AP-HP.
Hôpitaux universitaires
Henri-Mondor

MOOC
EIVASION

CARMAS

IMRB INSTITUT MONDOR
DE RECHERCHE
BIOMÉDICALE

UNIVERSITÉ
PARIS-EST
CRÉTEIL
VAL DE MARNE
UPEC

NAVA
Neurally Adjusted Ventilatory Assist

Guillaume Carteaux

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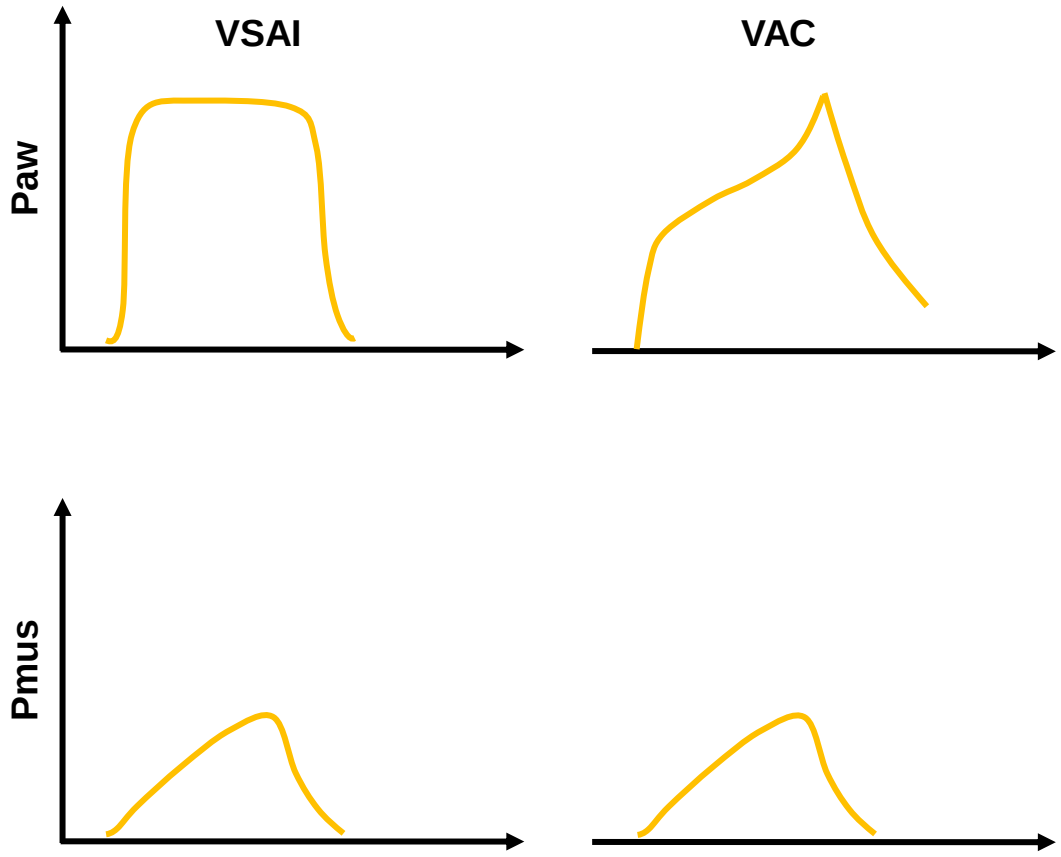
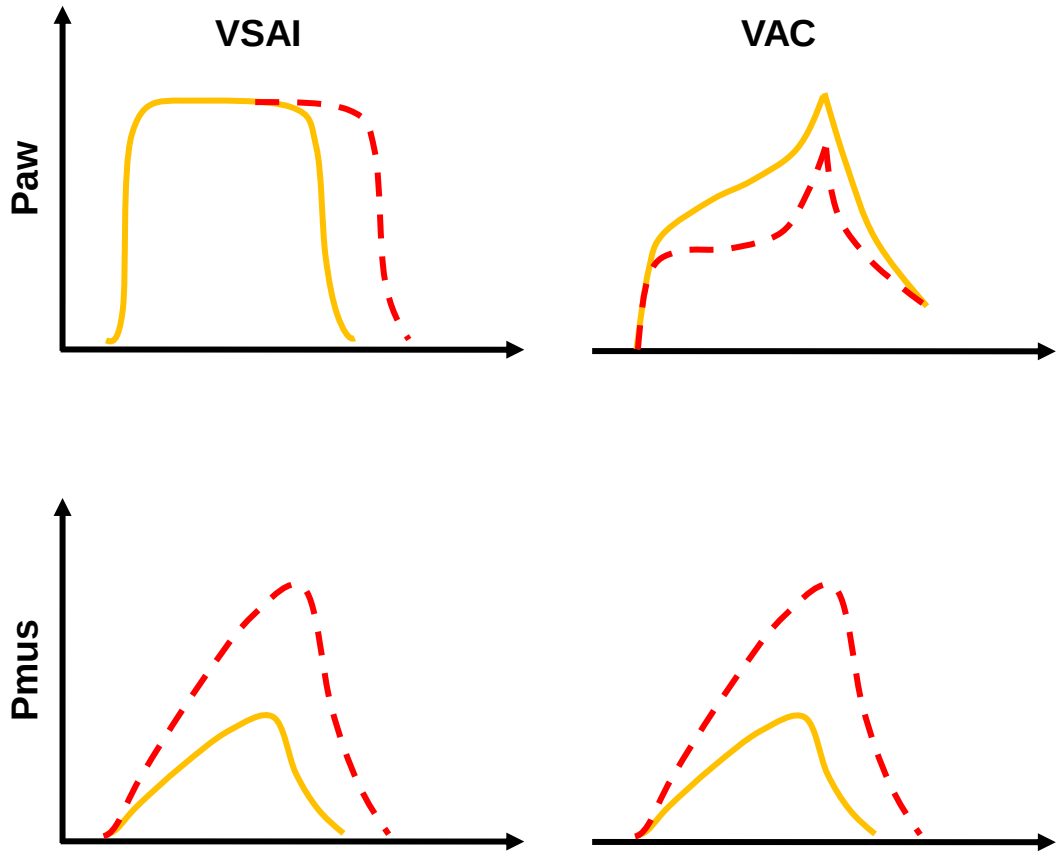
Conflicts of interest

- Fees and/or travel expanses
  - Medtronic
  - Fisher and Paykel
  - Air Liquide Medical System
  - Löwenstein
  - Dräger


VSAI
VAC
Paw
Pmus

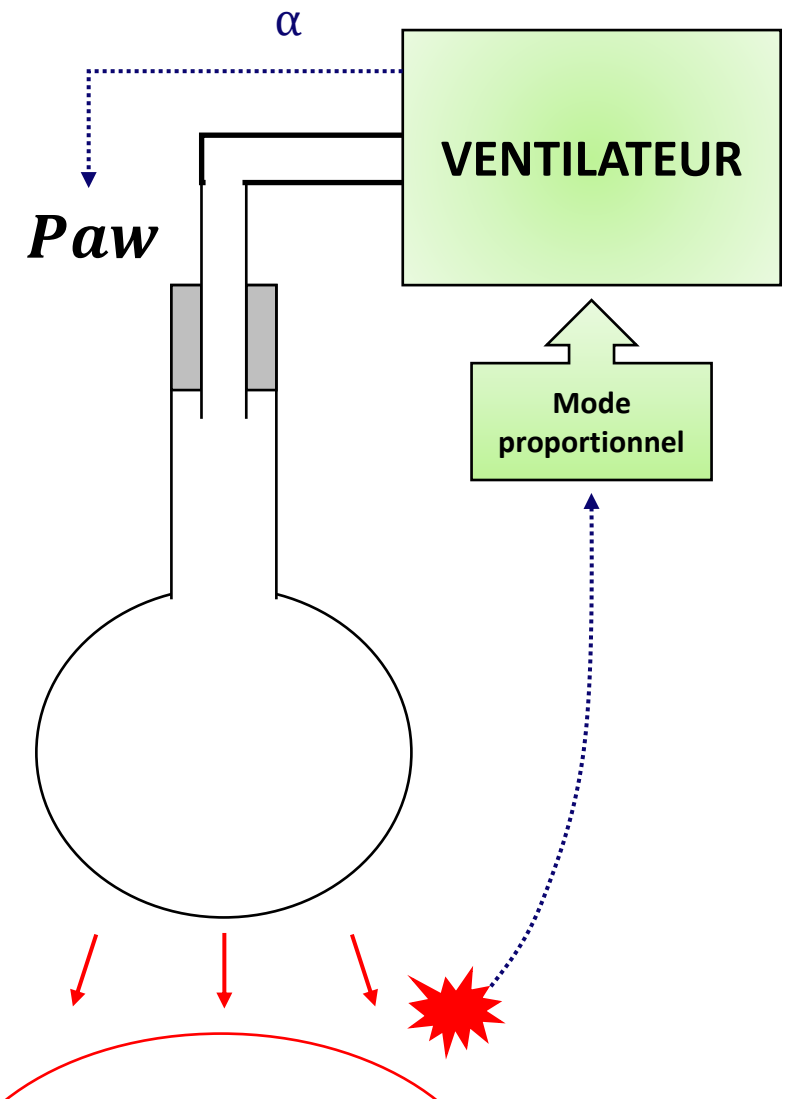

VSAI
VAC
Paw
Pmus

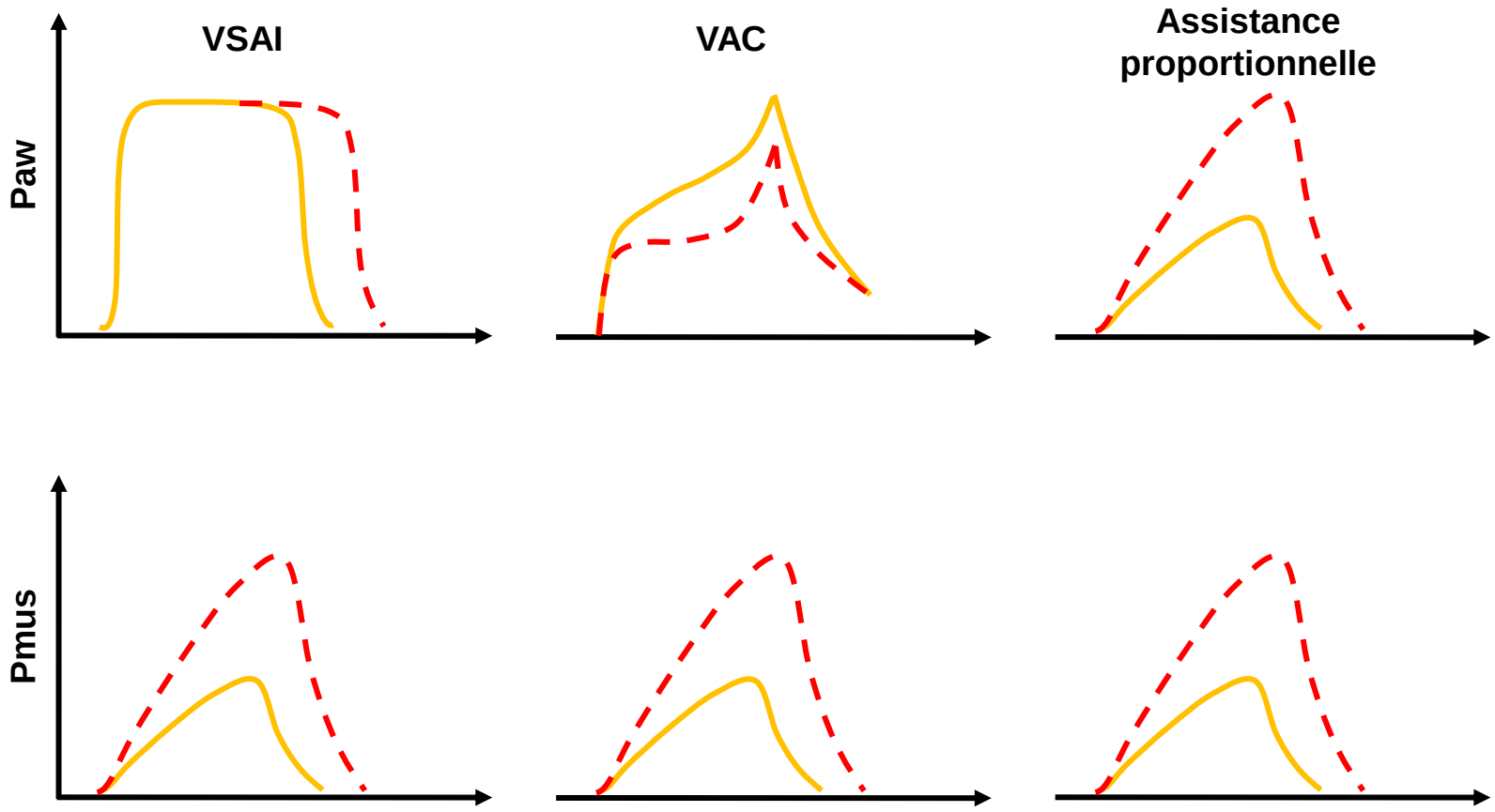
NAVA = Mode proportionnel

$$Paw_t = \alpha \times Effort_t$$

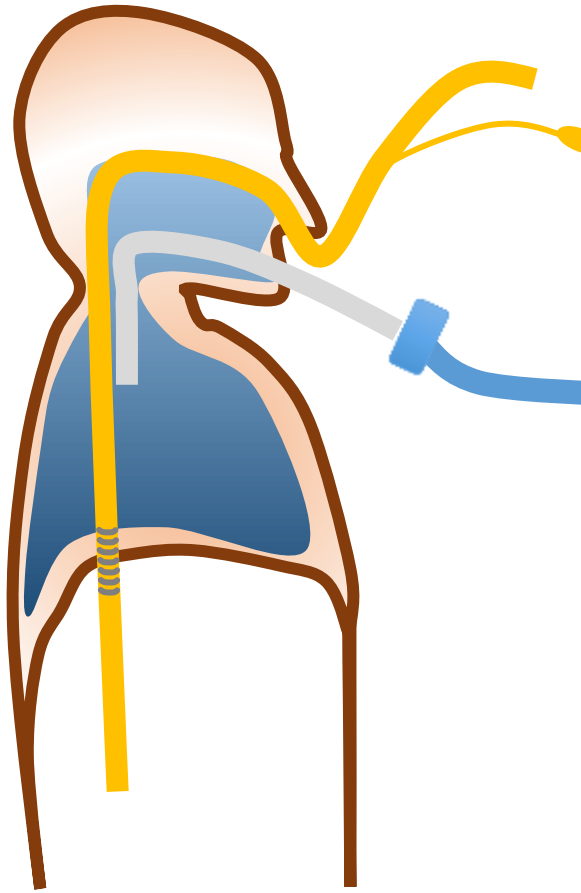
NAVA

Neurally adjusted ventilatory assist




VSAI
VAC
Assistance proportionnelle
Paw
Pmus

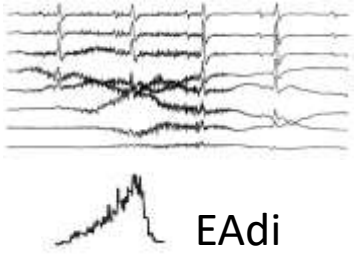
NAVA: Principes



❶ Recueil du signal

❷ Traitement du signal

❸ Ventilateur

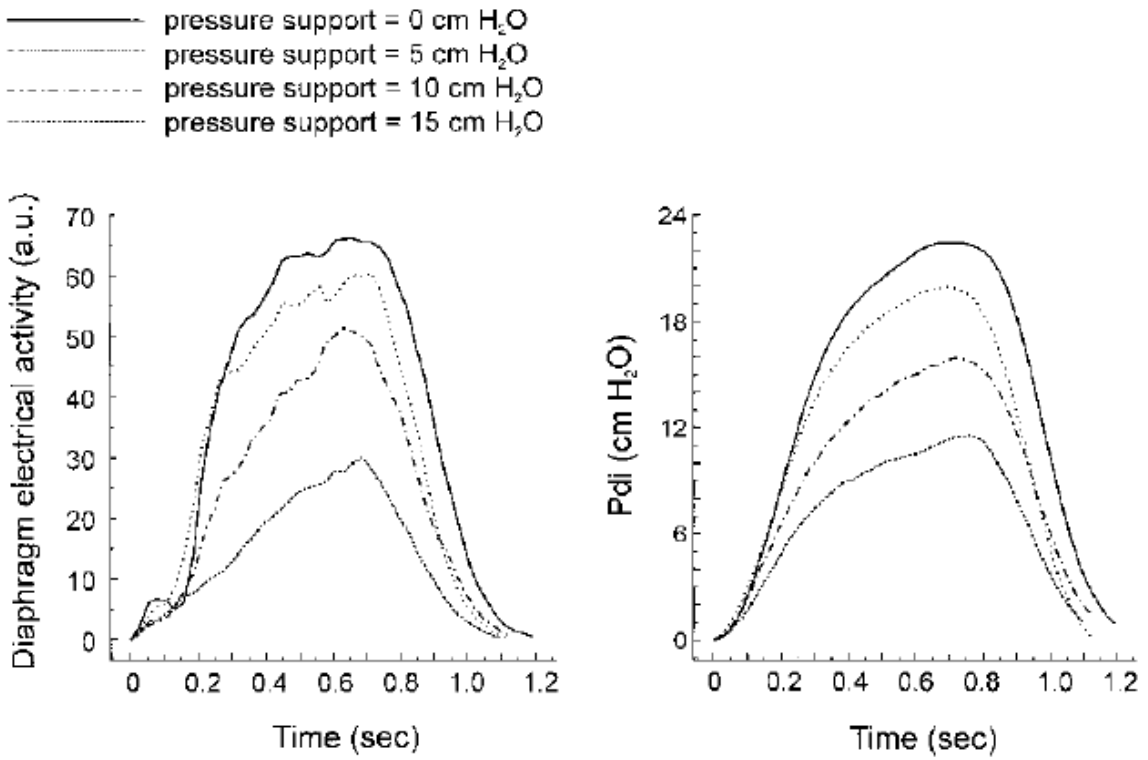


EAdi

$$Paw = EAdi \times niveau\ de\ NAVA$$

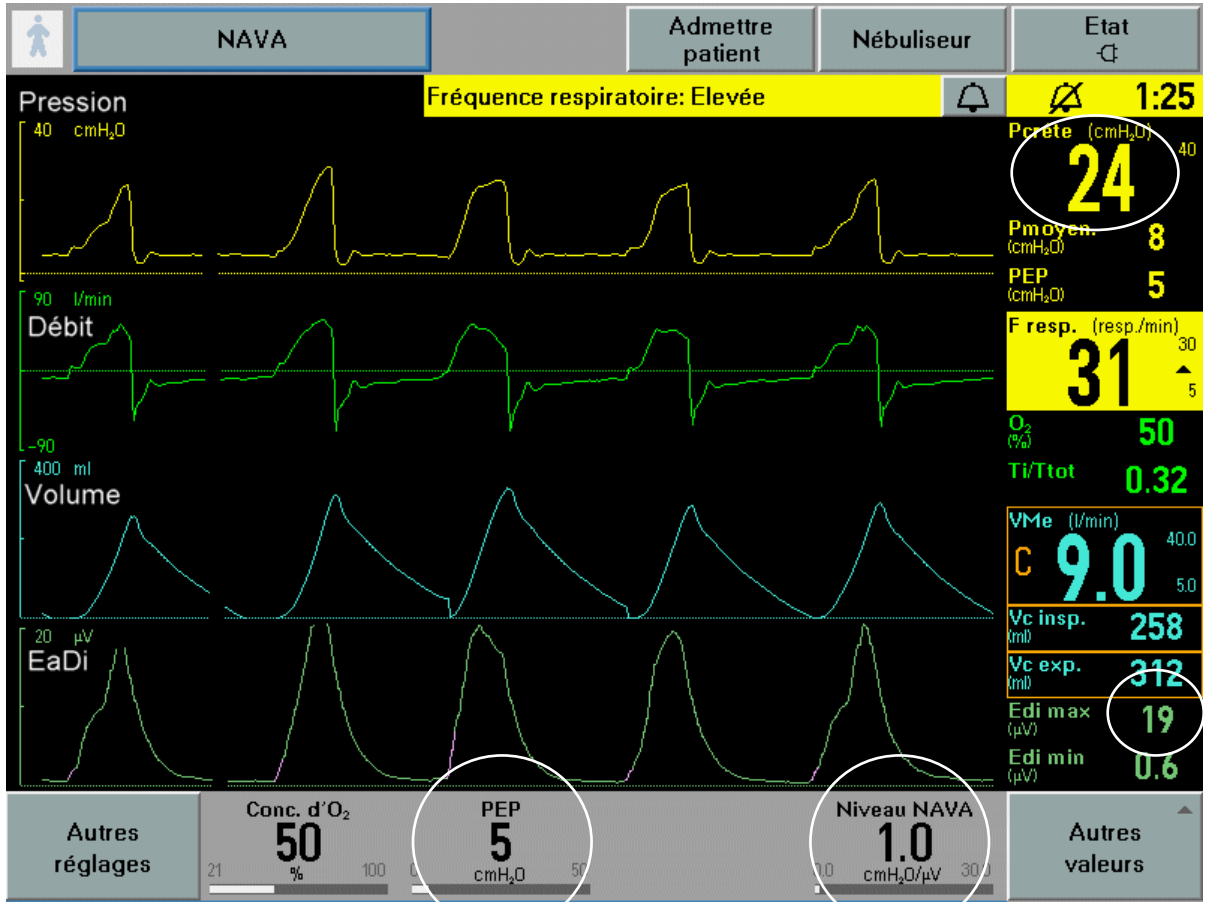
$(cm\ H_2O.\mu volt^{-1})$

EAdi et Pdi



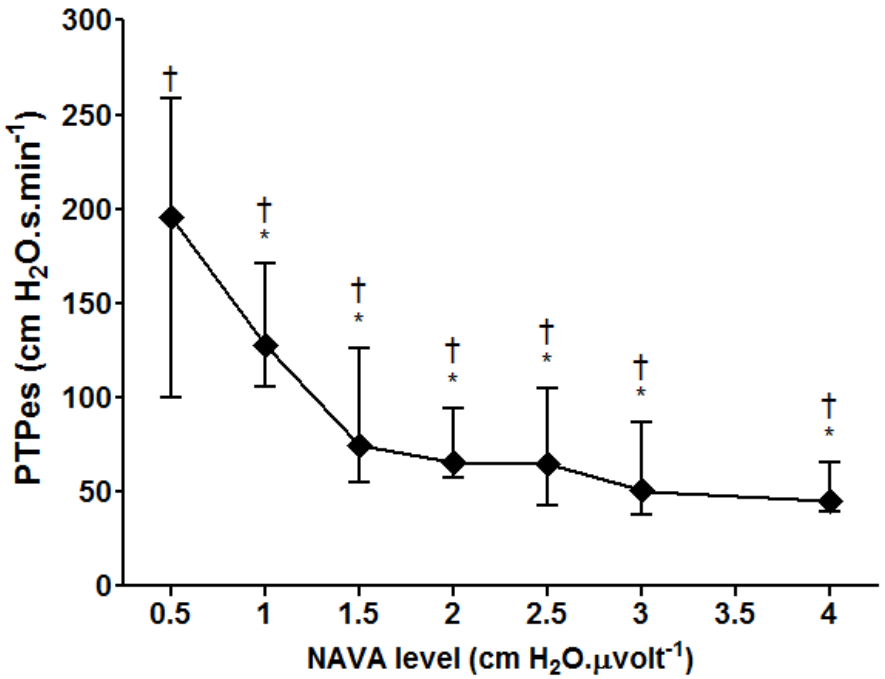
Beck J. *Am J Respir Crit Care Med* 2001;164:419-424

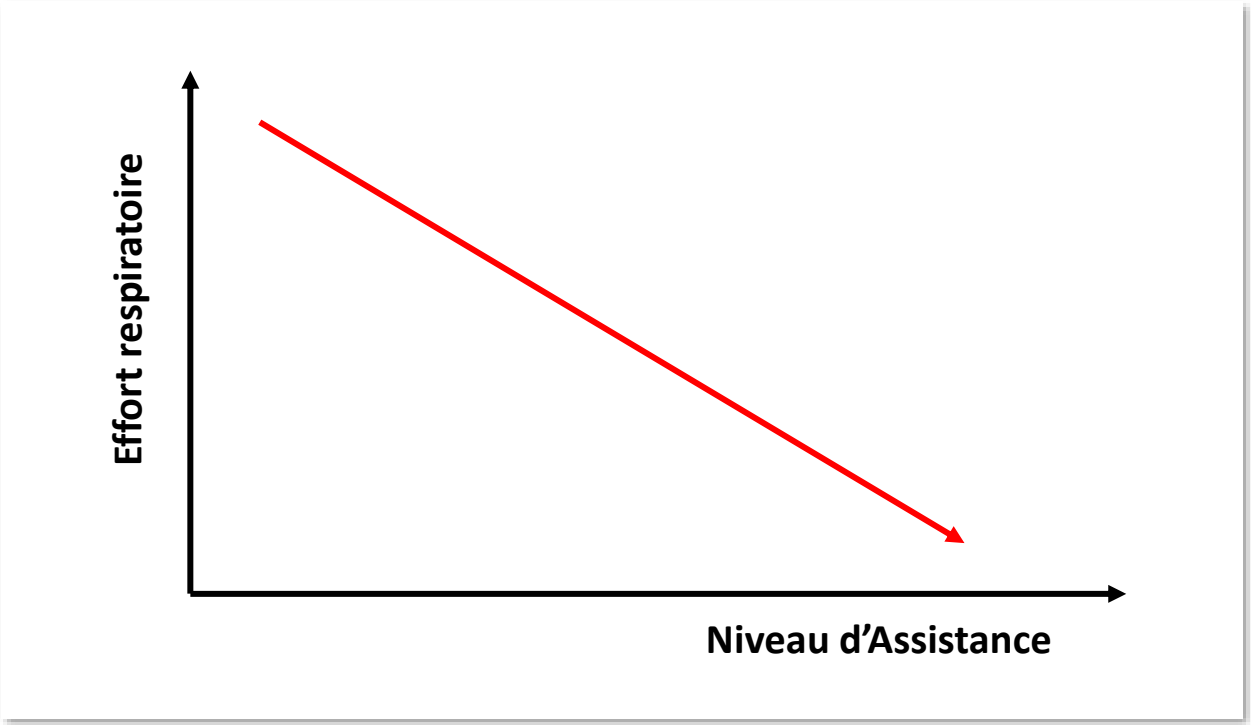
NAVA


NAVA
Admettre patient
Nébuliseur
Etat
Pression
Fréquence respiratoire: Elevée
1:25
40 cmH2O
Pcrête (cmH2O)
24
40
Pmoyen. (cmH2O)
8
PEP (cmH2O)
5
90 l/min
Débit
-90
F resp. (resp./min)
31
30
5
O2 (%)
50
400 ml
Volume
Ti/Ttot
0.32
VMe (l/min)
C 9.0
40.0
5.0
Vc insp. (ml)
258
20 µV
EaDi
Vc exp. (ml)
312
Edi max (µV)
19
Edi min (µV)
0.6
Autres réglages
Conc. d'O2
50
21
%
100
PEP
5
cmH2O
Niveau NAVA
1.0
cmH2O/µV
Autres valeurs

NAVA


NAVA ⇄ AI ⇄ PC
PP 56 kg
20:39
24/04/14
ATTENTE
MODES
LIMITES D'ALARME
MANŒUVRES
AFFICHAGES
NAVA
DÉBRANCHEMENT /ASPIRATION
TENDANCES & JOURNAUX
PRESSION cmH2O
DÉBIT l/min
VOLUME ml
Ee µV
Pcrête
20
cmH2O
FR
34
resp/min
Vce
368
ml
Edimax
7,1
µV
Edimin
0,2
µV
PEP
3,9
cmH2O
Pmoyen
8
cmH2O
Ti/Ttot
0,36
Conc. O2
41
%
Vci
341
ml
VMe
11,6
l/min
Vc/PP
6,6
ml/kg
100
O2 SUPP
Conc. O2
40
PEP
4,0
Niveau NAVA
2,2
15
15
15





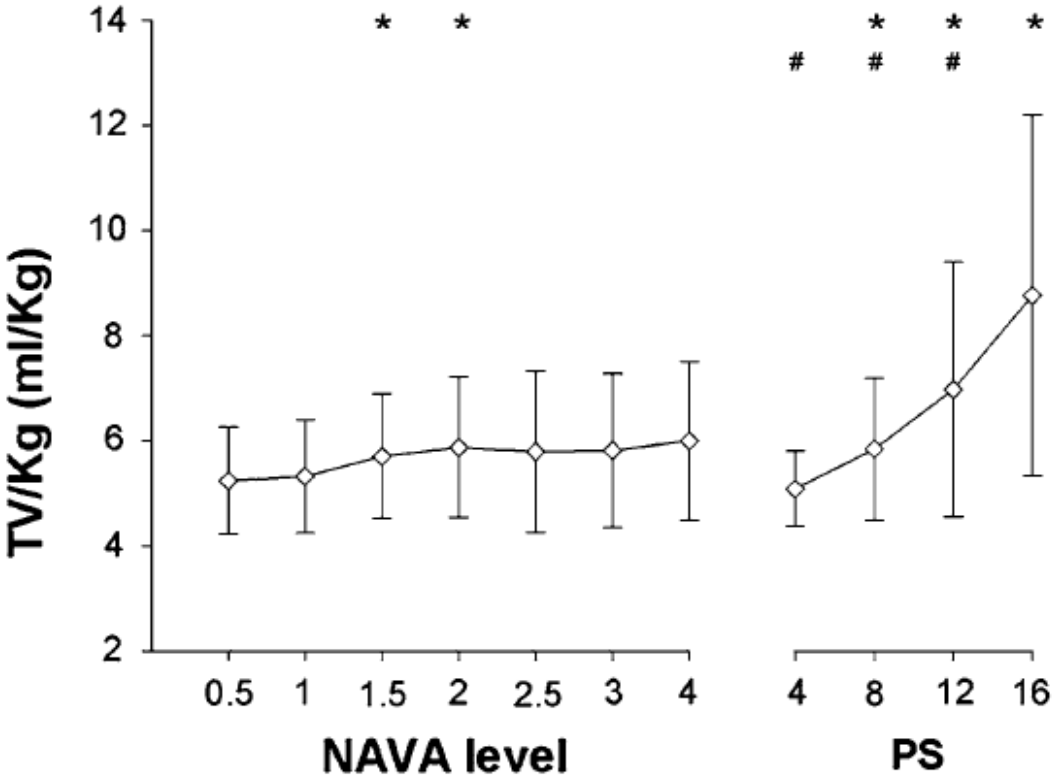
Carteaux G *et al. Crit Care Med* 2015

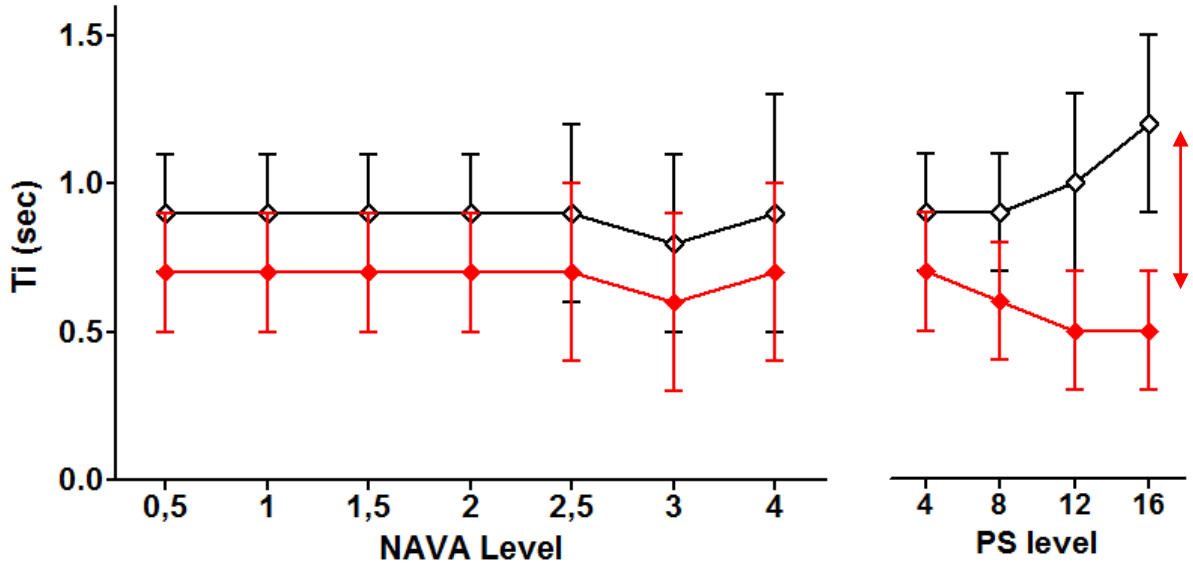
Intensive Care Med (2012) 38:230–239
DOI 10.1007/s00134-011-2433-8

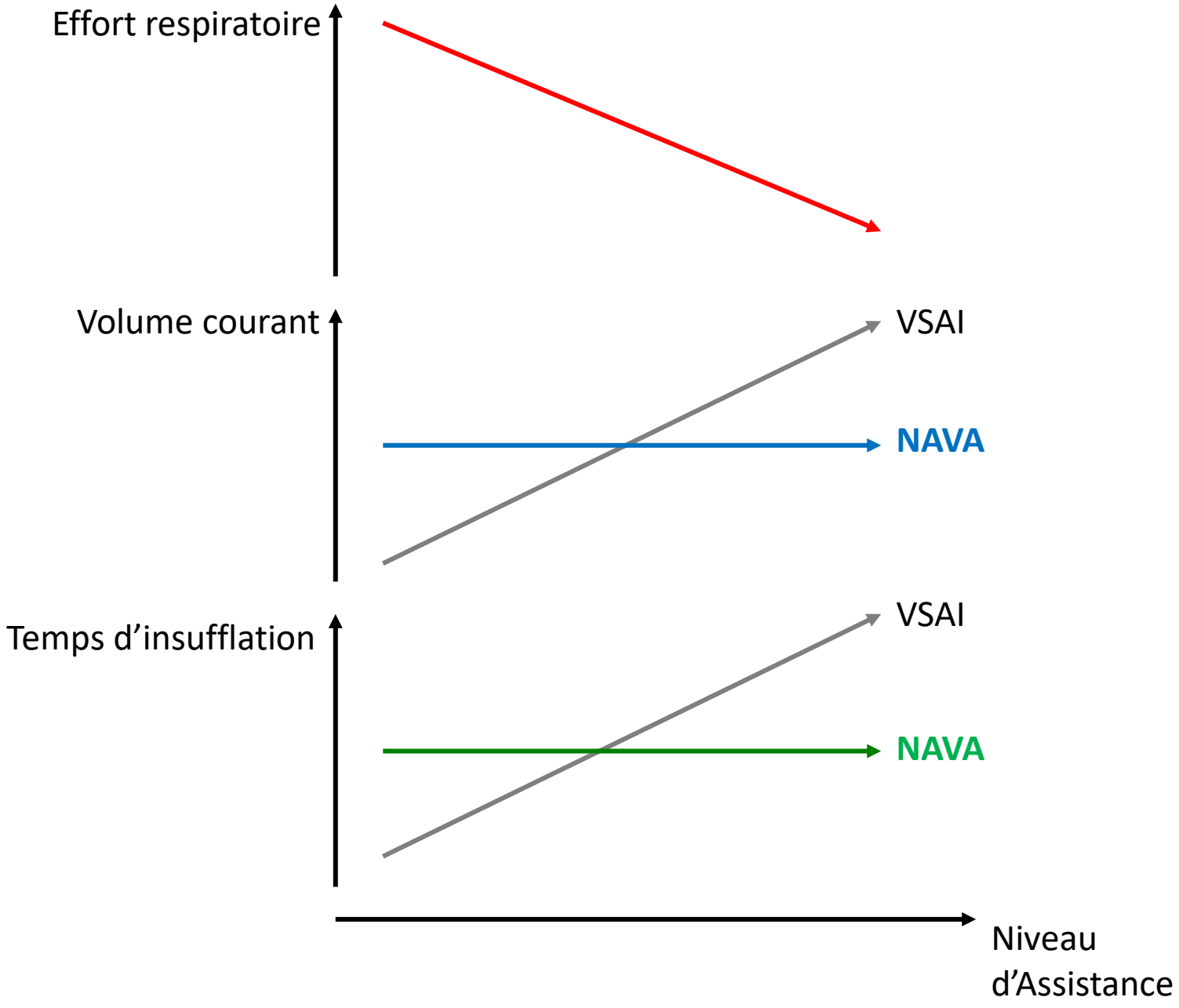
ORIGINAL

Nicolò Patroniti
Giacomo Bellani
Erica Saccavino
Alberto Zanella
Giacomo Grasselli
Stefano Isgrò et al

Respiratory pattern during neurally adjusted ventilatory assist in acute respiratory failure patients



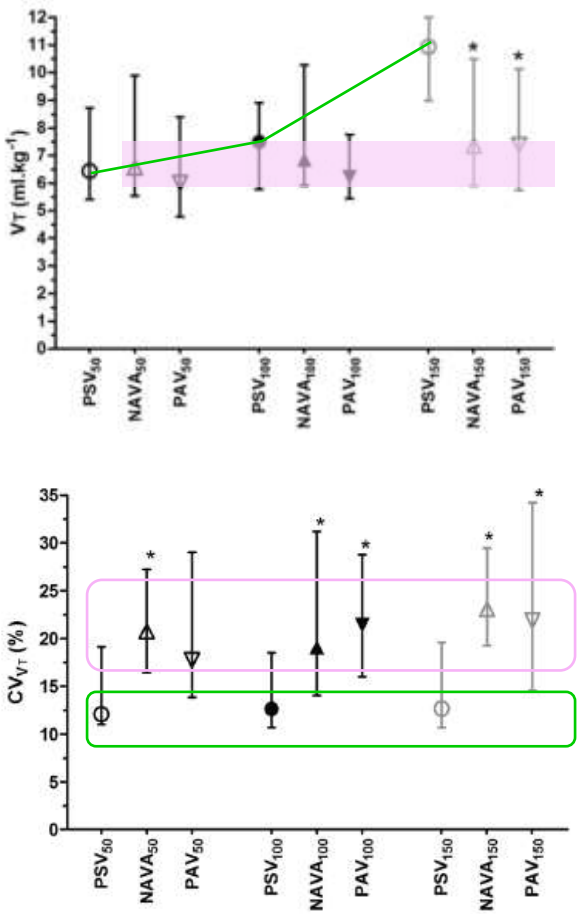


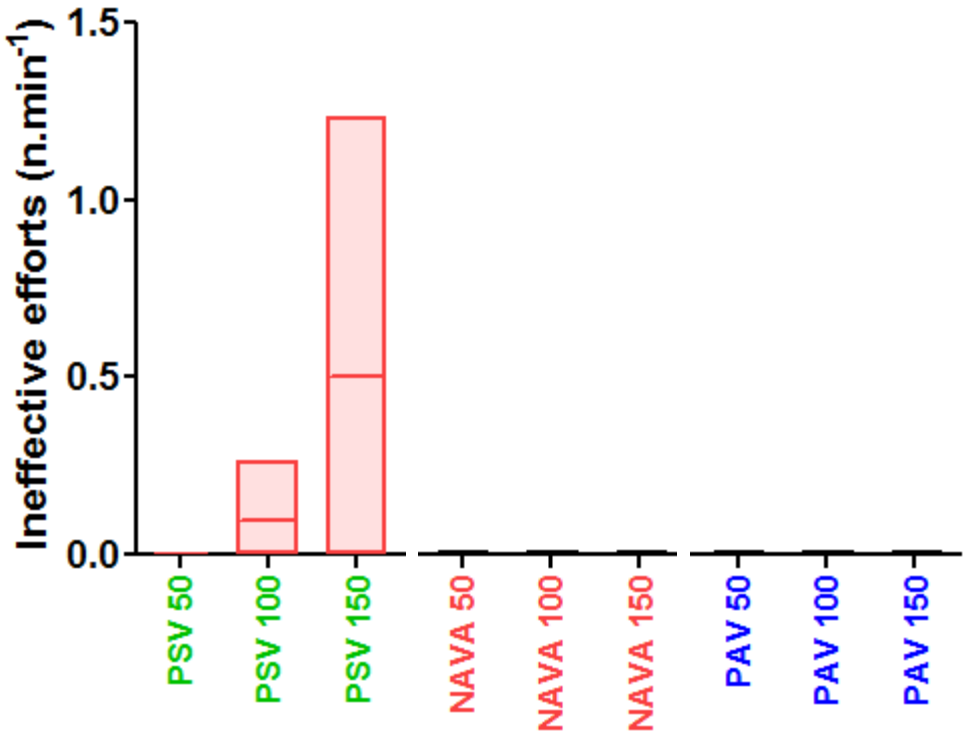

Effort respiratoire
Volume courant
VSAI
NAVA
Temps d'insufflation
VSAI
NAVA
Niveau
d'Assistance

Neurally adjusted ventilatory assist and proportional assist ventilation both improve patient-ventilator interaction

Matthieu Schmidt[1,2,3,6*], Felix Kindler[3], Jérôme Cecchini[1,2], Tymothée Poitou[4], Elise Morawiec[1,2,3], Romain Persichini[3], Thomas Similowski[1,2,3] and Alexandre Demoule[1,2,3,5]

Critical Care (2015) 19:56



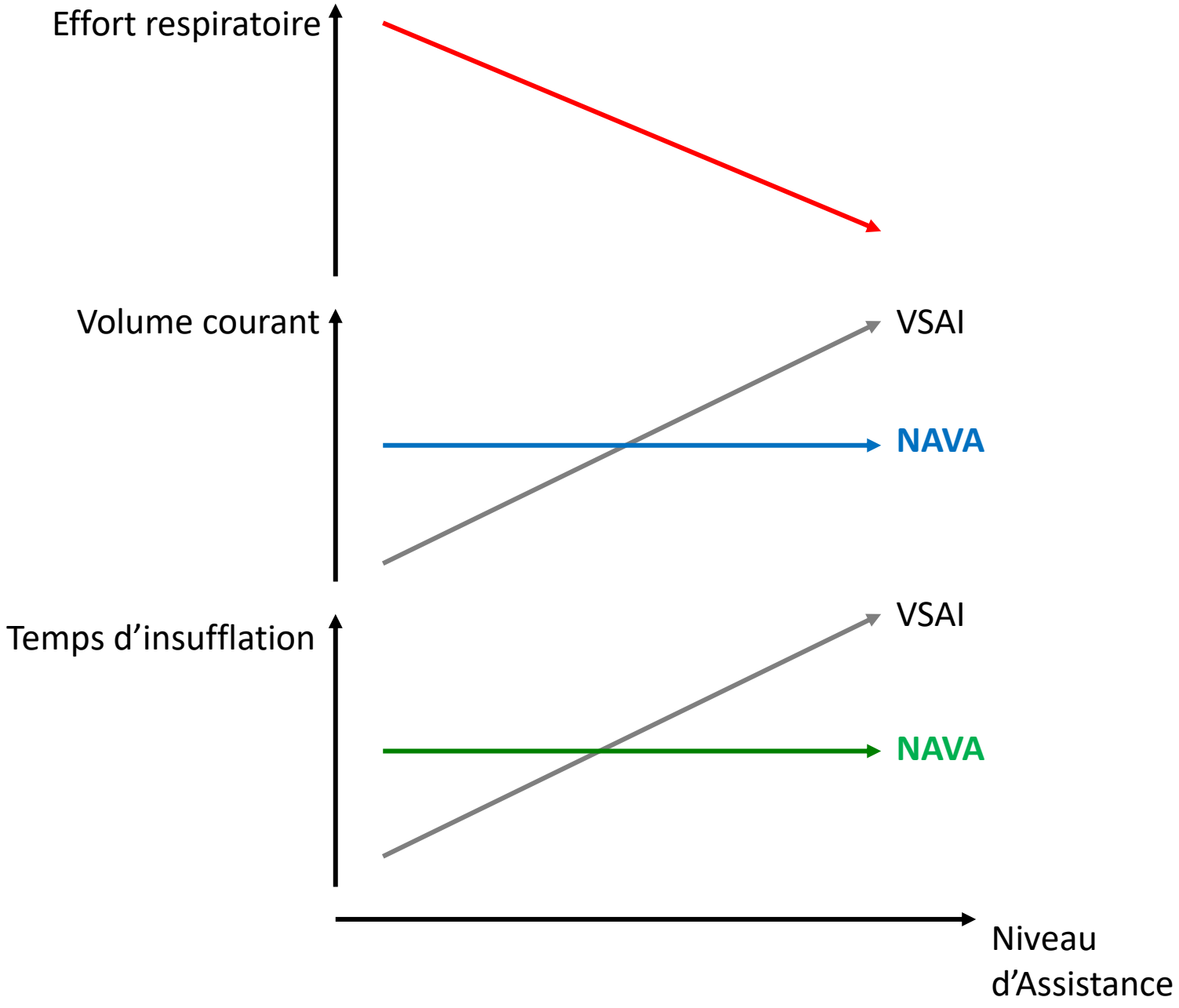


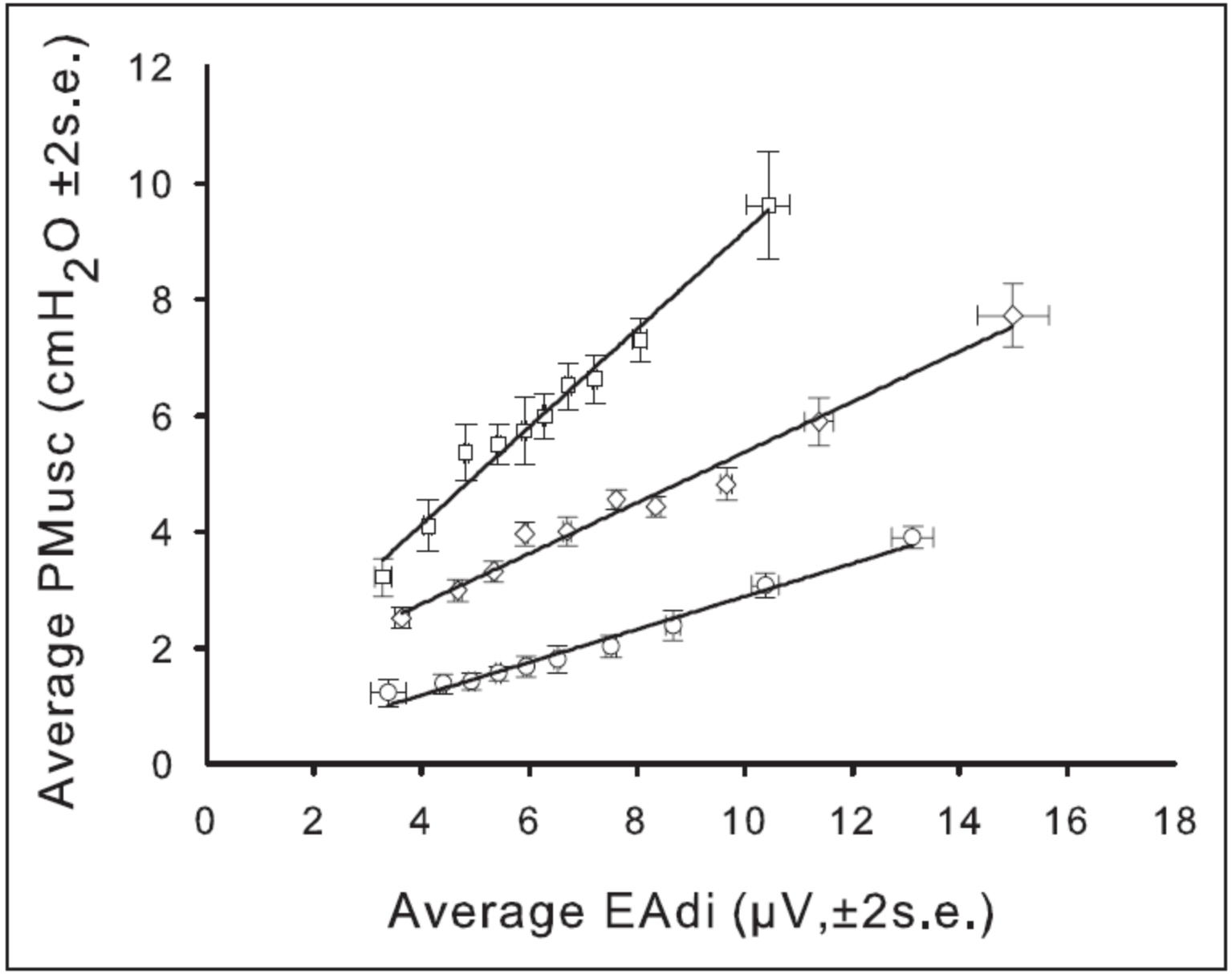
$$Paw = EAdi \times niveau\ de\ NAVA$$

NAVA

Neurally adjusted ventilatory assist

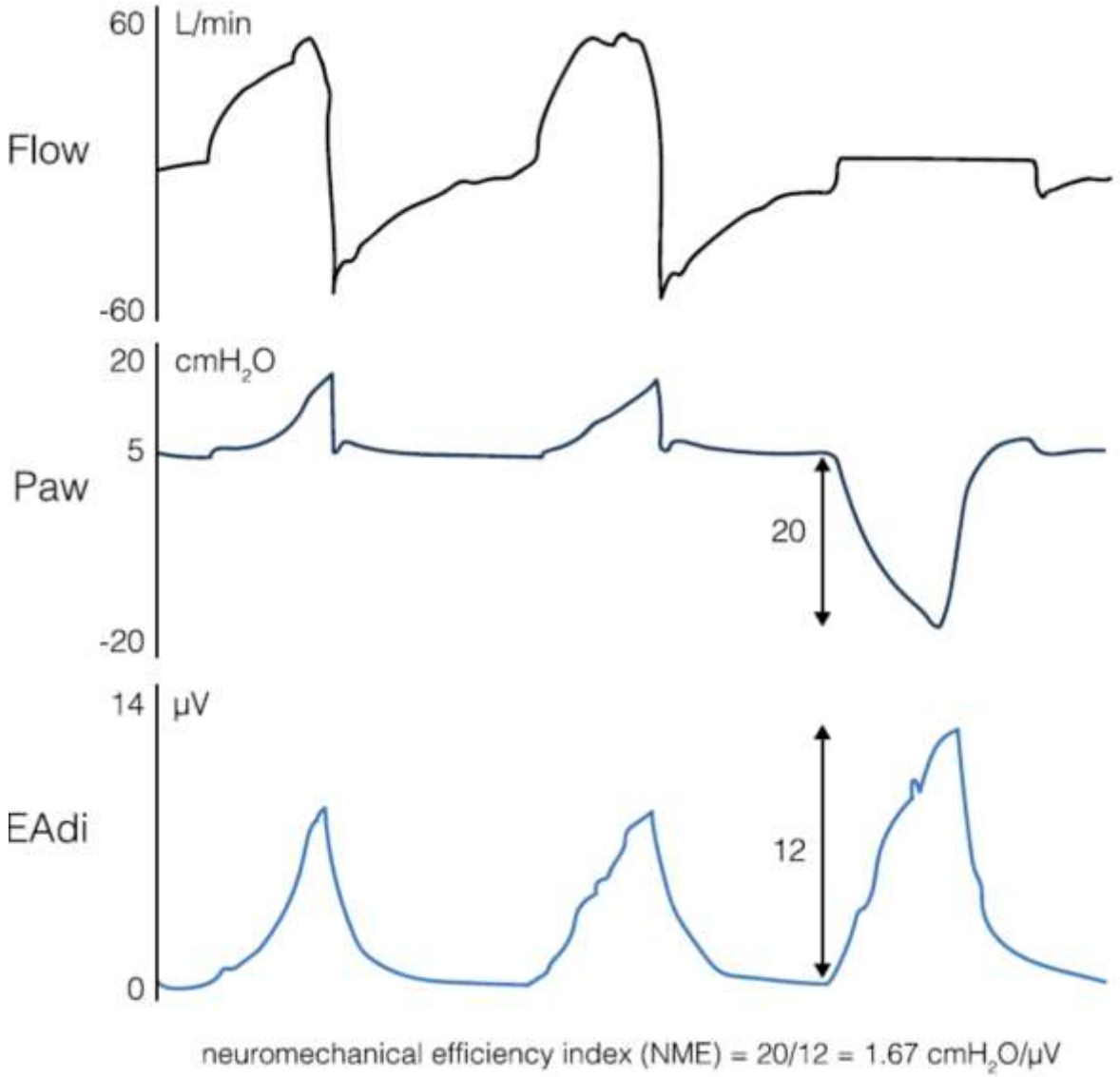
Comment ajuster le ventilateur?


Effort respiratoire
Volume courant
VSAI
NAVA
Temps d'insufflation
VSAI
NAVA
Niveau
d'Assistance



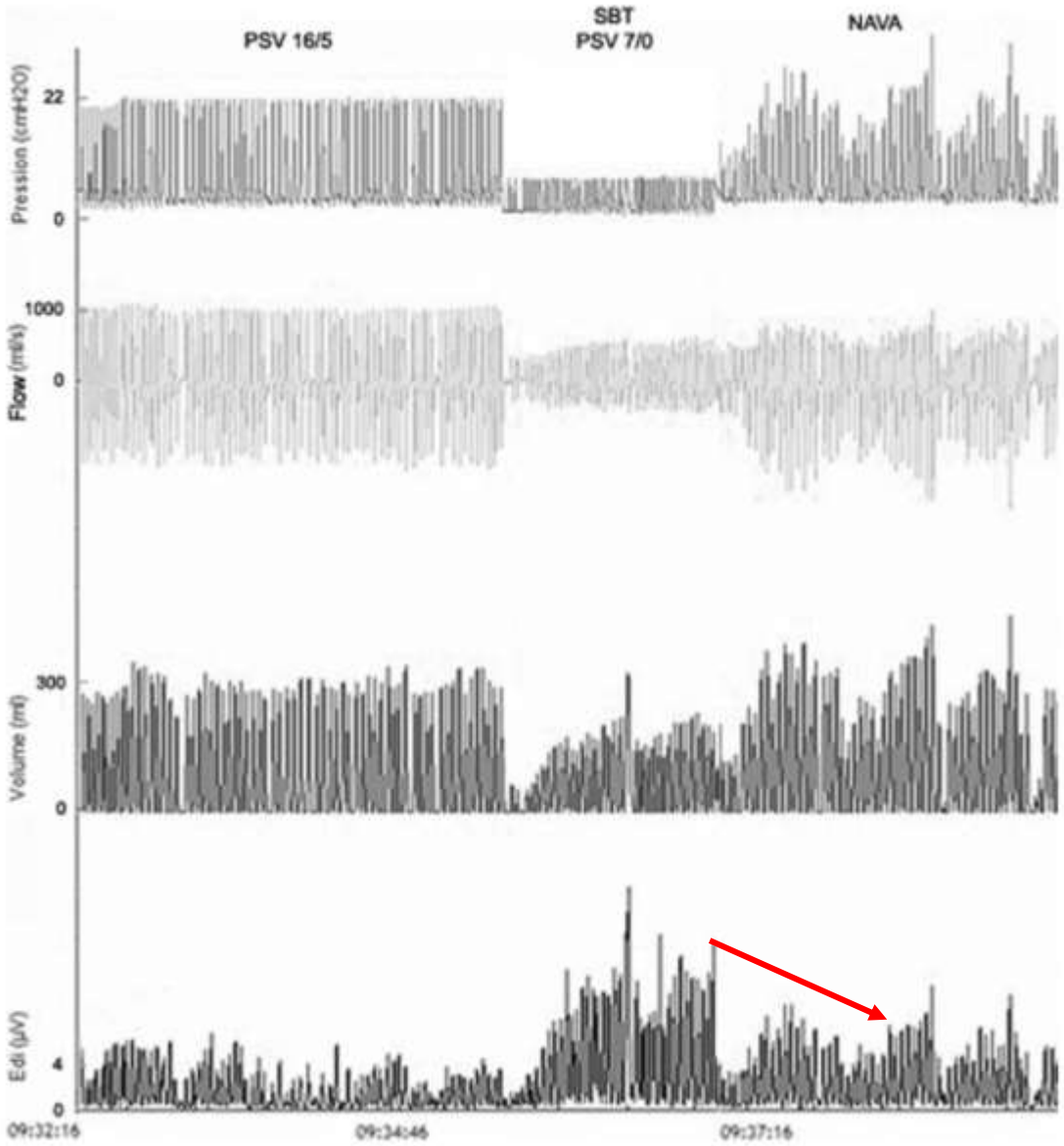
Bellani et al. Crit Care Med 2013

$$\text{NME} = \frac{Pmus}{EAdi}$$



neuromechanical efficiency index (NME) = 20/12 = 1.67 $cmH_2O/\mu V$

Bellani G *et al. Crit Care Med* 2013



Echec épreuve de sevrage

NAVA avec Eadi = 60% Eadi max

Rozé H *et al. Intensive Care Med* 2011

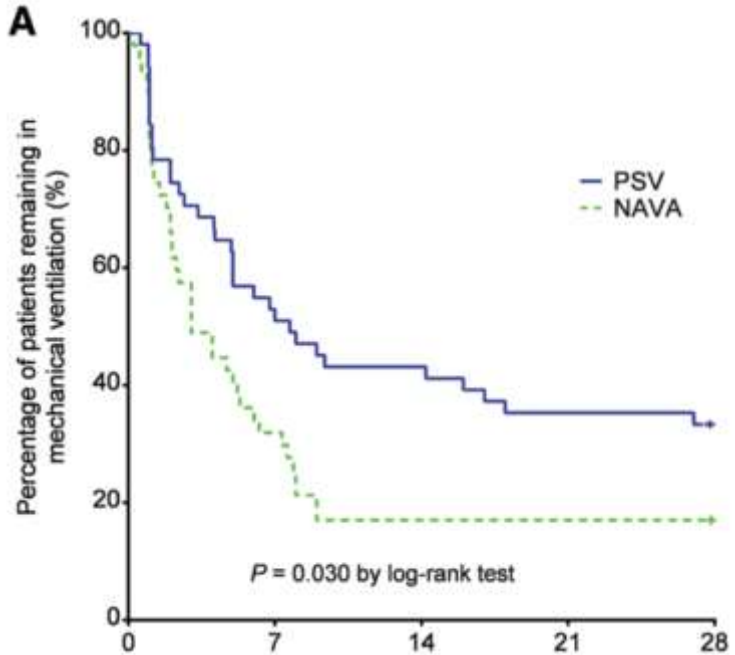
ANESTHESIOLOGY

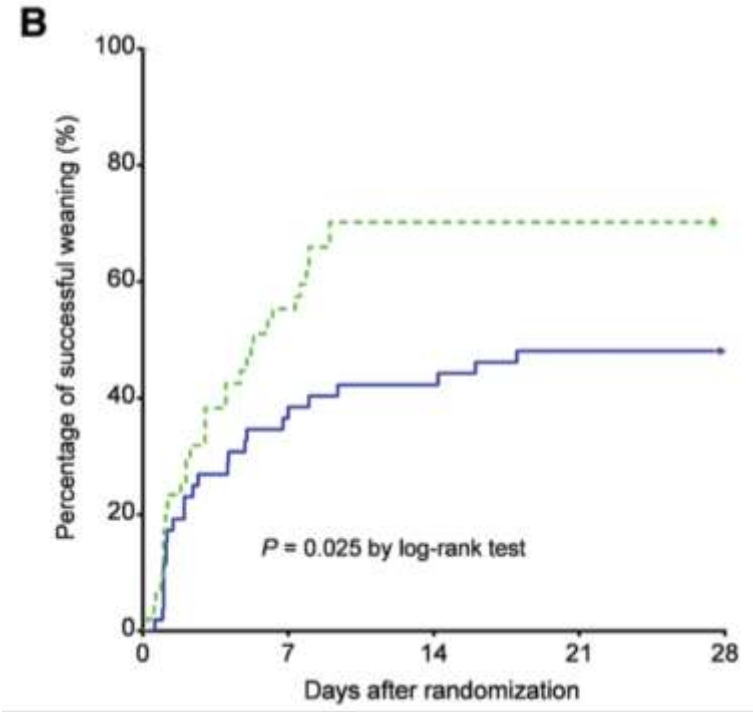
Neurally Adjusted Ventilatory Assist *versus* Pressure Support Ventilation in Difficult Weaning

A Randomized Trial

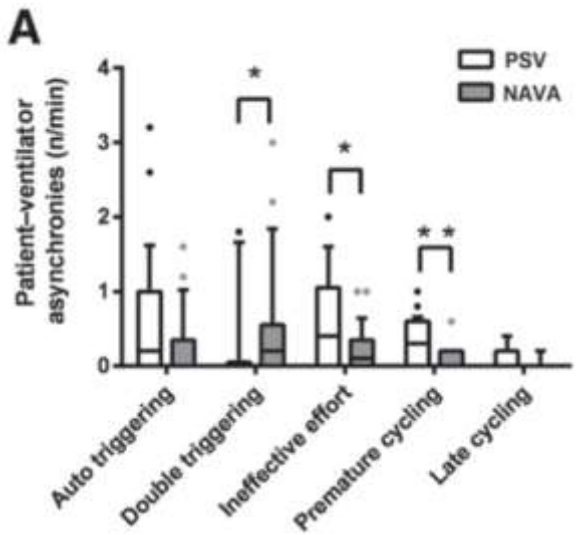
Ling Liu, M.D., Ph.D., Xiaoting Xu, M.D., Qin Sun, M.D., Yue Yu, M.D., Feiping Xia, M.D., Jianfeng Xie, M.D., Ph.D., Yi Yang, M.D., Ph.D., Leo Heunks, M.D., Ph.D., Haibo Qiu, M.D., Ph.D.

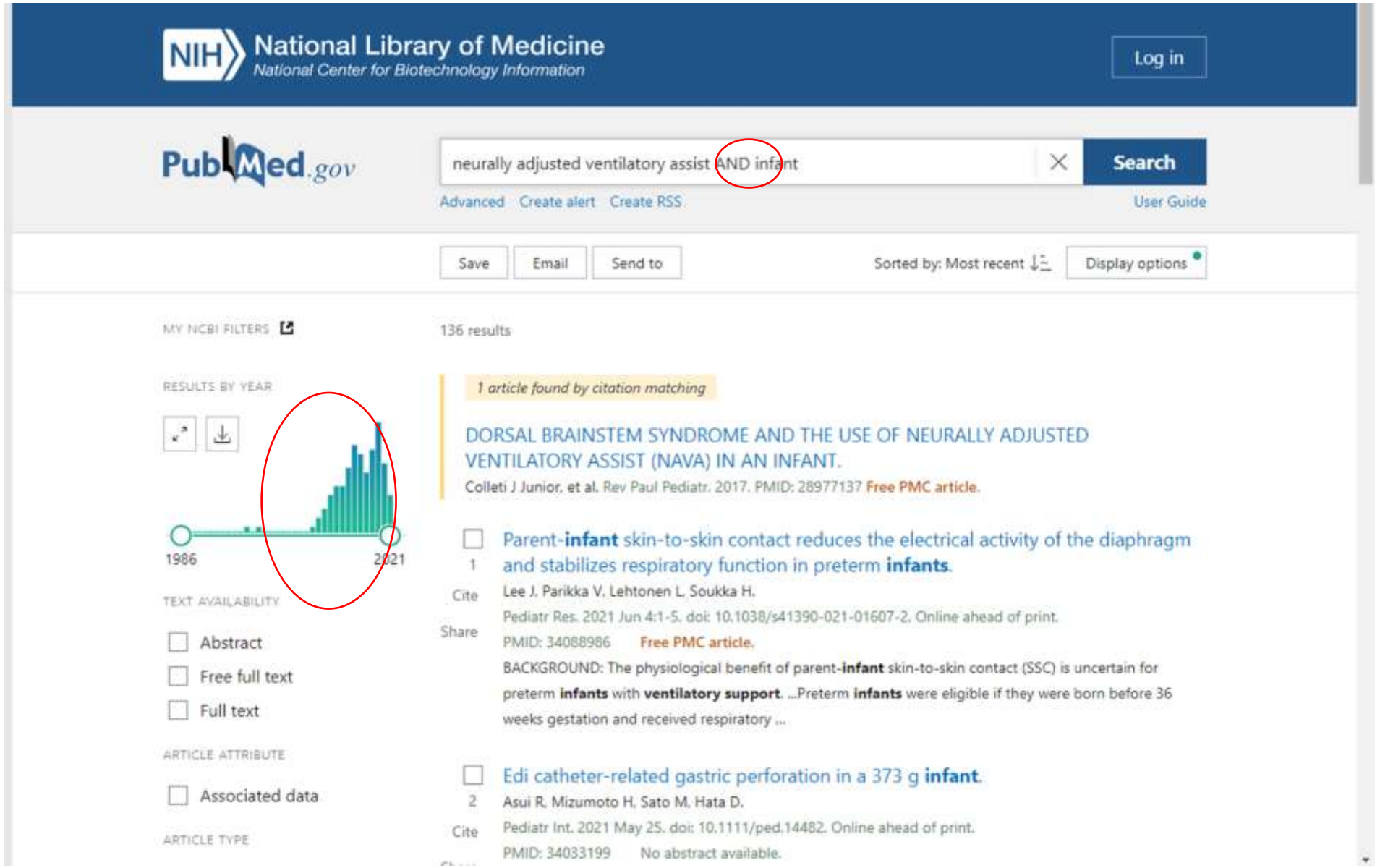
ANESTHESIOLOGY 2020; 132:1482–93





Monocentrique prospectif randomisé
N = 99 (NAVA = 47; PSV = 52)
6 ans




National Library of Medicine
National Center for Biotechnology Information
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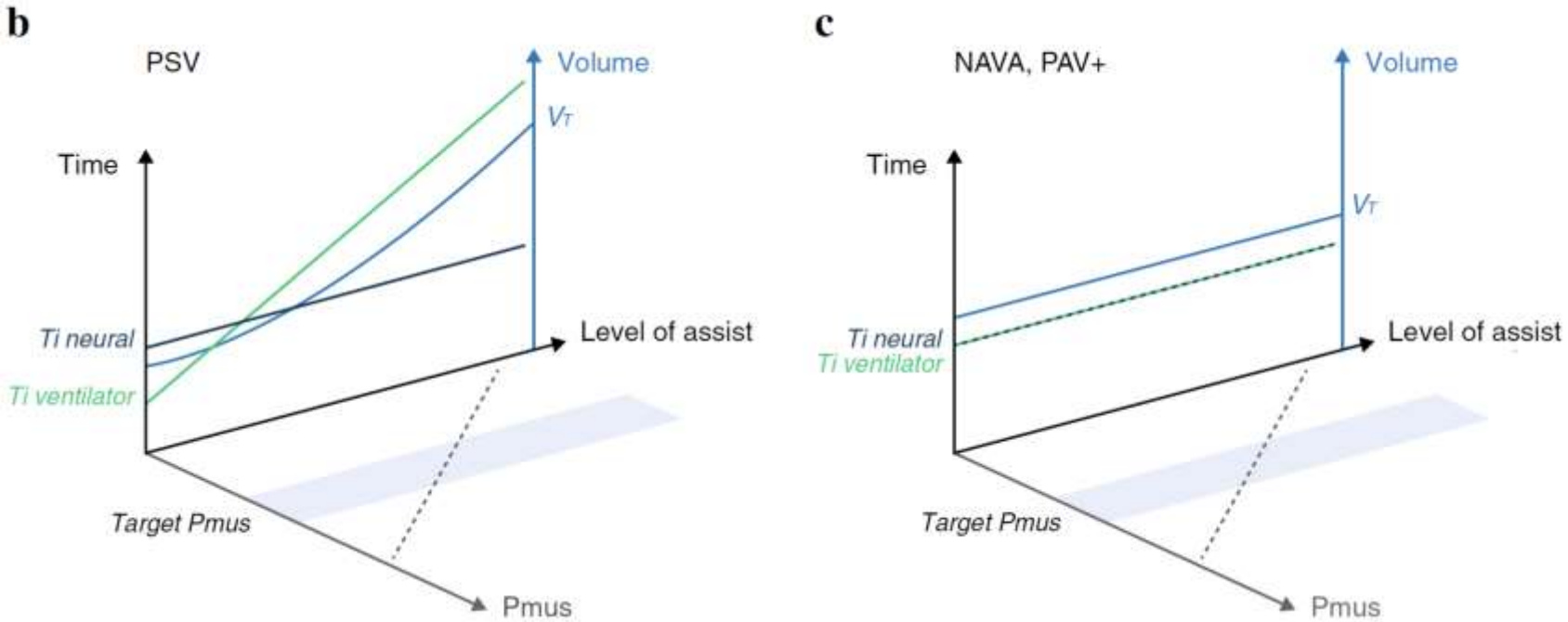
PubMed.gov
neurally adjusted ventilatory assist AND infant
Search
Advanced
Create alert
Create RSS
User Guide
Save
Email
Send to
Sorted by: Most recent
Display options
MY NCBI FILTERS
136 results
RESULTS BY YEAR
1986
2021
TEXT AVAILABILITY
Abstract
Free full text
Full text
ARTICLE ATTRIBUTE
Associated data
ARTICLE TYPE
1 article found by citation matching
DORSAL BRAINSTEM SYNDROME AND THE USE OF NEURALLY ADJUSTED VENTILATORY ASSIST (NAVA) IN AN INFANT.
Colleti J Junior, et al. Rev Paul Pediatr. 2017. PMID: 28977137 Free PMC article.
1
Cite
Share
Parent-infant skin-to-skin contact reduces the electrical activity of the diaphragm and stabilizes respiratory function in preterm infants.
Lee J, Parikka V, Lehtonen L, Soukka H.
Pediatr Res. 2021 Jun 4:1-5. doi: 10.1038/s41390-021-01607-2. Online ahead of print.
PMID: 34088986 Free PMC article.
BACKGROUND: The physiological benefit of parent-infant skin-to-skin contact (SSC) is uncertain for preterm infants with ventilatory support. ...Preterm infants were eligible if they were born before 36 weeks gestation and received respiratory ...
2
Cite
Edi catheter-related gastric perforation in a 373 g infant.
Asui R, Mizumoto H, Sato M, Hata D.
Pediatr Int. 2021 May 25. doi: 10.1111/ped.14482. Online ahead of print.
PMID: 34033199 No abstract available.

NARRATIVE REVIEW

Proportional modes of ventilation: technology to assist physiology

Annemijn H. Jonkman[1,2,3], Michela Rauseo[1,2], Guillaume Carteaux[4,5,6], Irene Telias[1,2], Michael C. Sklar[1,2], Leo Heunks[3] and Laurent J. Brochard[1,2*]

Intensive Care Med (2020) 46:2301–2313



TAKE HOME MESSAGE

☒ Principes de fonctionnement de la NAVA

$$Paw_t = NAVA\ level\ x\ EAdi$$

☒ Intérêt de la NAVA

Optimisation des interactions patient-ventilateur

assistance proportionnelle à l'effort critère de cyclage

variabilité respectée

peu ou pas d'asynchronies

☒ En pratique: comment régler le ventilateur

Personnaliser l'assistance pour maintenir l'effort respiratoire du patient dans une zone désirée?