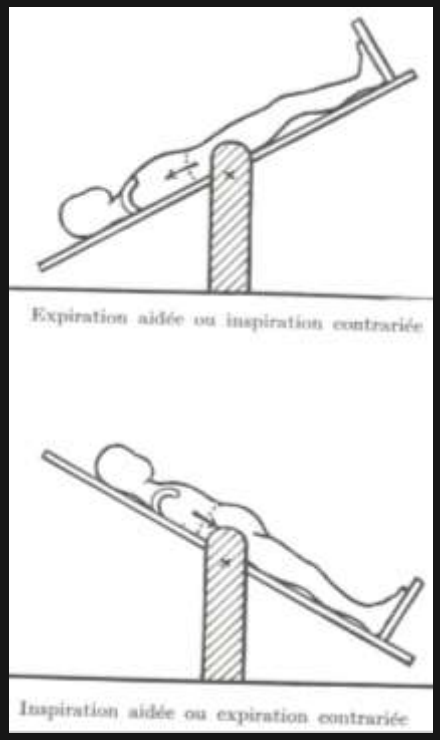
Expérience … Evolution ….
Kinésithérapie en réanimation de 1973 à 2017…

Plan

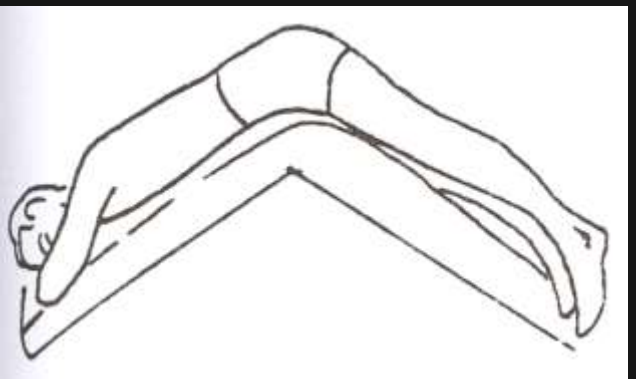
- Kinésithérapie respiratoire
- Ventilation mécanique invasive
- Ventilation mécanique non invasive
- Mobilisation

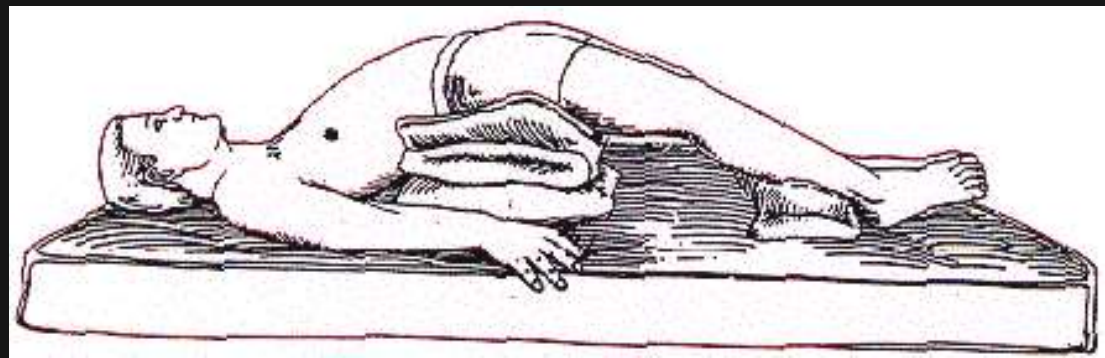
Techniques de désencombrement bronchique



Expiration aidée ou inspiration contrariée

Inspiration aidée ou expiration contrariée





Vol. XLI — N° 19 REVUE MÉDICALE DE LIÈGE 1er octobre 1986

PROPRIÉTÉS BIOCHIMIQUES, PHYSIQUES ET PHYSIOLOGIQUES DE LA SÉCRÉTION TRACHÉO-BRONCHIQUE

T. SOTTIAUX(1), J. ROESELER(2), M. S. REYNAERT(3)

Ann. Kinésithér., 1988, *t. 15*, n° 4, pp. 159-166

MÉMOIRE

Intérêt de la mesure de la filance des sécrétions trachéo-bronchiques chez le patient intubé et ventilé. Influence de l'infection du tractus respiratoire

A. GOFFART (1), P. VAN DER LINDEN (1), Th. SOTTIAUX (2), J. ROESELER (3), M. REYNAERT (4)

(1) Licenciée en Kinésithérapie (UCL). (2) Service de réanimation, clinique Notre-Dame de Grâce, 62000 Gosselies. (3) Service de médecine physique (Pr J. Denayer). (4) Service des soins intensifs (Pr J. Trémouroux), cliniques universitaires Saint-Luc, 10, avenue Hippocrate, 1200 Bruxelles, Belgique.

Ann. Kinésithér., 1991, *t. 18*, n° 6, pp. 281-288

MÉMOIRE

Influence des drogues mucolytiques sur la filance des sécrétions trachéo-bronchiques dans la mucoviscidose

J. ROESELER (1), Th. SOTTIAUX (2), Y. K. KEUKELEIRE (3), L. ROUARD (3), M. REYNAERT (4), J. CHEVAILLIER (5), D. FRANCKX (5), R. REMONDIÈRE (6).

(1) Médecine Physique, Cliniques Universitaires Saint-Luc, Avenue Hippocrate, 10, B 1200 Bruxelles, Belgique. (2) Clinique Notre-Dame de Grâce, B 6041 Gosselies. (3) Licencié en Réadaptation et Kinésithérapie, Université Catholique de Louvain, B 1348 Louvain la Neuve. (4) Cliniques Universitaires Saint-Luc, Soins Intensifs, B 1200 Bruxelles. (5) Zeepreventorium Astmacentrum, B 8420 De Haan. (6) Service de Médecine néo-natale, Groupe Cochin, Maternité Port-Royal, 123, bd. de Port-Royal, F 75674 Paris cedex 14.

- Techniques d’expiration lente
- Techniques d’expiration rapide
- La Toux
- Techniques d’inspiration lente

Validation des techniques manuelles

- **Méthodologie *(groupes, puissance, …)***
- **Définition des techniques *(chest physical therapy…)***
- **Paramètres suivis**
  + Fonction respiratoire
  + Gaz sanguins
  + RX Thorax
  +….

MANQUE DE VALIDATION

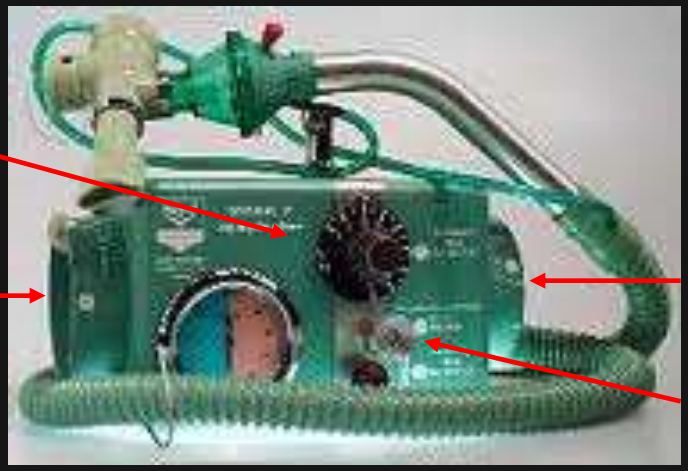
APRIL 2009
VOLUME 54
NUMBER 4
ISSN 0020-1324-RECACP

RESPIRATORY CARE®

Evaluating the Evidence for Airway-Clearance Therapy in Cystic Fibrosis

1. Airway-clearance therapy is recommended for all patients with CF for clearance of sputum, maintenance of lung function, and improved quality of life.
2. In general, no airway-clearance therapy has been demonstrated to be superior to any other.
3. For the individual, one form of airway-clearance therapy may be superior to the others. The prescription of airway-clearance therapy should be individualized, based on factors such as age, patient preference, and adverse events, among others.
4. Aerobic exercise is recommended for patients with CF as an adjunctive therapy for airway clearance and its additional benefits to overall health.

TECHNIQUES INSTRUMENTALES



-Prévention des complications respiratoires post-opératoire

-Kinésithérapie chez le patient BPCO (aigu et stable)

- Aérosolthérapie

- Hyperventilation

Problèmes :
+ Mêmes paramètres (trigger, débit, pression, FiO2 !!!!)

CPAP

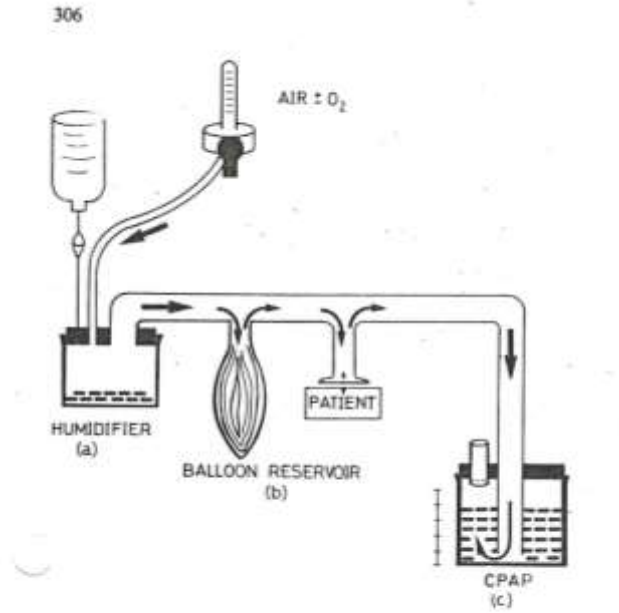
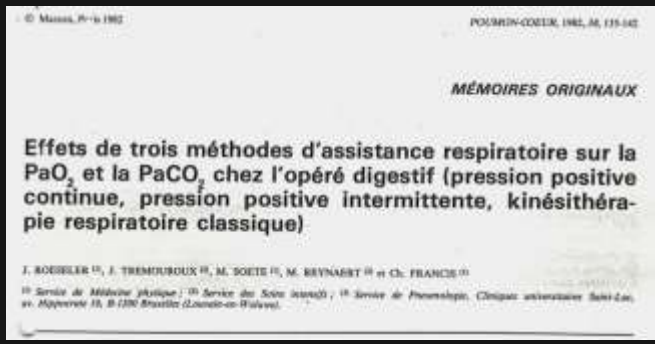


Fig. 1: The system consists of an air source with or without oxygen passing through a controlled heating and humidifying system (a) and connected to a balloon reservior (b). The amount of CPAP being controlled by the level of water in the exit chamber (c)



MÉMOIRES ORIGINAUX

Effets de trois méthodes d'assistance respiratoire sur la PaO_2 et la $PaCO_2$ chez l'opéré digestif (pression positive continue, pression positive intermittente, kinésithérapie respiratoire classique)

J. ROESELER, J. TREMOUROUX, M. SOETE, M. REYNAERT et Ch. FRANCIS

Buts :

+ Recrutement alvéolaire

+ Correction de l'hypoxémie sans modification de la PaCO2

+ Prévention des complications respiratoires post-opératoires

Intensive Care Med (1986) 12:153 – 156

Intensive Care Medicine

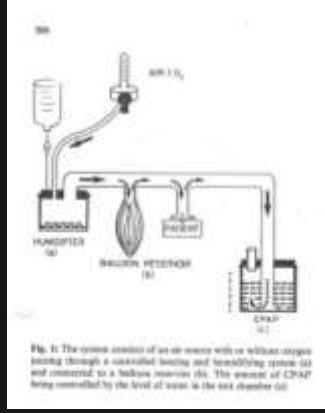
Methods and devices

The importance of the balloon reservoir volume of a CPAP system in reducing the work of breathing

Z. H. Bshouty*, J. Roeseler**, M. S. Reynaert*** and D. Rodenstein****

Cliniques Universitaires Saint-Luc, Brussels, Belgium

Accepted: 2 December 1986



Spirométrie Incitative

Incentive spirometry for preventing pulmonary complications after coronary artery bypass graft (Review)

Freitas ERFS, Soares B, Cardoso JR, Atallah ÁN

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2009, Issue 3

http://www.thecochranelibrary.com

WILEY
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Incentive spirometry for prevention of postoperative pulmonary complications in upper abdominal surgery (Review)

Guimarães MMF, El Dib R, Smith AF, Matos D

THE COCHRANE COLLABORATION®

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in *The Cochrane Library* 2009, Issue 3

http://www.thecochranelibrary.com

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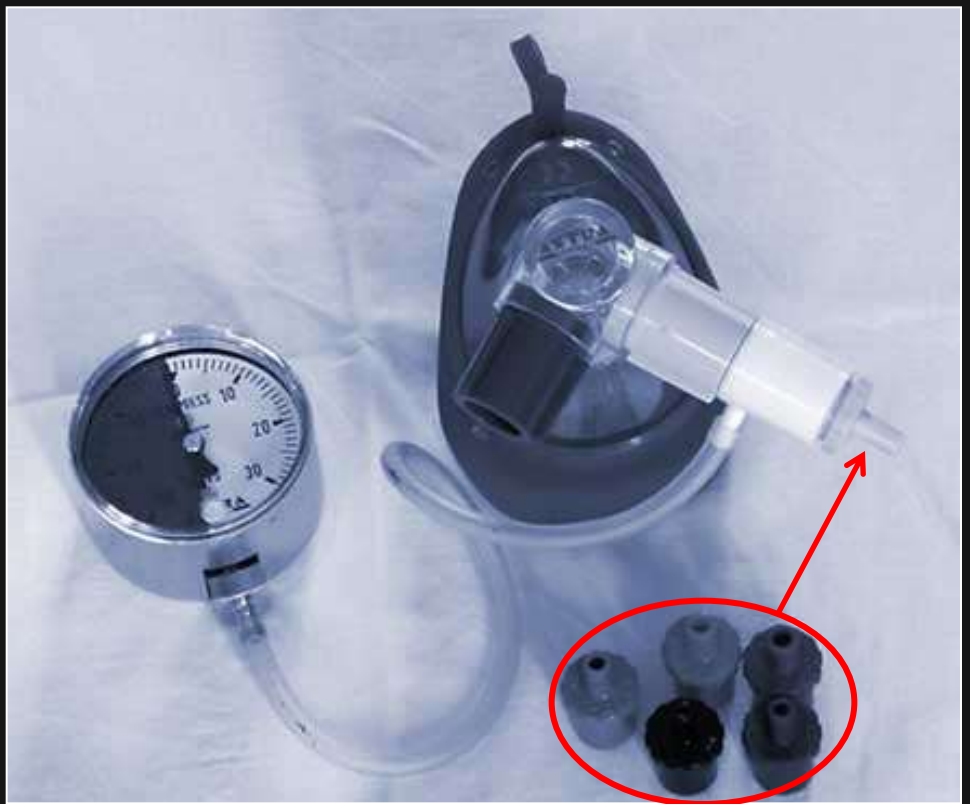
Publishers Since 1807

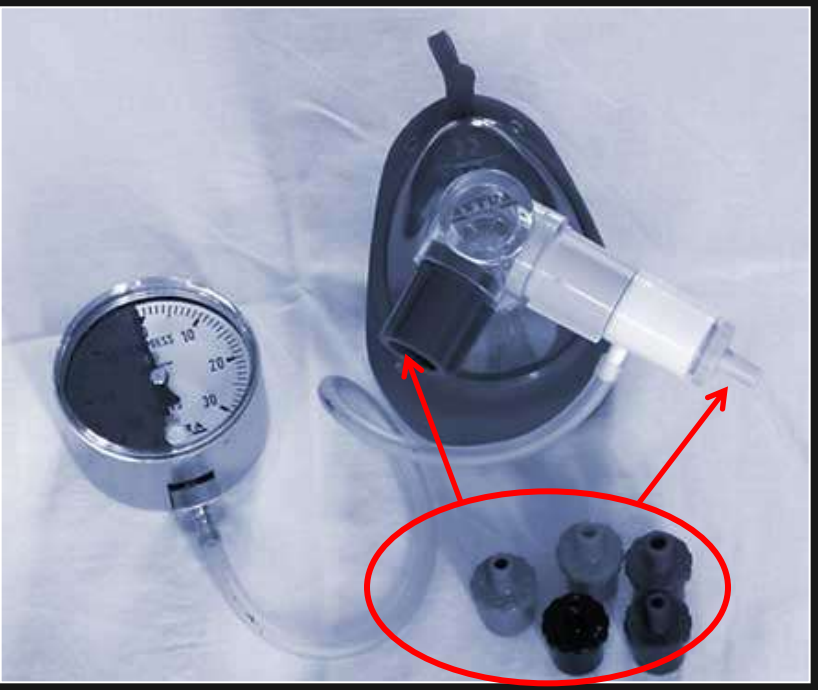
Expiration contre résistance



Inspiration contre résistance

Shunt de Leveen
Diminution de la PVC

Expiration et Inspiration contre résistance



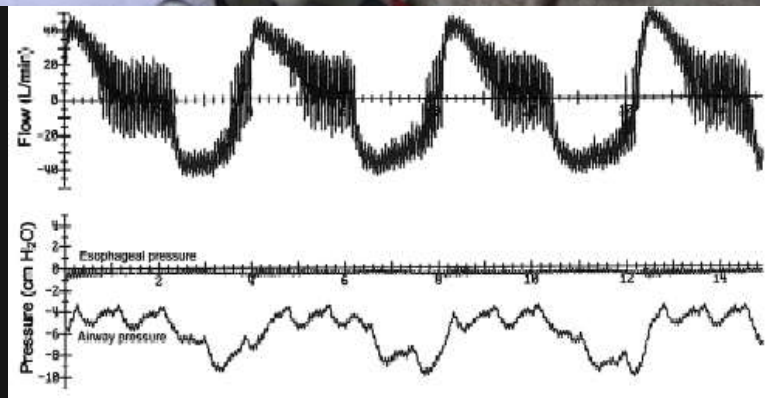
Fluter®, Acappella®, RC Cornet®

Buts

- Modulation du débit
- Diminution du collapsus
- Désencombrement bronchqiue

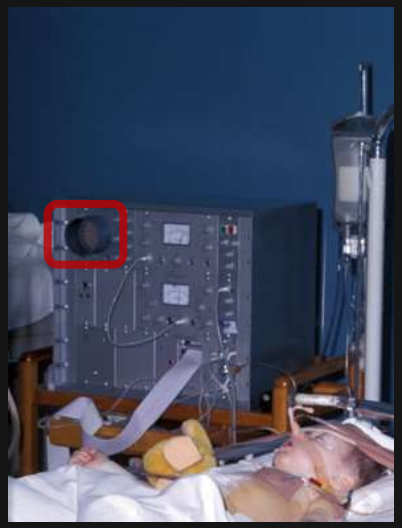
Cough Assit

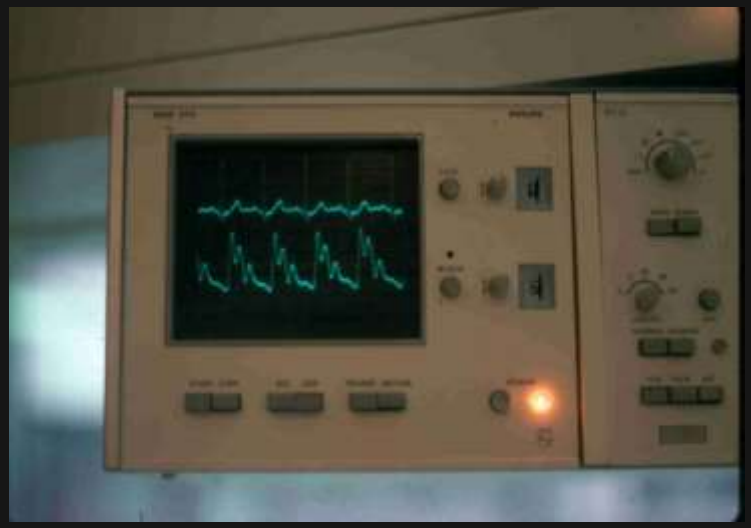
The Vest

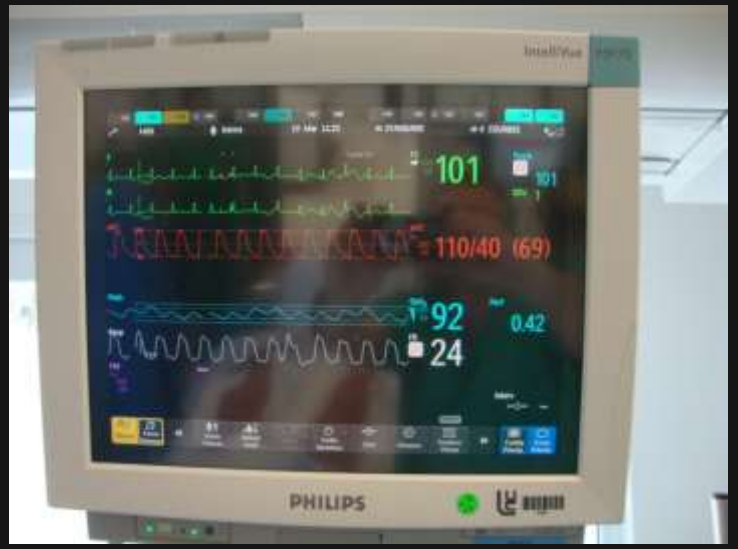

Flow (L/min)
Pressure (cm H2O)
Esophageal pressure
Airway pressure

Monitoring

- F.R.
- F.C.
- P.A.
- Clinique
- Gaz sanguins
- SpO2
- Hémodynamique
- D.C..
- ……

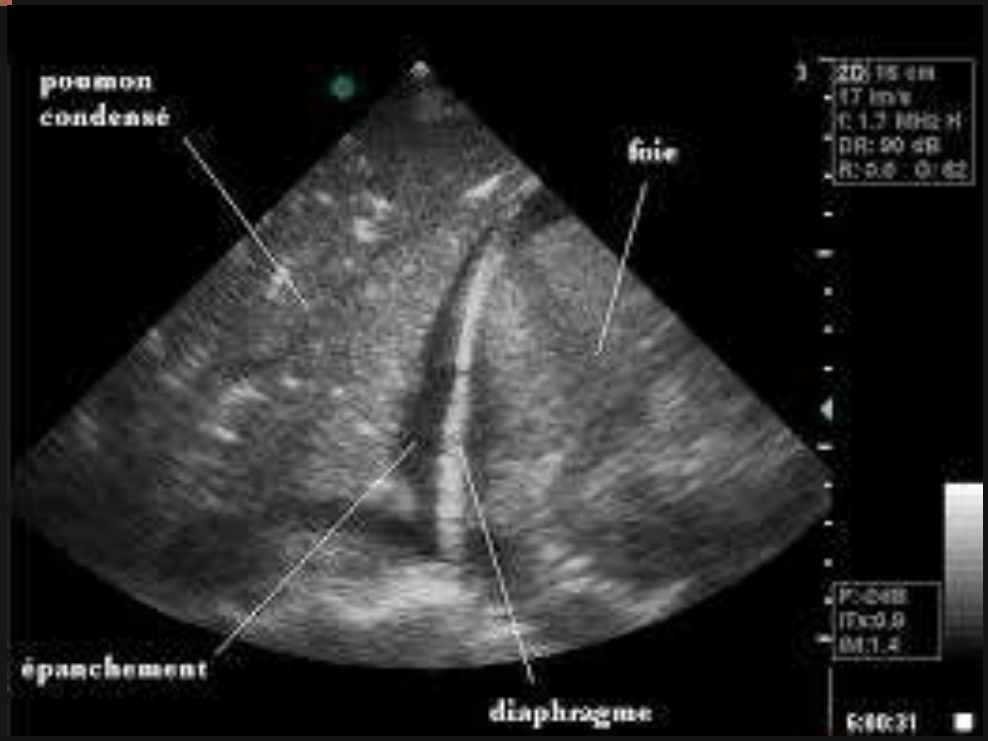






Impédance électrique

Echographie



Evolution de la ventilation mécanique invasive

- Vt
- F.R
- Débit
- *FiO2 !!!!*
- I/E

- Alarmes ???
- Pression ???
- Humidification ???

Setting
IMV

IMV (pressure)

Problèmes…
+ Volume ??
+ Synchronisation !!!

- PEEP
- Soupir
- IMV – SIMV
- Monitoring
- FiO2…
- ***Sevrage respiratoire***

Le servo 900A de Siemens Eléma

VIIIe CONFÉRENCE DE CONSENSUS EN RÉANIMATION

avec la participation de la Société de Pneumologie de Langue Française

LE SEVRAGE DE LA VENTILATION MÉCANIQUE CHEZ L'ADULTE

à l'exclusion des pathologies neurologiques et musculaires prédominantes

14 JUIN 1991

Faculté de Médecine – Amphithéâtre des Congrès
1, place de Verdun – 59045 L... Cedex

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C. GIBERT (Paris)
L. BROCHARD (Créteil)

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J.-L. TEBOUL (Paris)

Réanimation 2001 ; 10 : 699-705

S1624069301001992/FLA

TEXTE LONG

Sevrage de la ventilation mécanique (à l'exclusion du nouveau-né et du réveil d'anesthésie)

Jury du consensus : C. Richard*, J. Reydon, S. Cantagrel, A. Cuvelier, B. Fauroux, B. Garo, L. Herzaftel, O. Lesteur, J. Levraut, E. Maury, C. Polet, N. Roche, J. Roeseler

-Protocole
-Centre de sevrage

Ventilation en pression contrôlée

Aide Inspiratoire

Alarmes

…..

Monitoring

Courbes

Boucles

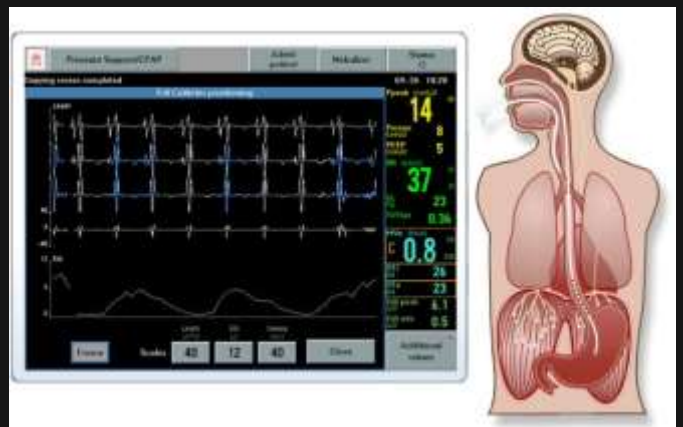
Volume garanti

SYNCHRONISATION

PROPORTIONAL ASSIST VENTILATION (PAV+)

Neurally Adjusted Ventilatory Assist

« NAVA »



Intensive Care Med
DOI 10.1007/s00134-010-2052-9

ORIGINAL

Lise Piquilloud
Laurence Vignaux
Emilie Bialais
Jean Roeseler
Thierry Sottiaux
Pierre-François Laterre
Philippe Jolliet
Didier Tassaux

Neurally adjusted ventilatory assist improves patient–ventilator interaction

J Clin Monit Comput
DOI 10.1007/s10877-012-9398-1

Variability

ORIGINAL RESEARCH

NAVA enhances tidal volume and diaphragmatic electro-myographic activity matching: a Range90 analysis of supply and demand

Katherine T. Moorhead · Lise Piquilloud · Bernard Lambermont · Jean Roeseler · Yeong Shiong Chiew · J. Geoffrey Chase · Jean-Pierre Revelly · Emilie Bialais · Didier Tassaux · Pierre-François Laterre · Philippe Jolliet · Thierry Sottiaux · Thomas Desaive

Intensive Care Med (2012) 38:1624–1631
DOI 10.1007/s00134-012-2626-9

ORIGINAL

Lise Piquilloud
Didier Tassaux
Emilie Bialais
Bernard Lambermont
Thierry Sottiaux
Jean Roeseler
Pierre-François Laterre
Philippe Jolliet
Jean-Pierre Revelly

Neurally adjusted ventilatory assist (NAVA) improves patient–ventilator interaction during non-invasive ventilation delivered by face mask


HELIOX

Intensive Care Med (2003) 29:119–125
DOI 10.1007/s00134-002-1562-5

EXPERIMENTAL

Christine Watremez
Jean Roeseler
Marc De Kock
Thierry Clerbaux
Bruno Detry
Claude Veriter
Marc Reynaert
Pierre Gianello
Philippe Jolliet
Giuseppe Liistro

An improved porcine model of stable methacholine-induced bronchospasm

Intensive Care Medicine
© Springer-Verlag 2003
10.1007/s00134-003-1779-x

Experimental

Effects of helium-oxygen on respiratory mechanics, gas exchange, and ventilation-perfusion relationships in a porcine model of stable methacholine-induced bronchospasm

Christine Watremez[2], Giuseppe Liistro[3], Marc deKock[2], Jean Roeseler[4], Thierry Clerbaux[3], Bruno Detry[3], Marc Reynaert[4], Pierre Gianello[5] and Philippe Jolliet[1]

Effects of helium-oxygen on intrinsic positive end-expiratory pressure in intubated and mechanically ventilated patients with severe chronic obstructive pulmonary disease

Didier Tassaux, MD; Philippe Jolliet, MD; Jean Roeseler, RT; Jean-Claude Chevrolet, MD

Objective: To test the hypothesis that replacing 70:30 nitrogen: oxygen (Air-O_2) with 70:30 helium:oxygen (He-O_2) can decrease dynamic hyperinflation ("intrinsic" positive end-expiratory pressure) in mechanically ventilated patients with chronic obstructive pulmonary disease (COPD), and to document the consequences of such an effect on arterial blood gases and hemodynamics.

Design: Prospective, interventional study.

Setting: Medical intensive care unit, university tertiary care center.

Patients: Twenty-three intubated, sedated, paralyzed, and mechanically ventilated patients with COPD enrolled within 36 hrs after intubation.

Interventions: Measurements were taken at the following time points, all with the same ventilator settings: a) baseline; b) after 45 mins with He-O_2; c) 45 mins after return to Air-O_2. The results were then compared to those obtained in a test lung model using the same ventilator settings.

Main Results (mean ± sd): Trapped lung volume and intrinsic positive end-expiratory pressure decreased during He-O_2 ventilation (215 ± 125 mL vs. 99 ± 15 mL and 9 ± 2.5 cm H_2O vs. 5 ± 2.7 cm H_2O, respectively; $p < .05$). Likewise, peak and mean airway pressures declined with He-O_2 (30 ± 5 cm H_2O vs. 25 ± 6 cm H_2O and 8 ± 2 cm H_2O vs. 7 ± 2 cm H_2O, respectively; $p < .05$). These parameters all rose to their baseline values on return to Air-O_2 ($p < .05$ vs. values during He-O_2). These results were in accordance with those obtained in the test lung model. There was no modification of arterial blood gases, heart rate, or mean systemic arterial blood pressure. In 12/23 patients, a pulmonary artery catheter was in place, allowing hemodynamic measurements and venous admixture calculations. Switching to He-O_2 and back to Air-O_2 had no effect on pulmonary artery pressures, right and left ventricular filling pressures, cardiac output, pulmonary and systemic vascular resistance, or venous admixture.

Conclusion: In mechanically ventilated COPD patients with intrinsic positive end-expiratory pressure, the use of He-O_2 can markedly reduce trapped lung volume, intrinsic positive end-expiratory pressure, and peak and mean airway pressures. No effect was noted on hemodynamics or arterial blood gases. He-O_2 might prove beneficial in this setting to reduce the risk of barotrauma, as well as to improve hemodynamics and gas exchange in patients with very high levels of intrinsic positive end-expiratory pressure. (Crit Care Med 2000; 28:2721–2728)

KEY WORDS: chronic obstructive pulmonary disease; mechanical ventilation; intrinsic positive end-expiratory pressure; helium; heliox; gas exchange

Helium-oxygen versus air-oxygen noninvasive pressure support in decompensated chronic obstructive disease: A prospective, multicenter study*

Philippe Jolliet; Didier Tassaux; Jean Roeseler; Luc Burdet; Alain Broccard; William D'Hoore; François Borst; Marc Reynaert; Marie-Denise Schaller; Jean-Claude Chevrolet

Objective: To study whether noninvasive pressure support ventilation (NIPSV) with helium/oxygen (He/oxygen), which can reduce dyspnea, $Paco_2$, and work of breathing more than NIPSV with air/oxygen in decompensated chronic obstructive pulmonary disease, could have beneficial consequences on outcome and hospitalization costs.

Design: Prospective, randomized, multicenter study.

Setting: Intensive care units of three tertiary care university hospitals.

Patients: All patients with chronic obstructive pulmonary disease admitted to the intensive care units for NIPSV during a 24-month period.

Interventions: Patients were randomized to NIPSV with air/oxygen or He/oxygen. NIPSV settings, number of daily trials, decision to intubate, and intensive care unit and hospital discharge criteria followed standard practice guidelines.

Results: A total of 123 patients (male/female ratio, 71:52; age, 71 ± 10 yrs, Acute Physiology and Chronic Health Evaluation II, 17 ± 4) were included. Intubation rate (air/oxygen 20% vs. He/oxygen 13%) and length of stay in the intensive care unit (air/oxygen 6.2 ± 5.6 vs. He/oxygen 5.1 ± 4 days) were comparable. The post–intensive care unit hospital stay was lower with He/oxygen (air/oxygen 19 ± 12 vs. He/oxygen 13 ± 6 days, $p < .002$). Cost of NIPSV gases was higher with He/oxygen, but total hospitalization costs were lower by $3,348 per patient with He/oxygen. No complications were associated with the use of He/oxygen.

Conclusion: He/oxygen did not significantly reduce intubation rate or intensive care unit stay, but hospital stay was shorter and total costs were lower. He/oxygen NIPSV can be safely administered and could prove to be a cost-effective strategy. (Crit Care Med 2003; 31:878–884)

KEY WORDS: mechanical ventilation; noninvasive ventilation; heliox; helium; chronic obstructive pulmonary disease; outcome

AUTOMATISATION

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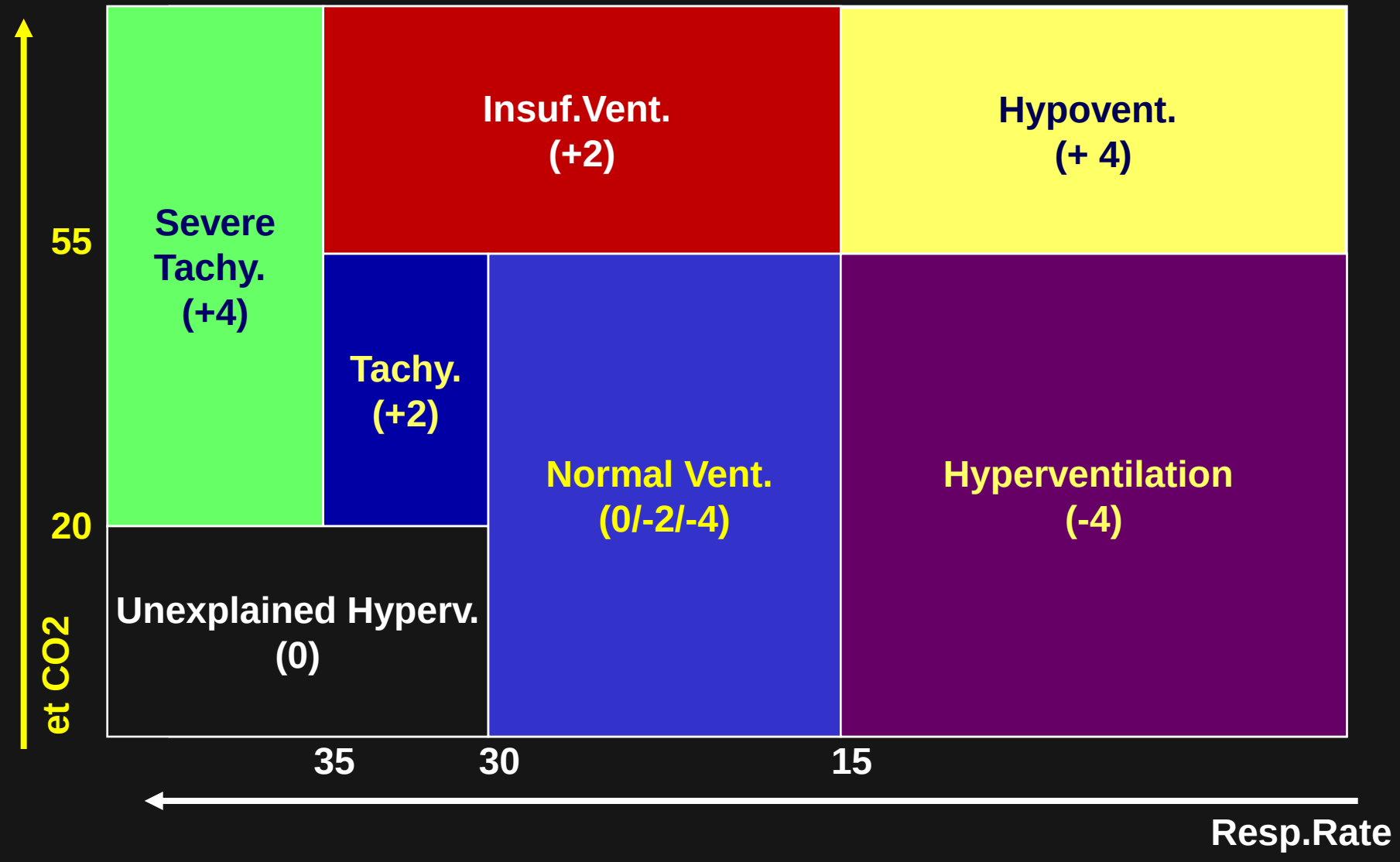
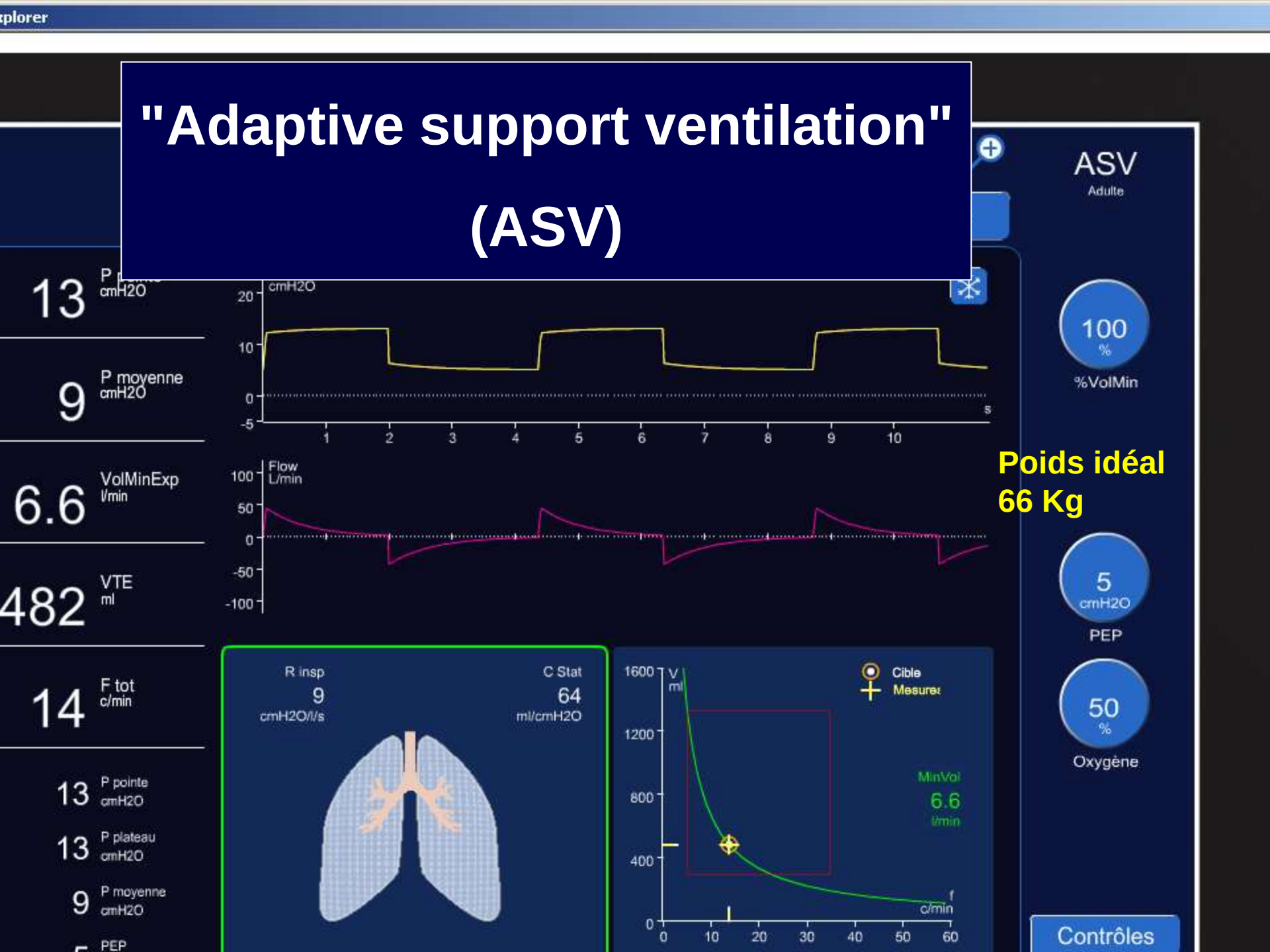
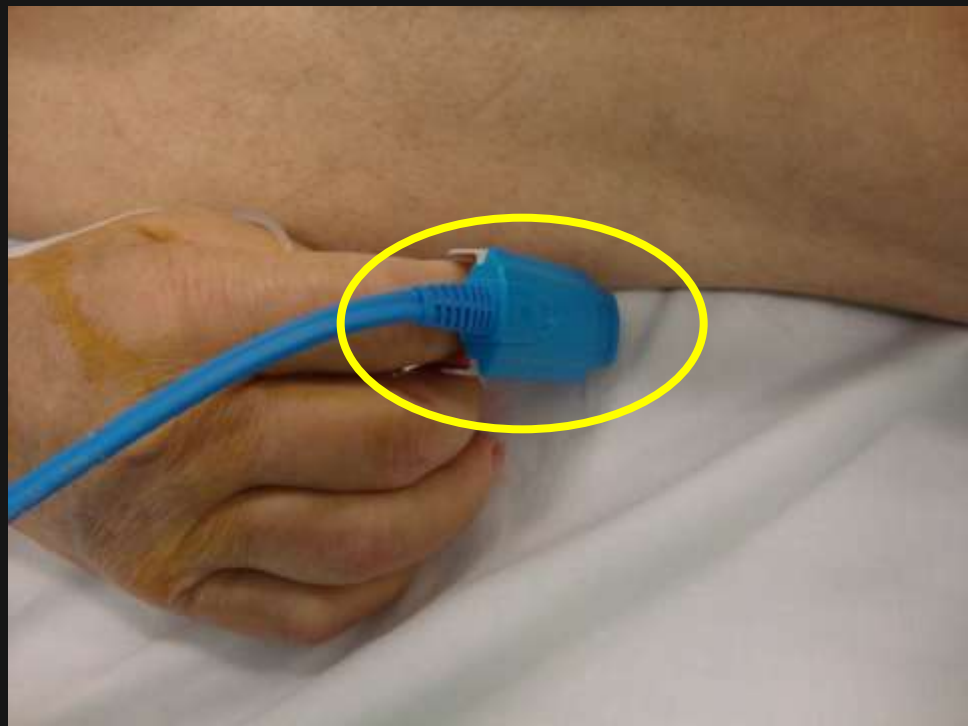

Severe Tachy. (+4)
Insuf.Vent. (+2)
Hypovent. (+ 4)
Tachy. (+2)
Normal Vent. (0/-2/-4)
Hyperventilation (-4)
Unexplained Hyperv. (0)
55
20
et CO2
35
30
15
Resp.Rate

"Adaptive support ventilation" (ASV)



"Adaptive support ventilation"

+ INTELLIVENT

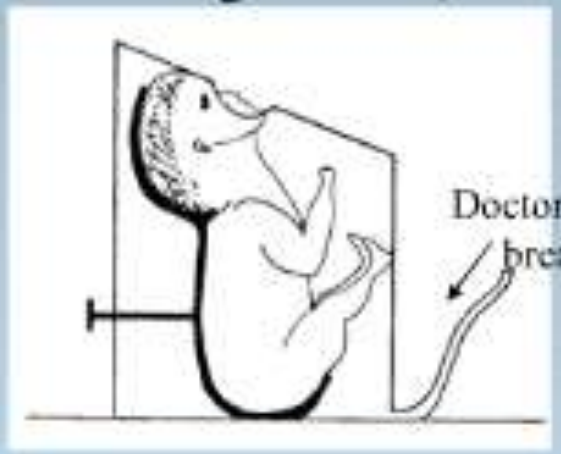


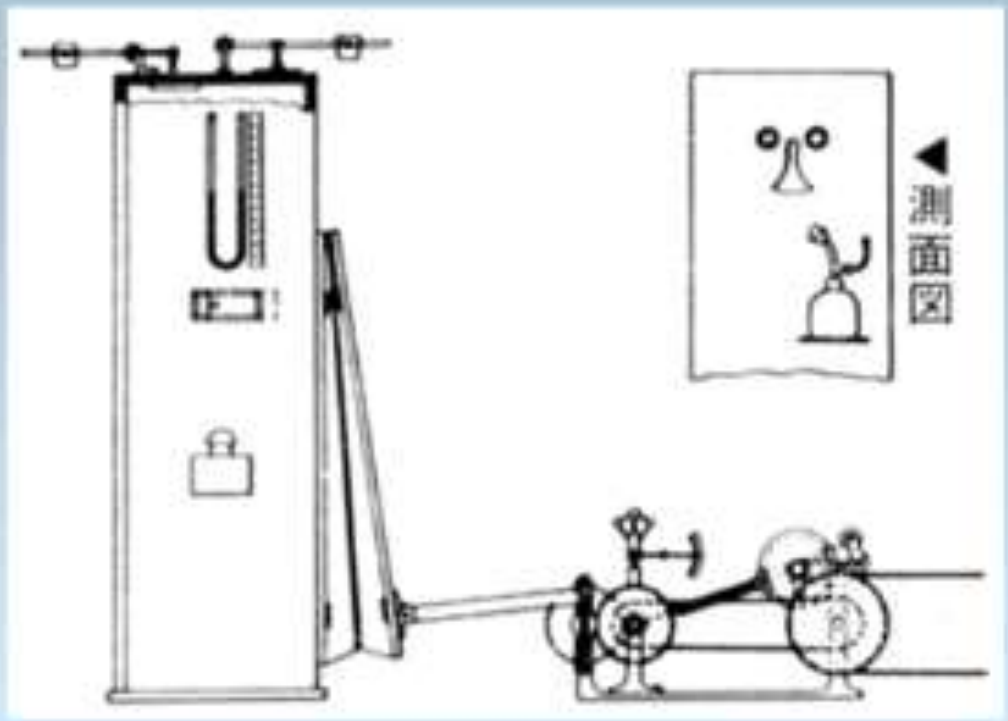

Patient
Additions
Modes
Adult
40
5
14
Ppeak
cmH2O
9
Pmean
cmH2O
10
4
7.5
ExpMinVol
l/min
750
250
538
VTE
ml
23
8
14
fTotal
b/min
14 Ppeak cmH2O
13 Pplateau cmH2O
9 Pmean cmH2O
5 PEEP/CPAP cmH2O
5.0 Pminimum cmH2O
1 / 6
1600
1200
800
400
0
V
ml
Target
Current
MinVol
7.5
l/min
f
b/min
0 10 20 30 40 50 60
fSpont
0
b/min
fControl
14
b/min
Pinsp
9
cmH2O
Paw
cmH2O
20
10
0
-5
1 2 3 4 5 6 7 8 9 10
s
Flow
L/min
100
50
0
-50
-100
CO2 elimination
etCO2
in range
MinVol
Automatically maintaining %MinVol target
14
Ppeak
38
PetCO2
0
fSpont
1/2
100
%
%MinVol
Oxygenation
SpO2
too high
PEEP
Automatically maintained PEEP
Oxygen
Automatic decrease of oxygen
5
PEEP
98
SpO2
5
cmH2O
PEEP/CPAP
29
49
%
Oxygen
Controls
Alarms
Monitoring
Graphics
Tools
Events
System
INT
AC
HAMILTON

VENTILATION MECANIQUE NON INVASIVE

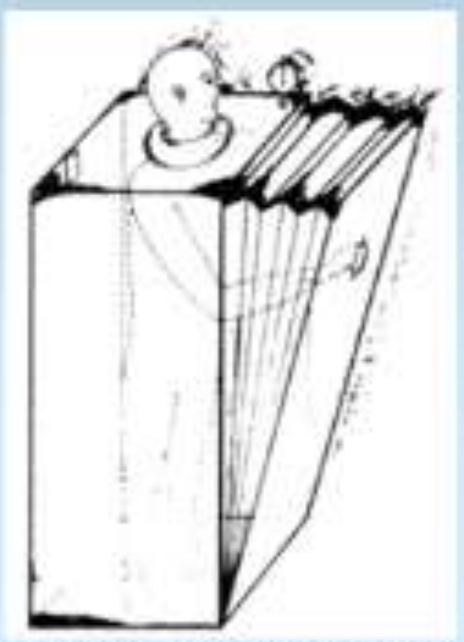
Les années folles.

1900 : Egon Braun, 1899





M L Severy, 1916



Chambre pneumatique de W. Shake, 1926

Mörch E T : History of mechanical ventilation. In Kirby RR, Mechanical ventilation, pp 1-58.

Années 50 épidémies de polio (Copenhague – Los Angeles)

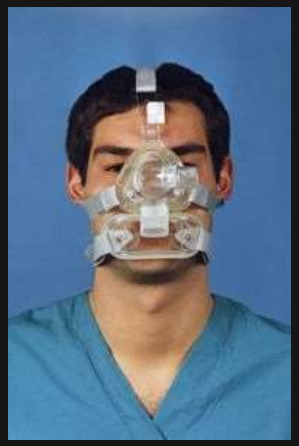

BREAS

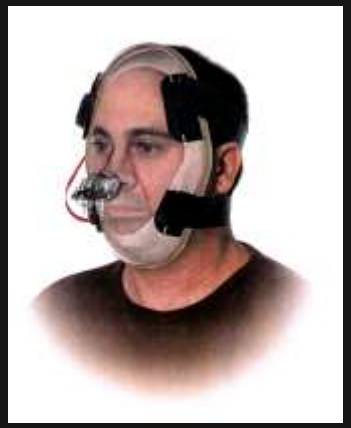
Evolution of the interfaces











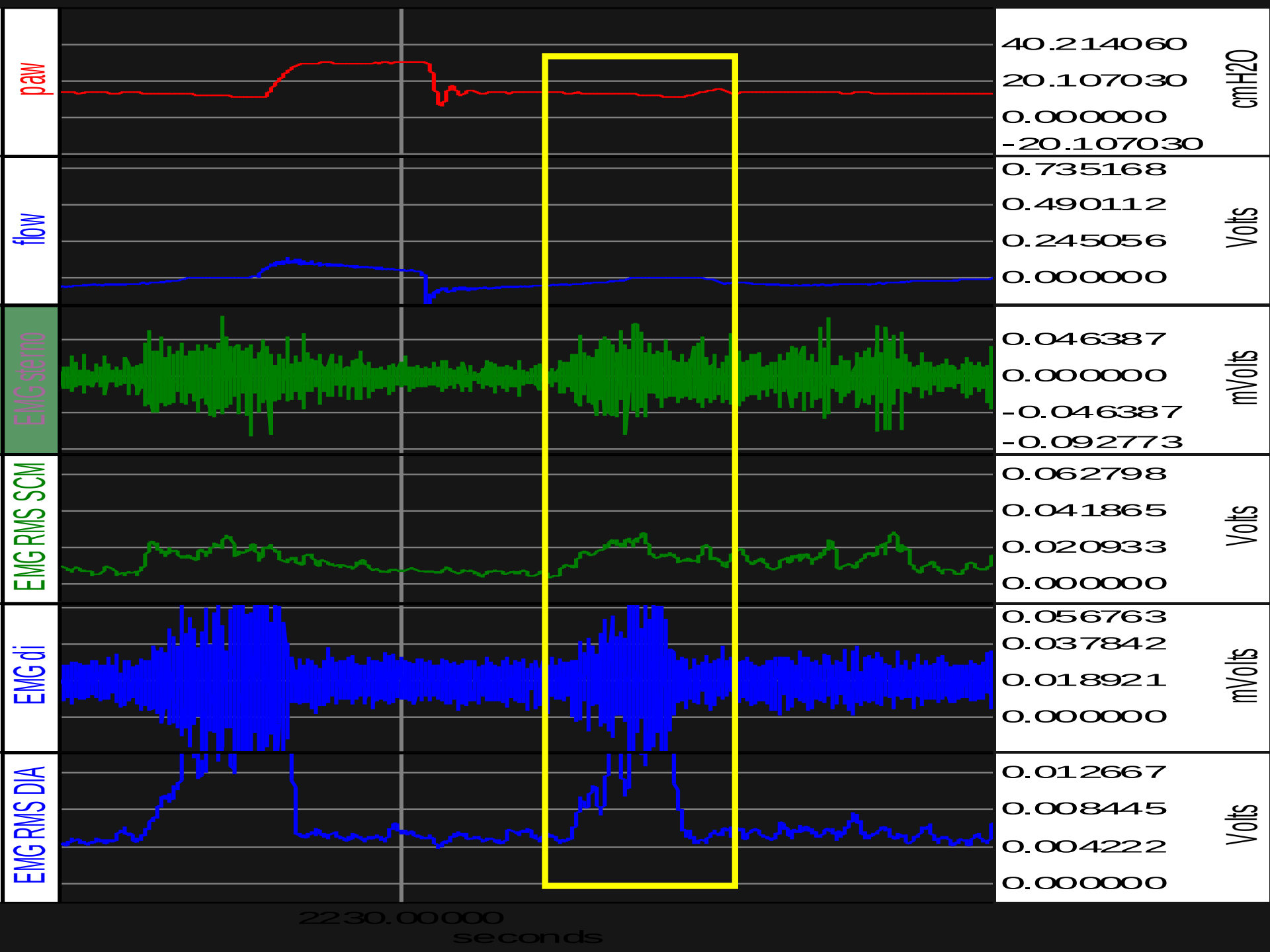






ELSEVIER
MASSON
Conférence de consensus commune
Ventilation Non Invasive
au cours de l'insuffisance respiratoire aiguë
(nouveau-né exclu)
12 octobre 2006 - Paris
Société de Réanimation de Langue Française
Réanimation
SPLF
Maladies Respiratoires
SFAR
annales françaises d'ANESTHÉSIE et de RÉANIMATION
STOP ou ENCORE ?

Synchronisation


paw
40.214060
20.107030
0.000000
-20.107030
cmH2O
flow
0.735168
0.490112
0.245056
0.000000
Volts
EMG sterno
0.046387
0.000000
-0.046387
-0.092773
mVolts
EMG RMS SCM
0.062798
0.041865
0.020933
0.000000
Volts
EMG di
0.056763
0.037842
0.018921
0.000000
mVolts
EMG RMS DIA
0.012667
0.008445
0.004222
0.000000
Volts
2230.00000
seconds

MOBILISATION

Journal of
APPLIED PHYSIOLOGY

VOLUME II — *NOVEMBER 1949* — NUMBER 5

Effects of Bed Rest on Cardiovascular Function and Work Performance[1]

HENRY LONGSTREET TAYLOR, AUSTIN HENSCHEL, JOSEF BROŽEK AND ANCEL KEYS. *From the Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis, Minnesota*

CHEST, 68: 4, OCTOBER, 1975

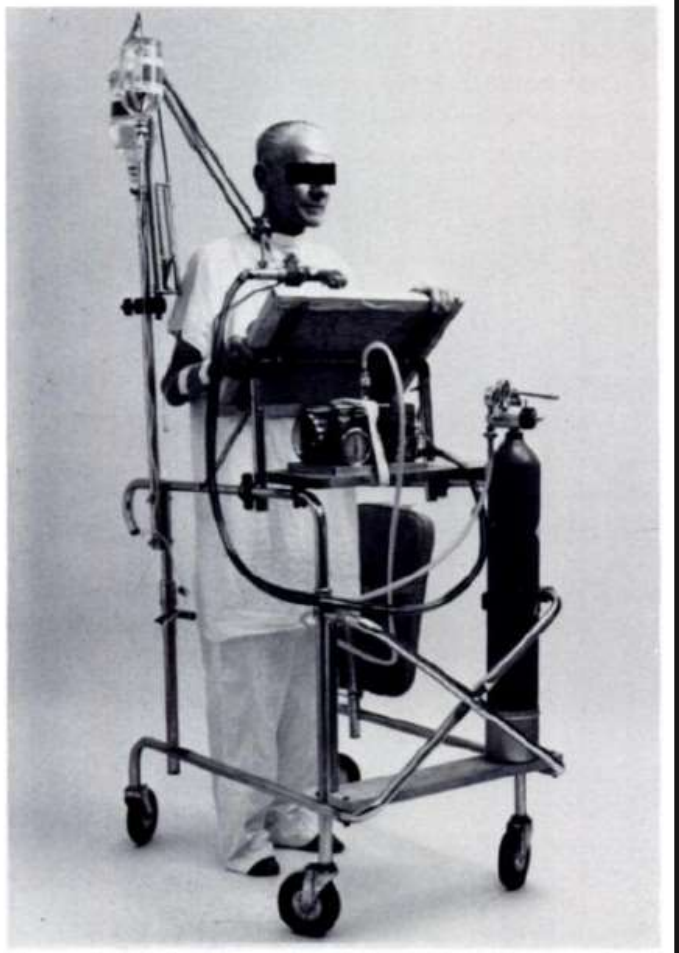
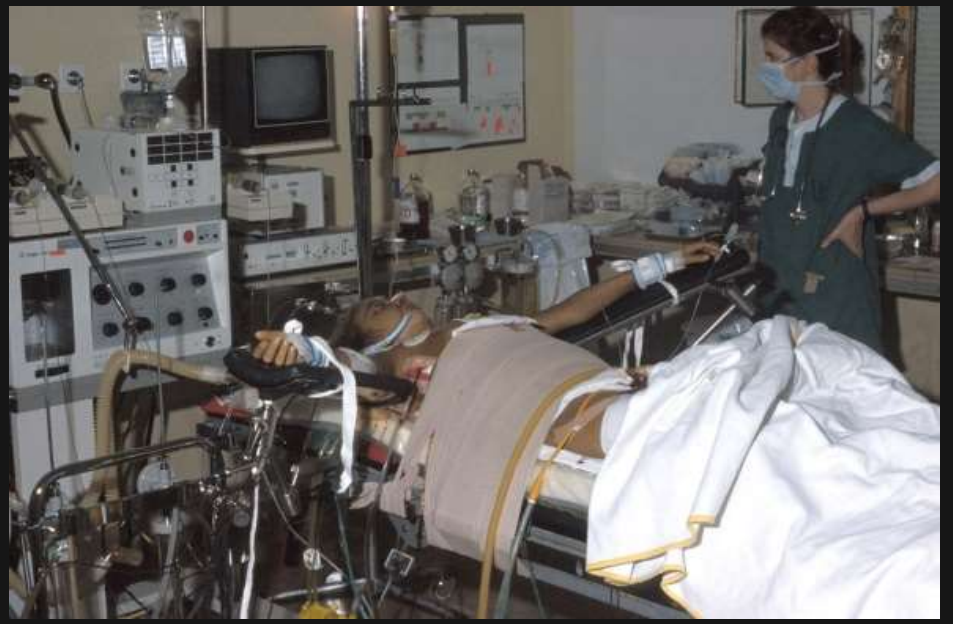


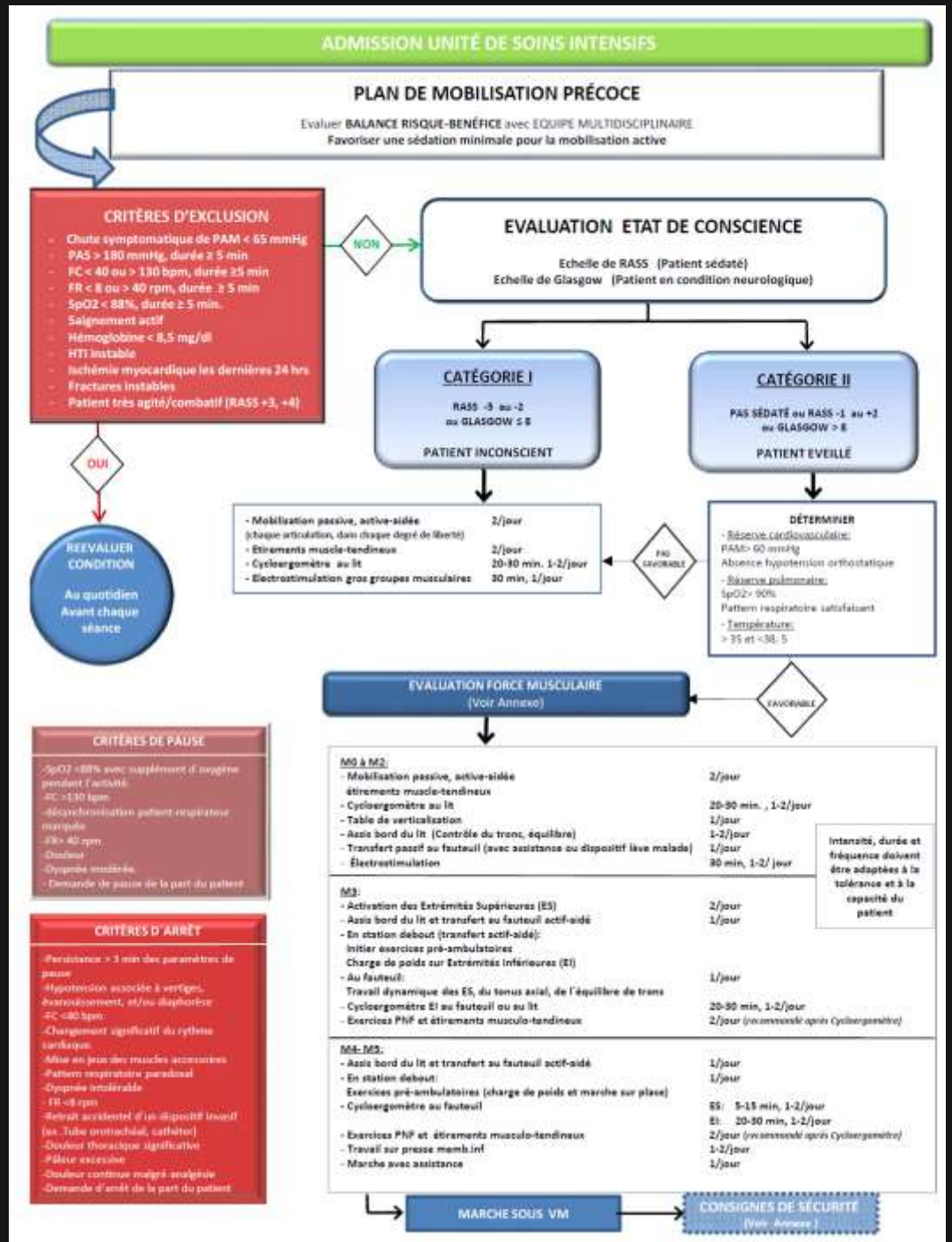
FIGURE 1. Device for early ambulation of patients requiring ventilatory assistance.



Protocole de mobilisation précoce

M. Patri, J.Roeseler, E. Bialais, C.Hickmann et J. Dugernier

Unité de Soins Intensifs
UCL Cliniques Universitaires Saint Luc
Bruxelles
2013


ADMISSION UNITÉ DE SOINS INTENSIFS
PLAN DE MOBILISATION PRÉCOCE
Evaluer BALANCE RISQUE-BENÉFICE avec EQUIPE MULTIDISCIPLINAIRE
Favoriser une sédation minimale pour la mobilisation active
CRITÈRES D'EXCLUSION
- Chute symptomatique de PAM < 65 mmHg
- PAS > 180 mmHg, durée ≥ 5 min
- FC < 40 ou > 130 bpm, durée ≥5 min
- FR < 8 ou > 40 rpm, durée ≥ 5 min
- SpO2 < 88%, durée ≥ 5 min.
- Saignement actif
- Hémoglobine < 8,5 mg/dl
- HTI instable
- Ischémie myocardique les dernières 24 hrs
- Fractures instables
- Patient très agité/combatif (RASS +3, +4)
NON
EVALUATION ETAT DE CONSCIENCE
Echelle de RASS (Patient sédaté)
Echelle de Glasgow (Patient en condition neurologique)
CATÉGORIE I
RASS -5 ou -2
ou GLASGOW ≤ 8
PATIENT INCONSCIENT
CATÉGORIE II
PAS SÉDATÉ ou RASS -1 ou +2
ou GLASGOW > 8
PATIENT EVEILLÉ
OUI
REEVALUER CONDITION
Au quotidien
Avant chaque séance
- Mobilisation passive, active-aidée 2/jour
(chaque articulation, dans chaque degré de liberté)
- Etirements muscle-tendineux 2/jour
- Cycloergomètre au lit 20-30 min. 1-2/jour
- Electrostimulation gros groupes musculaires 30 min, 1/jour
PAS FAVORABLE
DÉTERMINER
- Réserve cardiovasculaire:
PAM> 60 mmHg
Absence hypotension orthostatique
- Réserve pulmonaire:
SpO2> 90%
Pattern respiratoire satisfaisant
- Température:
> 35 et <38, 5
FAVORABLE
EVALUATION FORCE MUSCULAIRE
(Voir Annexe)
CRITÈRES DE PAUSE
-SpO2 <88% avec supplément d'oxygène pendant l'activité
-FC >130 bpm
-désynchronisation patient-respirateur marquée
-FR> 40 rpm
-Douleur
-Dyspnée modérée
- Demande de pause de la part du patient
CRITÈRES D'ARRÊT
-Persistance > 3 min des paramètres de pause
-Hypotension associée à vertiges, évanouissement, et/ou diaphorèse
-FC <40 bpm
-Changement significatif du rythme cardiaque
-Mise en jeu des muscles accessoires
-Pattern respiratoire paradoxal
-Dyspnée intolérable
- FR <8 rpm
-Retrait accidentel d'un dispositif invasif (ex. Tube orotrachéal, cathéter)
-Douleur thoracique significative
-Pâleur excessive
-Douleur continue malgré analgésie
-Demande d'arrêt de la part du patient
M0 à M2:
- Mobilisation passive, active-aidée 2/jour
étirements muscle-tendineux
- Cycloergomètre au lit 20-30 min. , 1-2/jour
- Table de verticalisation 1/jour
- Assis bord du lit (Contrôle du tronc, équilibre) 1-2/jour
- Transfert passif au fauteuil (avec assistance ou dispositif lève malade) 1/jour
- Électrostimulation 30 min, 1-2/ jour
Intensité, durée et fréquence doivent être adaptées à la tolérance et à la capacité du patient
M3:
- Activation des Extrémités Supérieures (ES) 2/jour
- Assis bord du lit et transfert au fauteuil actif-aidé 1/jour
- En station debout (transfert actif-aidé):
Initier exercices pré-ambulatoires
Charge de poids sur Extrémités Inférieures (EI)
- Au fauteuil: 1/jour
Travail dynamique des ES, du tonus axial, de l'équilibre de tronc
- Cycloergomètre EI au fauteuil ou au lit 20-30 min, 1-2/jour
- Exercices PNF et étirements musculo-tendineux 2/jour (recommandé après Cycloergomètre)
M4- M5:
- Assis bord du lit et transfert au fauteuil actif-aidé 1/jour
- En station debout: 1/jour
Exercices pré-ambulatoires (charge de poids et marche sur place)
- Cycloergomètre au fauteuil
ES: 5-15 min, 1-2/jour
EI: 20-30 min, 1-2/jour
- Exercices PNF et étirements musculo-tendineux 2/jour (recommandé après Cycloergomètre)
- Travail sur presse memb.inf 1-2/jour
- Marche avec assistance 1/jour
MARCHE SOUS VM
CONSIGNES DE SÉCURITÉ
(Voir Annexe)

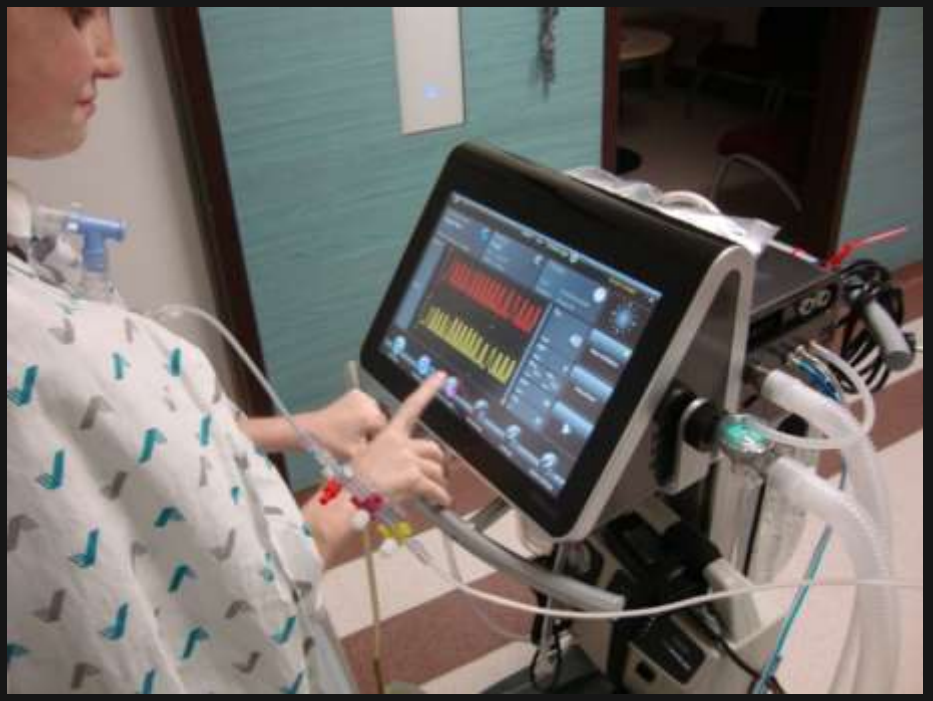








GH
LEVOPHED



Conclusions

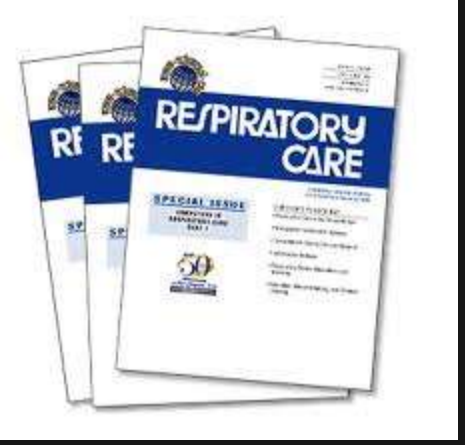
Enseignement

Chercheur

Connaissances spécifiques

Curieux - Re.K.Re

Curieux


RESPIRATORY CARE
SPECIAL ISSUE


SKR

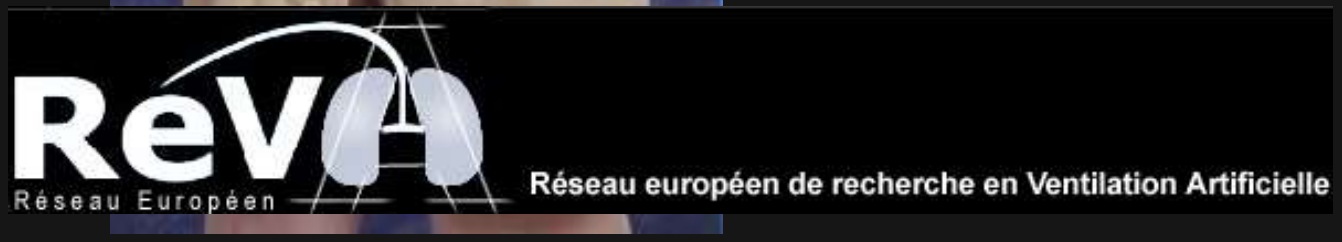

Journal of Intensive Care Medicine


INTENSIVE CARE MEDICINE


Indian Journal of
Critical Care Medicine


ESICM
LIVES 2011
BERLIN


INTERNATIONAL EARLY MOBILIZATION NETWORK
2nd European Conference on Weaning & Rehabilitation in Critically ill Patients
PROGRAM
DATE November 7th and 8th, 2014
LOCATION Athens, Greece


ReVA
Réseau Européen
Réseau européen de recherche en Ventilation Artificielle

Défenseur de la profession

Votre destin est entre vos mains …

Merci pour votre attention