamination de la solution • Hypotension • Syndrome de perfusion du ppf (PRIS)	• Maniement délicat (dose de charge déconseillée) • Bradycardie • Hypotension (puis HyperTA) • Pas si ins. hépatique (NB : clonidine pas si ins. rénale)

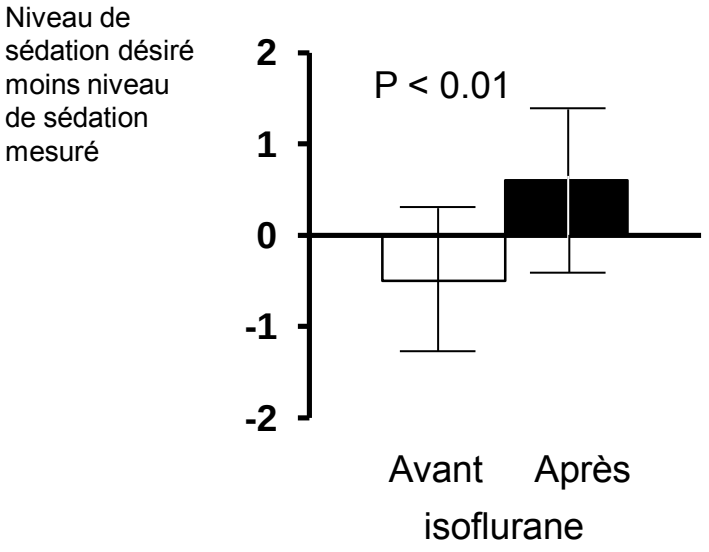
Les halogénés ?

Les gaz halogénés sont très efficaces

↘ besoins opioïdes

↗ profondeur de sédation





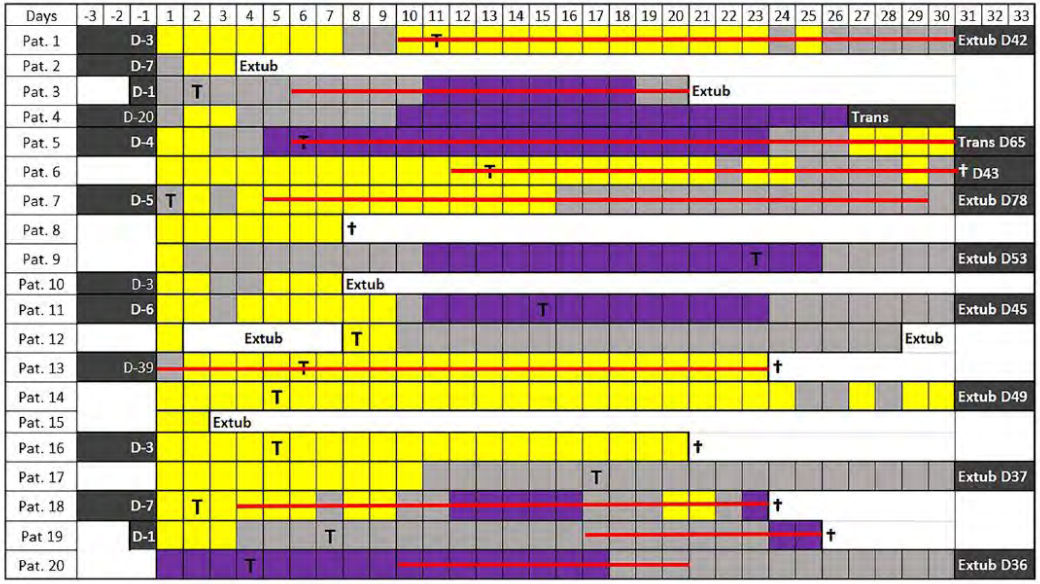
L'Her et al. Resp Care 2008

Journal of Anesthesia (2021) 35:625–632
https://doi.org/10.1007/s00540-021-02960-6

ORIGINAL ARTICLE

Comparison of isoflurane and propofol sedation in critically ill COVID-19 patients—a retrospective chart review

Azzeddine Kermad[1] · Jacques Speltz[1] · Guy Danziger[2] · Thilo Mertke[1] · Robert Bals[2] · Thomas Volk[1] · Philipp M. Lepper[2] · Andreas Meiser[1]



Isoflurane
7 patients sur 20
↓ polysédation
↓ dose opioïdes
↓ recours aux curares

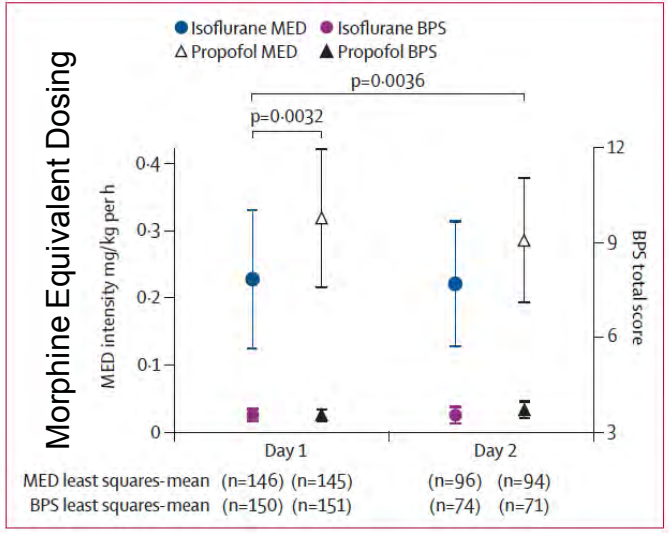
Lancet Respir Med 2021

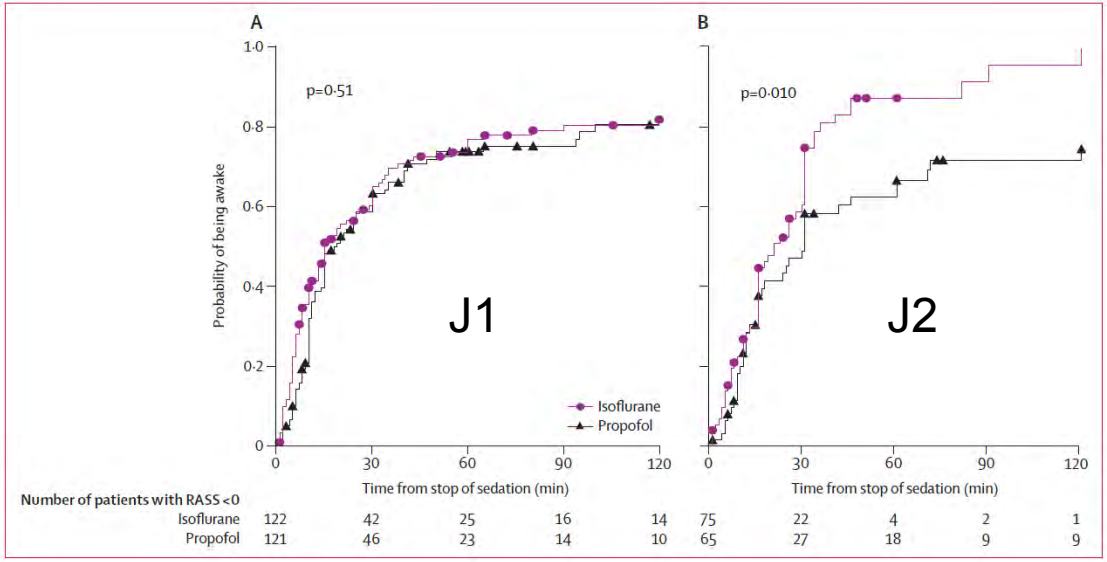
Inhaled isoflurane via the anaesthetic conserving device versus propofol for sedation of invasively ventilated patients in intensive care units in Germany and Slovenia: an open-label, phase 3, randomised controlled, non-inferiority trial

Andreas Meiser, Thomas Volk, Jan Wallenborn, Ulf Guenther, Tobias Becher, Hendrik Bracht, Konrad Schwarzkopf, Rihard Knafelj, Andreas Faltlhauser, Serge C Thal, Jens Soukup, Patrick Kellner, Matthias Drüner, Heike Vogelsang, Martin Bellgardt*, Peter Sackey*, on behalf of the Sedaconda study group

Étude de non infériorité
objectif = être dans la cible
de sédation RASS -1 à -4

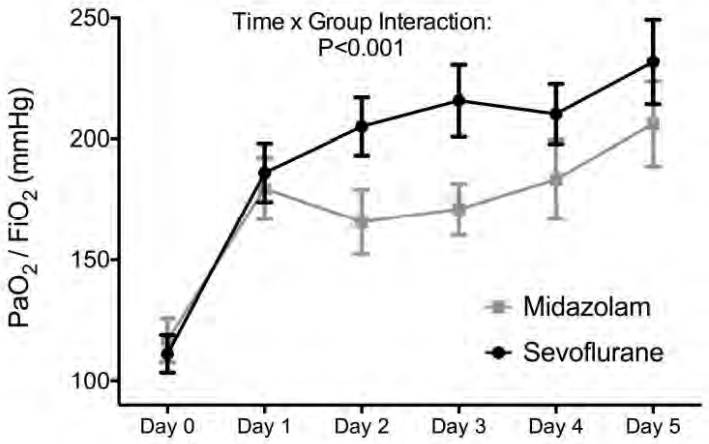
mais… épargne morphinique
Ventil.spont. + fréquente dès J1
et réveil + rapide dès J2



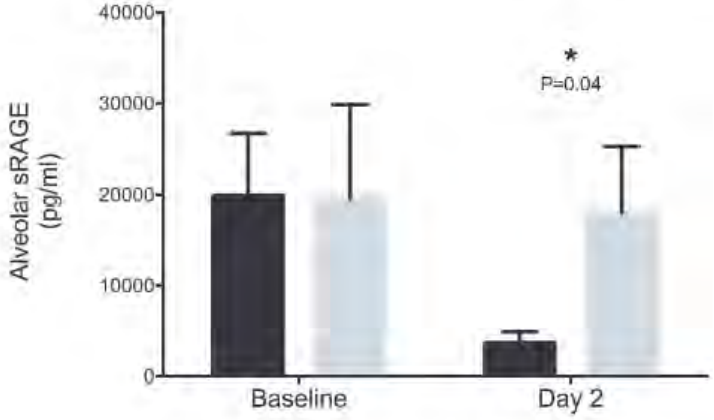


Les gaz halogénés pourraient être indiqués en cas de SDRA

↗ échanges gazeux

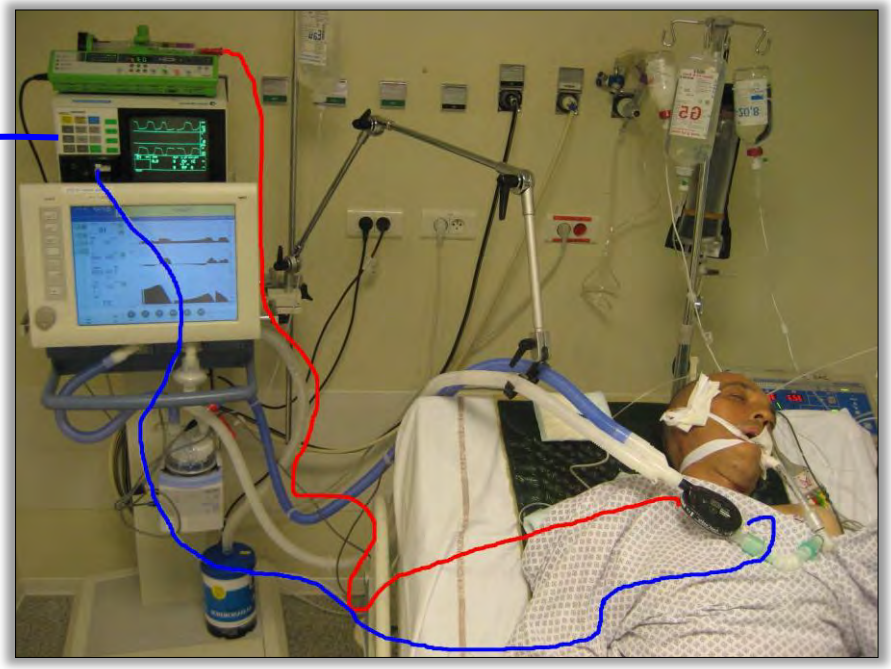


↘ lésions pulmonaires



Essai multicentrique en cours :
EudraCT 2018-000763-83 (Sésar)

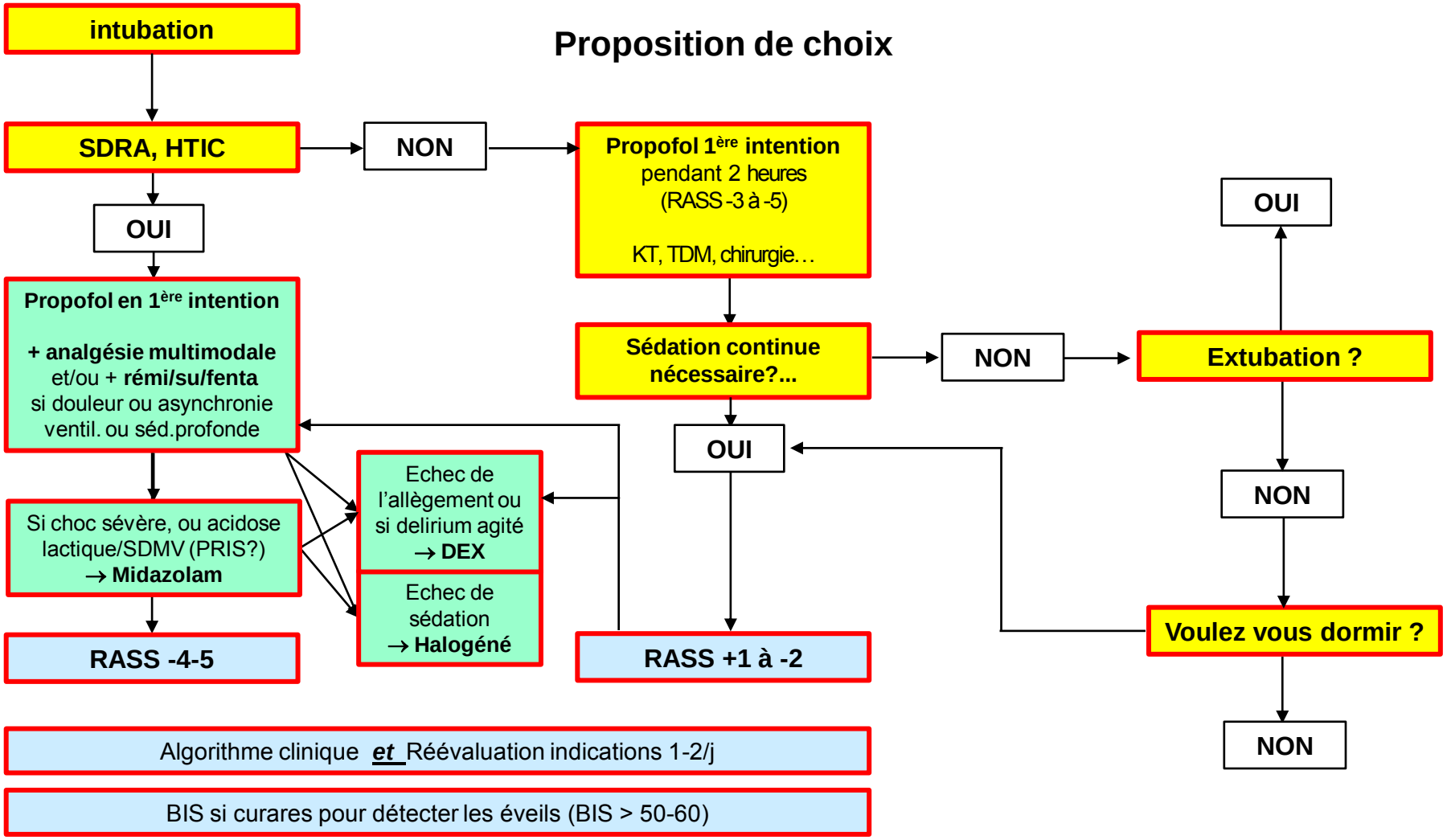
Jabaudon et al. Am J Crit Care Med 2017



SDRA COVID-19 : assurer une étanchéïté parfaite entre la sortie de l'analyseur de gaz et sa connection avant le filtre expiratoire antimicrobien du ventilateur

Conclusion

Proposition de choix



Le choix du patient

intubation

SDRA, HTIC → NON → **Propofol 1ère intention** pendant 2 heures (RASS -3 à -5)

KT, TDM, chirurgie…

Sédation continue nécessaire?... → NON → **Extubation ?** → NON

Voulez vous dormir ?

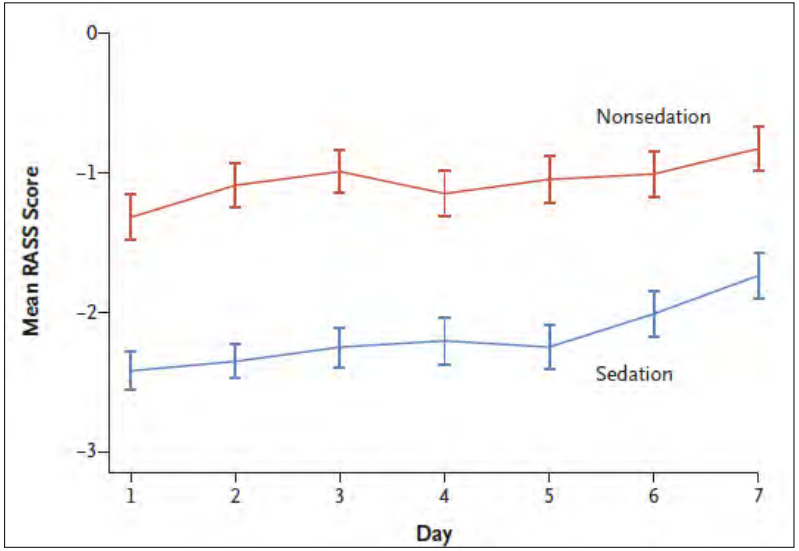
2020

The NEW ENGLAND JOURNAL of MEDICINE

Nonsedation or Light Sedation in Critically Ill, Mechanically Ventilated Patients

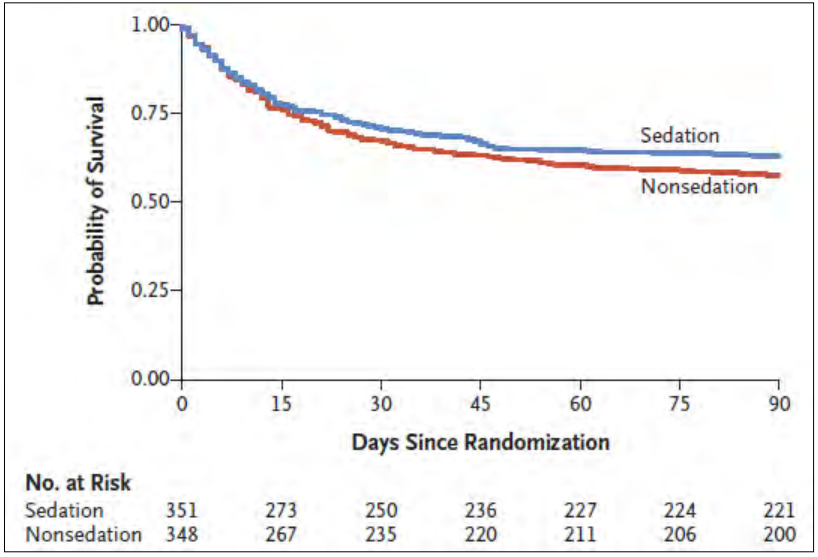
Hanne T. Olsen, M.D., Helene K. Nedergaard, M.D., Ph.D., Thomas Strøm, M.D., Ph.D., Jakob Oxlund, M.D., Karl-Andre Wian, M.D., Lars M. Ytrebø, M.D., Ph.D., Bjørn A. Kroken, M.D., Michelle Chew, M.D., Ph.D., Serkan Korkmaz, Jørgen T. Lauridsen, M.Sc., and Palle Toft, M.D., D.M.Sc.

Analgésie seule versus sédation légère : pas de différence notable d'outcome



morphine si besoin

idem
+ ppf 48h
mdz après arrêt quotidien



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2022

Critical Care

RESEARCH Open Access

Discomfort improvement for critically ill patients using electronic relaxation devices: results of the cross-over randomized controlled

- 60 patients
- 62 ans
- Inclus à J3 de réa
- DDS = 8 jours

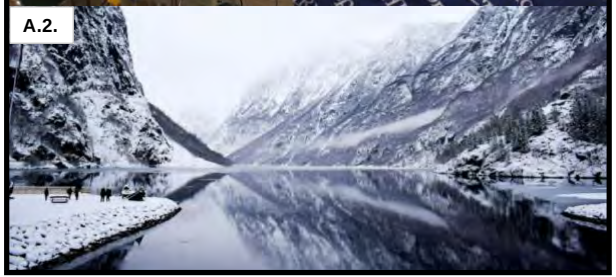
Symptôme	EN 0-10 médiane
Inconfort global	**4**
Douleur	*2*
Dyspnée	*2*
Anxiété	*3*
Manque de repos	*5*
Soif	*6*

FIGURE 1

Example of virtual reality's world

A.1.

A.2.



B.1.

B.2.

Analyse multivariée *(comparaison de chaque dispositif par rapport au standard)*

Outcome principal : variation de l'**inconfort global** — VR images de synthèse

Outcomes secondaires : variation de :

exploratoires

Top 5 des symptômes de souffrance en réa

- **douleur** — VR images de synthèse
- **anxiété** — VR images réelles — VR images de synthèse
- **manque repos** — VR images réelles
- **dyspnée** — Musicothérapie p=0.057
- **soif** — Rien…?

Fig 1 - Example of virtual reality's world


tic tac
menthe
extra fraîche