NA POLOZE ZÁLEŽÍ... změny polohy k hodnocení hemodynamiky

Jan Beneš
KARIM a Simulační centrum
Lékařská fakulta v Plzni Univerzita Karlova a FN Plzeň

COI

- Řada výzkumných grantů k problematice hemodynamiky a monitorace kardiovaskulárního systému
- Spolupráce s výrobci
  - Edwards Lifesciences Inc.
  - Pulsion Getinge
  - CNSystems

PROTOŽE NA POLOZE ZÁLEŽÍ...

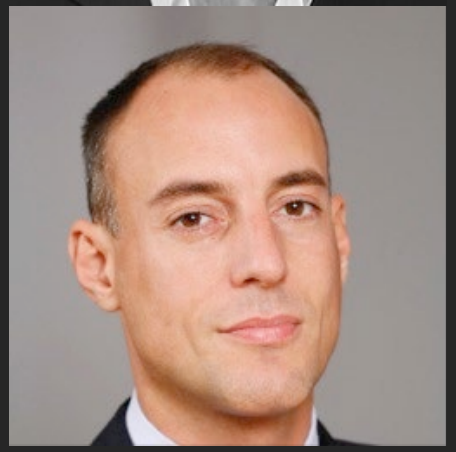
Bude to dnes velmi krátké...

PASSIVE LEG RAISING

HEMODYNAMICKÝ EFEKT PRONACE

...A CO NA TO ANESTEZIE...

TEST PASIVNÍHO ZVBEDNUTÍ NOHOU

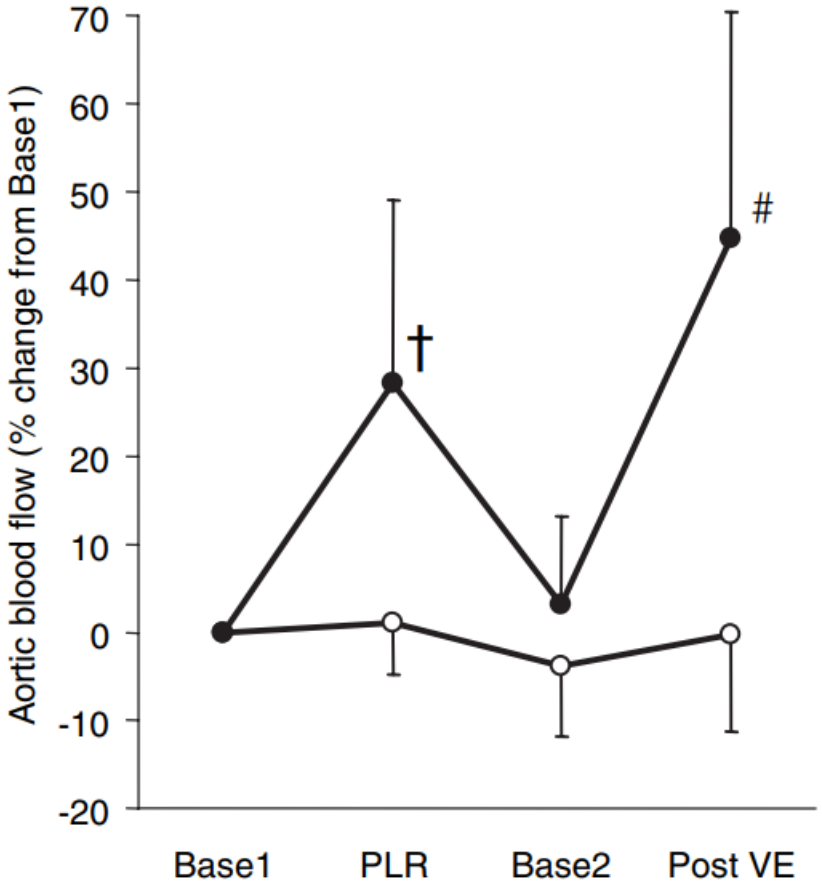


TEST PASIVNÍHO ZVBEDNUTÍ NOHOU

Passive leg raising predicts fluid responsiver

Xavier Monnet, MD, PhD; Mario Rienzo, MD; David Osman, MD; Na
Michael R. Pinsky, MD, Dr hc; Jean-Louis Teboul, MD, PhD

Figure 1. Study design. *PLR*, passive leg raising; *VE*, volume expansion.



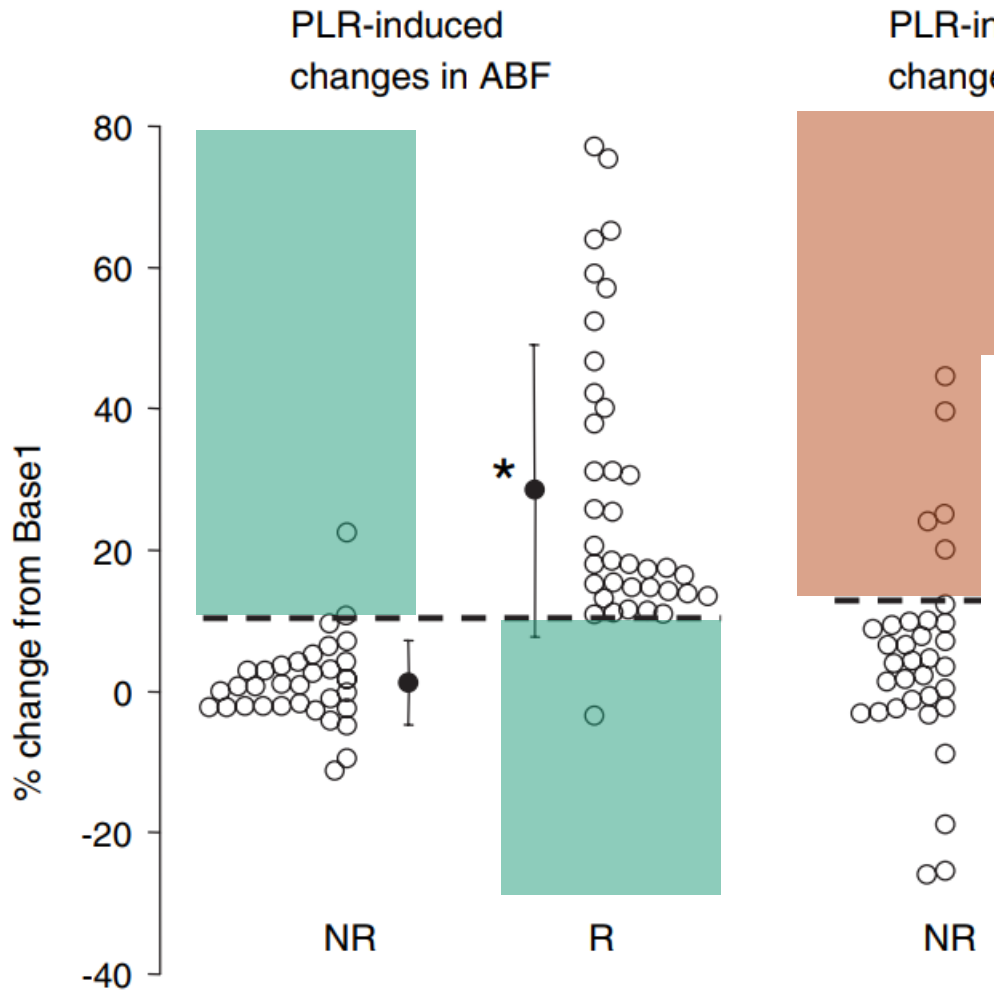
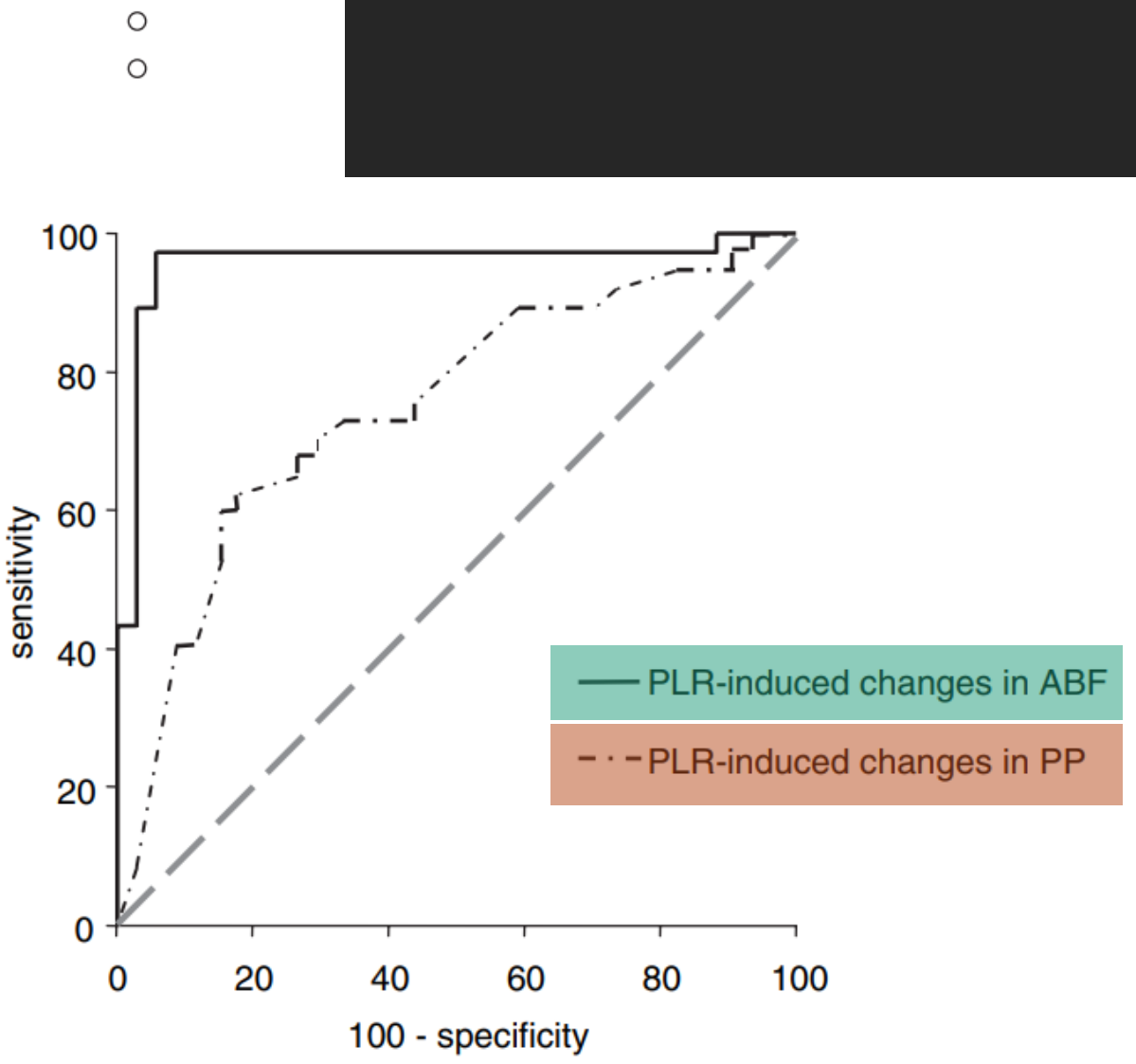


Figure 3. Individual values (*open circles*) and mean ± SD (*filled circles*) of (*ABF*) and of changes of pulse pressure (*PP*) induced by passive leg rais percent variation from base 1) in responders (*R*) and nonresponders (*NR*).



Passive leg raising predicts fluid responsiveness in the critically ill*

Xavier Monnet, MD, PhD; Mario Rienzo, MD; David Osman, MD; Nadia Anguel, MD; Christian Richard, MD; Michael R. Pinsky, MD, Dr hc; Jean-Louis Teboul, MD, PhD

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1967

2023

Intensive Care Med (2016) 42:1935–1947
DOI 10.1007/s00134-015-4134-1

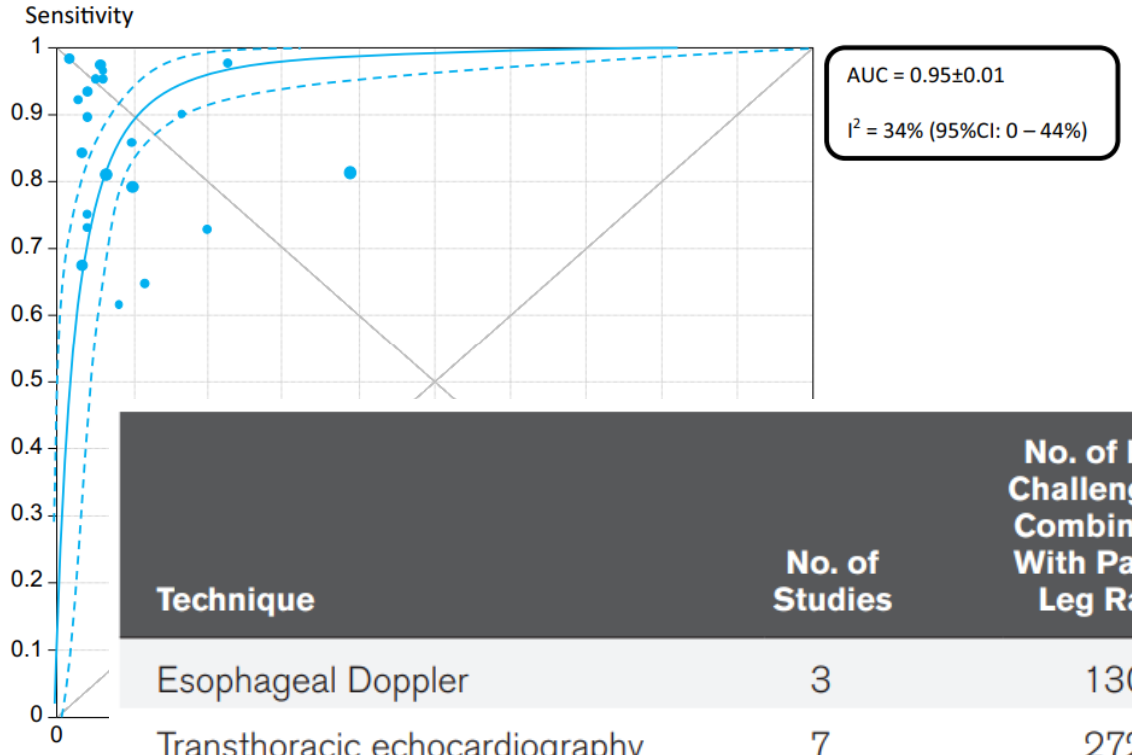
ORIGINAL

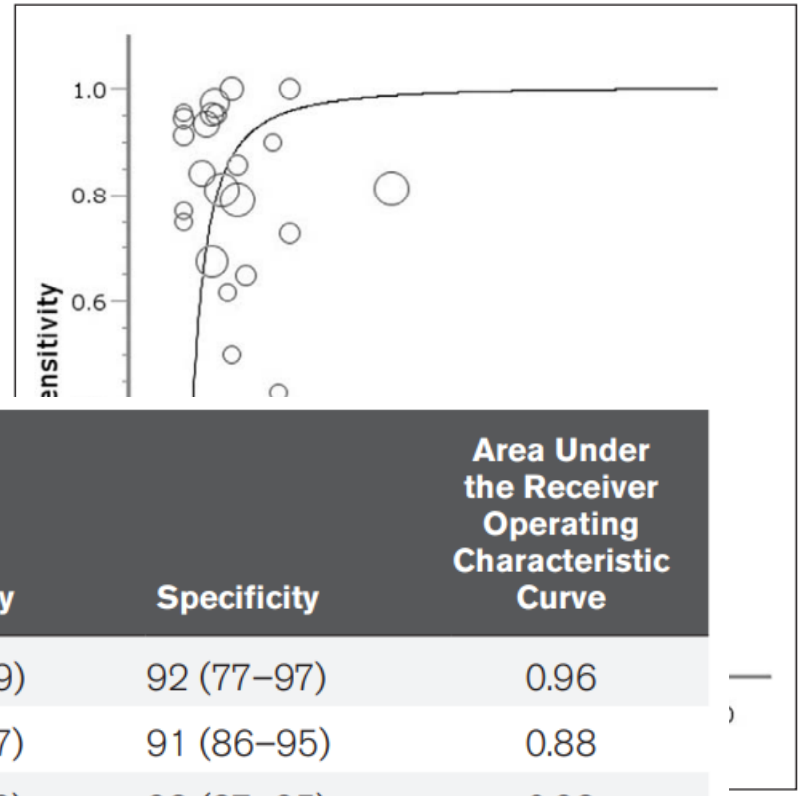
Xavier Monnet
Paul Marik
Jean-Louis Teboul

Passive leg raising for predicting fluid responsiveness: a systematic review and meta-analysis

Predicting Fluid Responsiveness by Passive Leg Raising: A Systematic Review and Meta-Analysis of 23 Clinical Trials*

Thomas G. V. Cherpanath, MD[1]; Alexander Hirsch, MD, PhD[2]; Bart F. Geerts, MD, PhD[3]; Wim K. Lagrand, MD, PhD[1]; Mariska M. Leeflang, PhD[4]; Marcus J. Schultz, MD, PhD[5]; A. B. Johan Groeneveld, MD, PhD[6]





Technique	No. of Studies	No. of Fluid Challenges in Combination With Passive Leg Raise	Sensitivity	Specificity	Area Under the Receiver Operating Characteristic Curve
Esophageal Doppler	3	130	96 (84–99)	92 (77–97)	0.96
Transthoracic echocardiography	7	272	79 (68–87)	91 (86–95)	0.88
Pulse contour analysis	10	423	84 (77–89)	92 (87–95)	0.92
Bioreactance	3	209	84 (67–93)	86 (68–94)	0.89

Beurton *et al. Critical Care* (2019) 23:19
https://doi.org/10.1186/s13054-019-2306-z

Critical Care

RESEARCH Open Access

The effects of passive leg raising may be detected by the plethysmographic oxygen saturation signal in critically ill patients

Alexandra Beurton[1,2*], Jean-Louis Teboul[1,2], Francesco Gavelli[1], Filipe Andre Gonzalez[1], Valentina Girotto[1], Laura Galarza[1], Nadia Anguel[1], Christian Richard[1] and Xavier Monnet[1,2]

Intensive Care Med (2013) 39:93–100
DOI 10.1007/s00134-012-2693-y

ORIGINAL

Xavier Monnet
Aurélien Bataille
Eric Magalhaes
Jérôme Barrois
Marine Le Corre
Clément Gosset
Laurent Guerin
Christian Richard
Jean-Louis Teboul

End-tidal carbon dioxide is better than arterial pressure for predicting volume responsiveness by the passive leg raising test

Frontiers in Bioscience Elite

Front. Biosci. (Elite Ed) **2023**; 15(2): 12
https://doi.org/10.31083/j.fbe1502012

Original Research

Carotid Artery Corrected Flow Time Measured by Wearable Doppler Ultrasound Accurately Detects Changing Stroke Volume During the Passive Leg Raise in Ambulatory Volunteers

Jon-Émile S. Kenny[1,2,*], Christine Horner[2], Mai Elfarnawany[2], Andrew M. Eibl[1,2], Joseph K. Eibl[1,2,3]

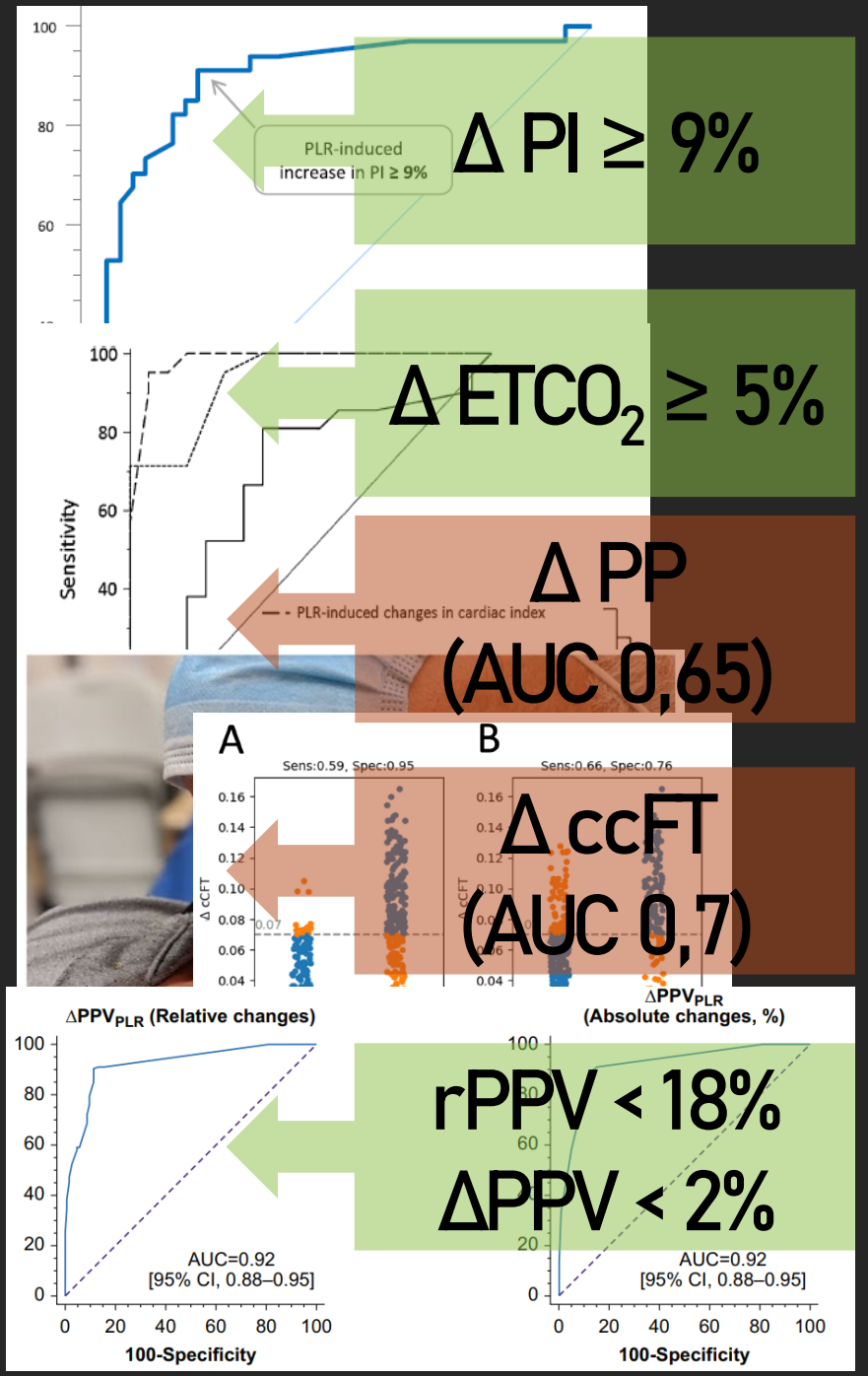
BJA

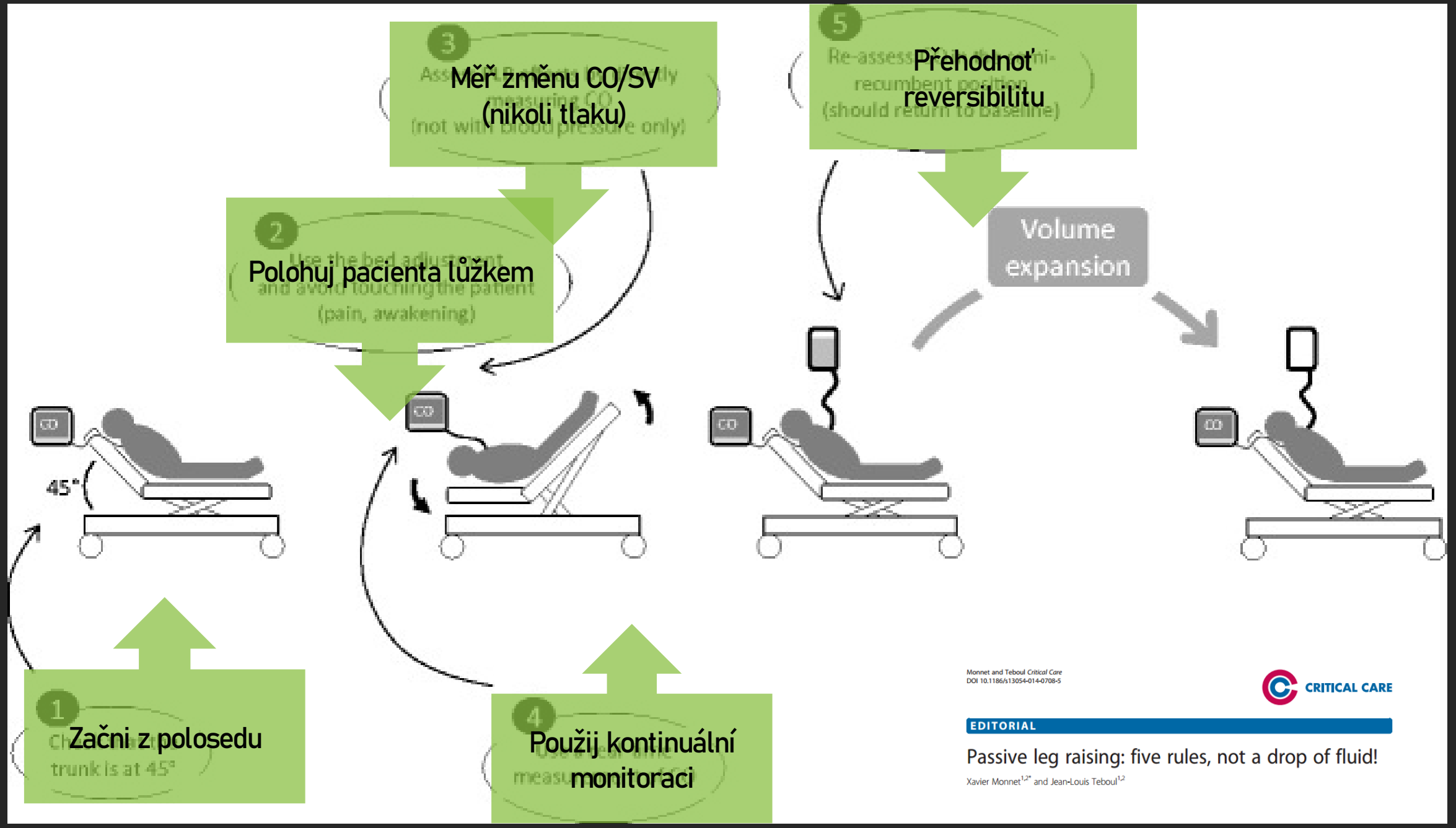
British Journal of Anaesthesia, 129 (3): 308–316 (2022)

doi: 10.1016/j.bja.2022.04.031
Advance Access Publication Date: 14 July 2022
Cardiovascular

Passive leg raising-induced changes in pulse pressure variation to assess fluid responsiveness in mechanically ventilated patients: a multicentre prospective observational study

Jihad Mallat[1,2,3,4,*], Marc-Olivier Fischer[5], Maxime Granier[1], Christophe Vinsonneau[6],





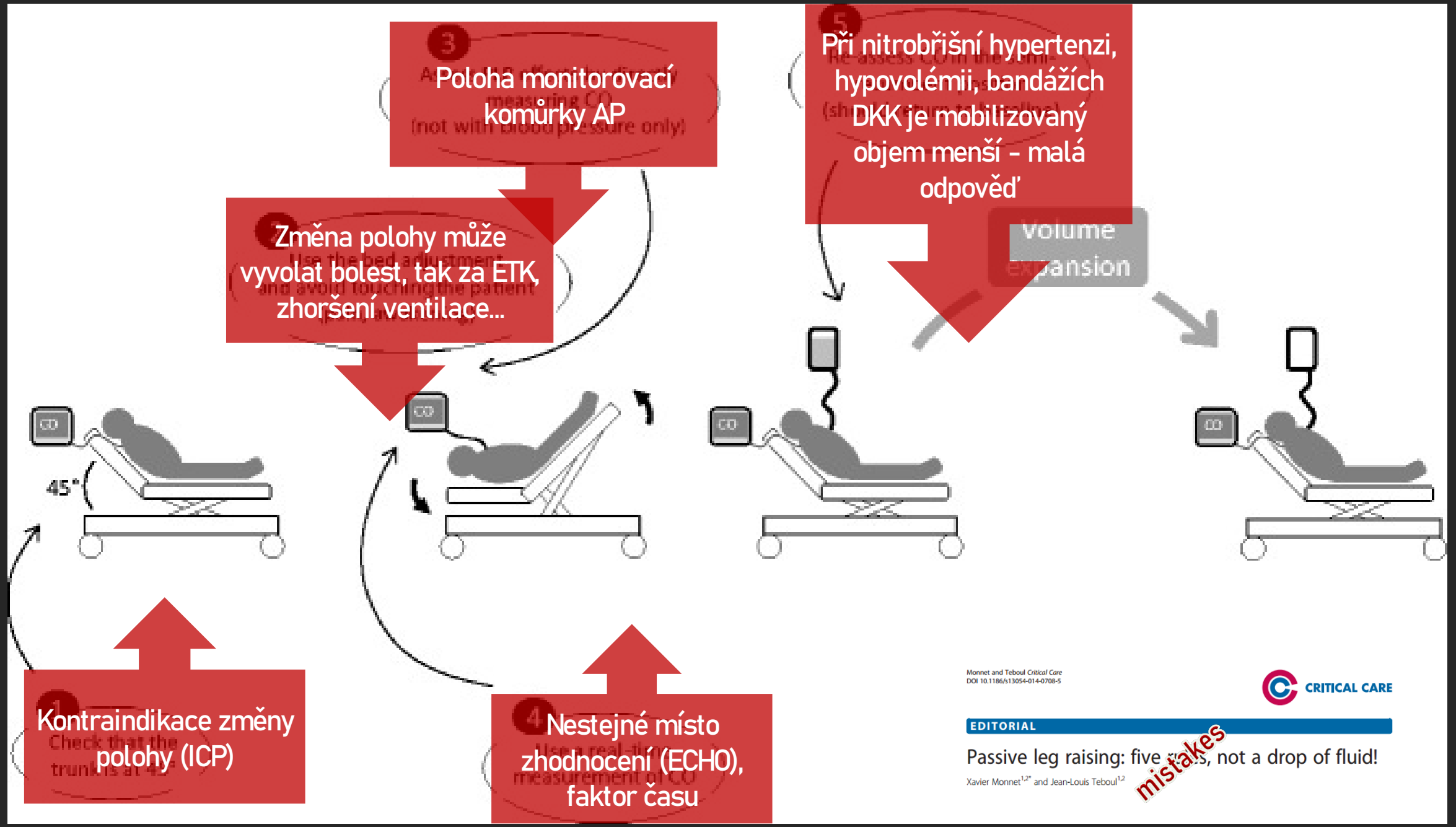
Monnet and Teboul *Critical Care*
DOI 10.1186/s13054-014-0708-5

CRITICAL CARE

EDITORIAL

Passive leg raising: five rules, not a drop of fluid!

Xavier Monnet[1,2*] and Jean-Louis Teboul[1,2]



Monnet and Teboul *Critical Care*
DOI 10.1186/s13054-014-0708-5

CRITICAL CARE

EDITORIAL

Passive leg raising: five [illegible], not a drop of fluid!

mistakes

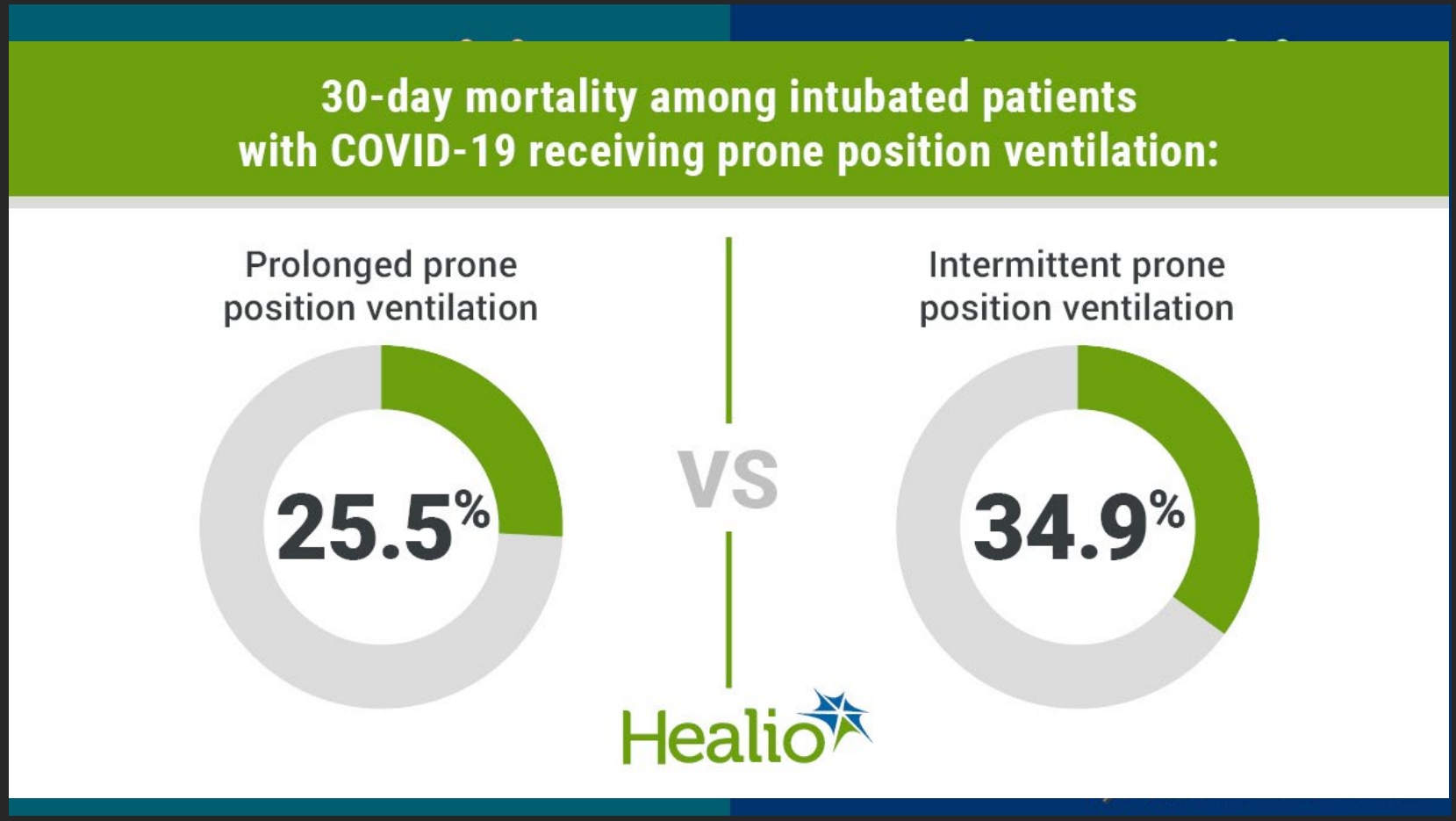
Xavier Monnet[1,2*] and Jean-Louis Teboul[1,2]

TAKE HOME MESSAGE #1

- TEST PASIVNÍHO ZVEDNUTÍ NOHOU FUNGUJE, POKUD JSOU SPLNĚNÝ ZÁKLADNÍ PODMÍNKY
  - SEMIREKUMBENTNÍ POLOHA
  - POLOHOVÁNÍ LŮŽKEM S MINIMALIZACÍ SYMPATICKÉ ODEZVY PACIENTA
  - SLEDOVÁNÍ NA „FLOW" DEPENDENTNÍCH PARAMETRECH S VELMI KRÁTKOU ČASOVOU ODEZVOU
  - REVERZIBILITA TESTU PO NÁVRATU POLOHY

- ZMĚNA SV, CI, ABF nebo PI, ET CO_2, PPV

HEMODYNAMICKÝ EFEKT PRONACE

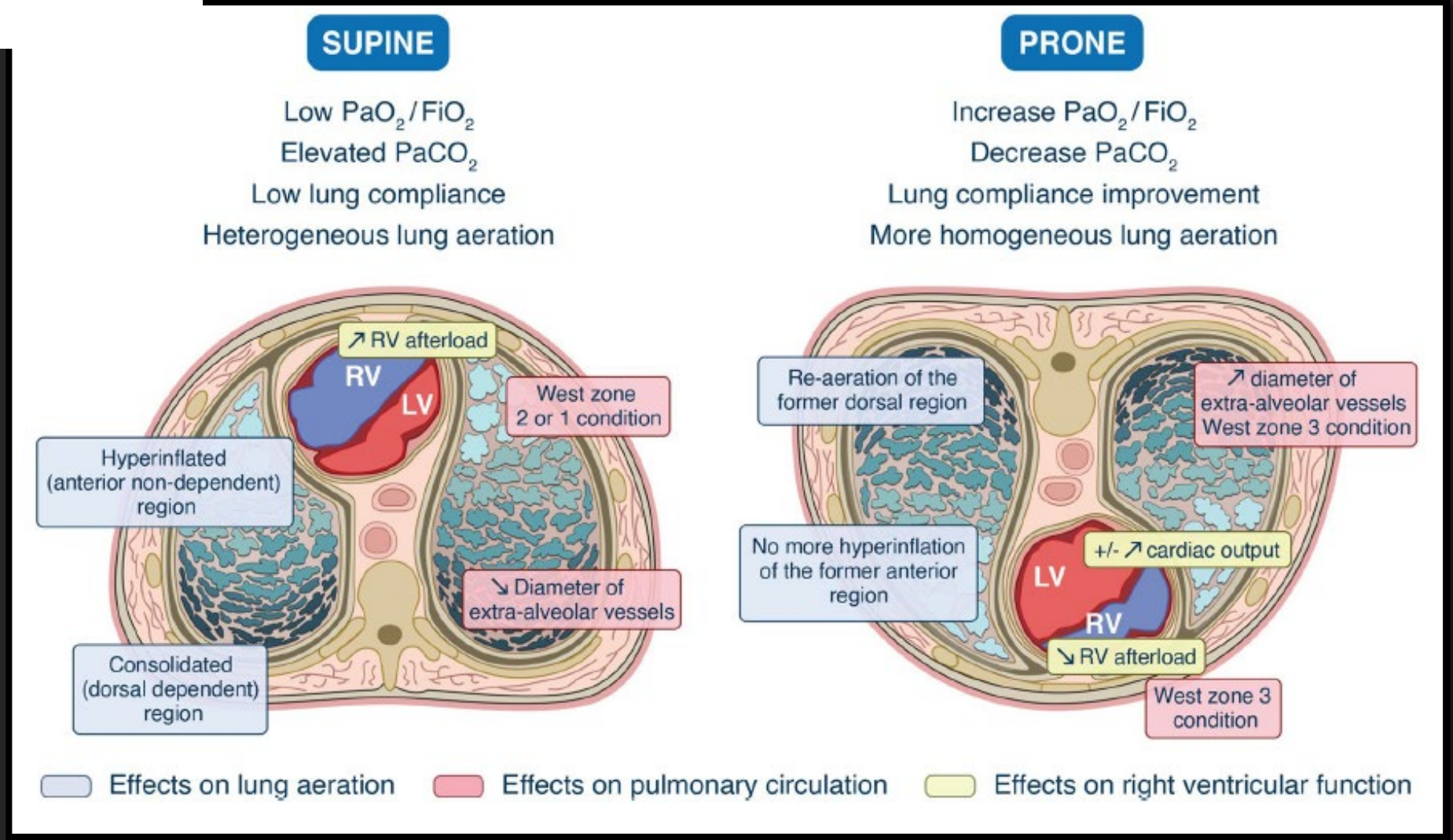


Intensive Care Med (2023) 49:692–694
https://doi.org/10.1007/s00134-023-07001-2

UNDERSTANDING THE DISEASE

Hemodynamic impact of prone position. Let's protect the lung and its circulation to improve prognosis

Antoine Vieillard-Baron[1,2*], Florence Boissier[3,4] and Antonio Pesenti[5]



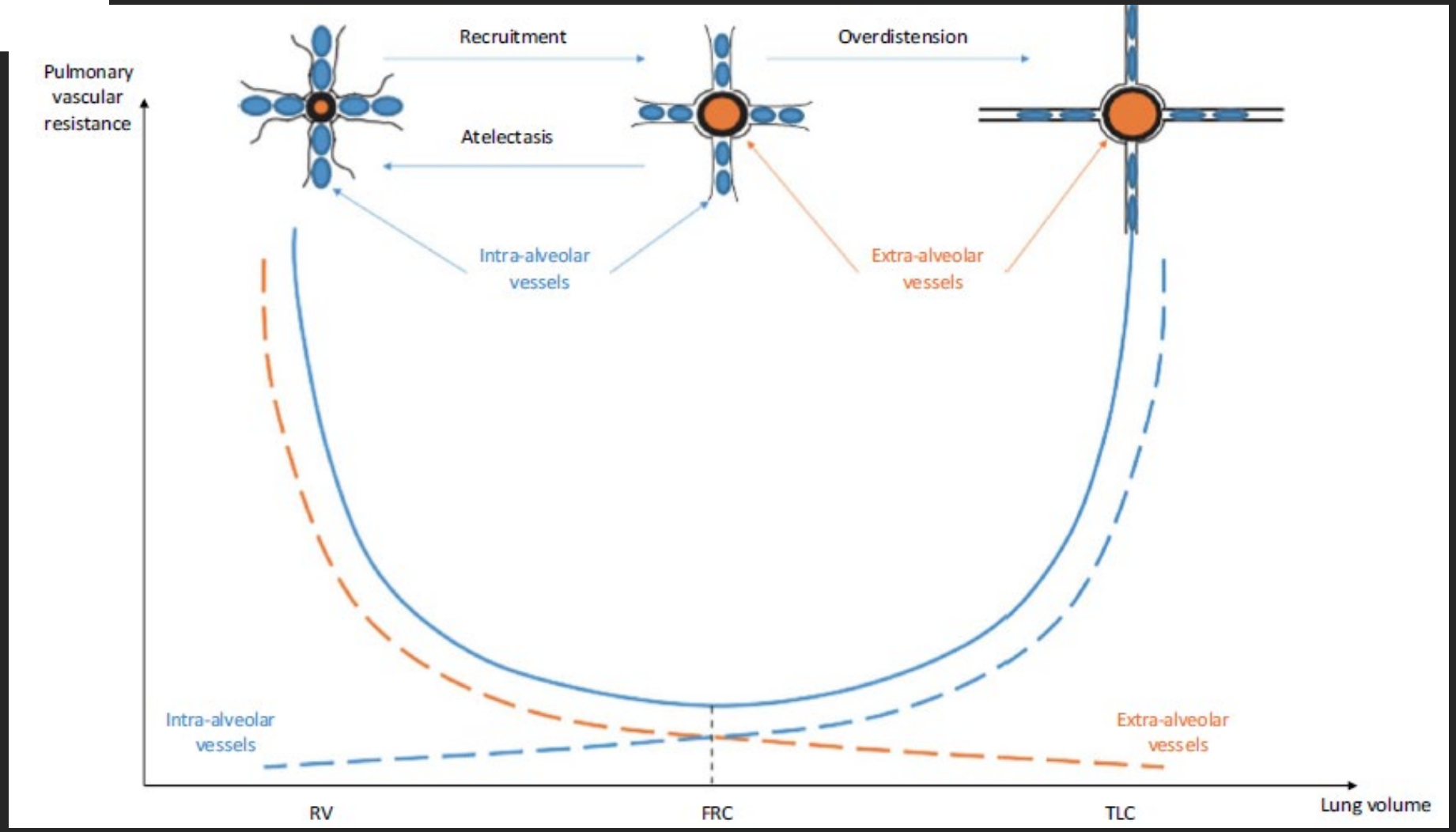
Lai et al. Critical Care (2023) 27:98
https://doi.org/10.1186/s13054-023-04369-x

Critical Care

REVIEW Open Access

Hemodynamic Implications of Prone Positioning in Patients with ARDS

Christopher Lai*, Xavier Monnet and Jean-Louis Teboul

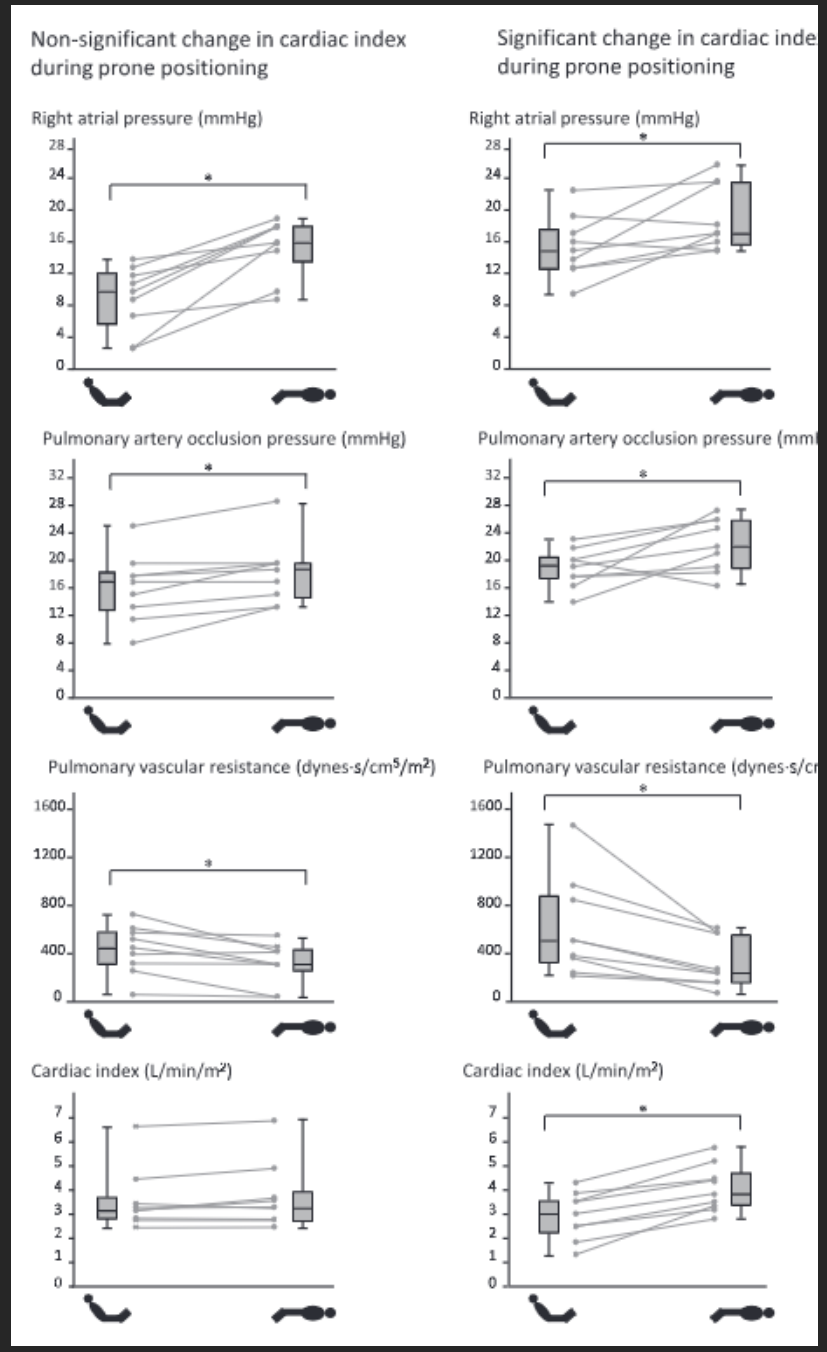


Beneficial Hemodynamic Effects of Prone Positioning in Patients with Acute Respiratory Distress Syndrome

Mathieu Jozwiak[1,2], Jean-Louis Teboul[1,2], Nadia Anguel[1,2], Romain Persichini[1,2], Serena Silva[1,2], Denis Chemla[2,3], Christian Richard[1,2], and Xavier Monnet[1,2]

[1]Service de Réanimation Médicale and [3]Service de Physiologie, AP-HP, Hôpitaux Universitaires Paris-Sud, Hôpital de Bicêtre, Le Kremlin-Bicêtre, France; and [2]Hôpitaux Universitaires Paris-Sud, Faculté de Médecine Paris-Sud, Le Kremlin-Bicêtre, France

In conclusion, in patients with ARDS with protective ventilation, PP increased cardiac preload and reduced RV afterload. This resulted in an increase in cardiac output only in the patients with preload reserve.



Lai et al. Critical Care (2023) 27:98
https://doi.org/10.1186/s13054-023-04369-x

Critical Care

REVIEW Open Access

Hemodynamic Implications of Prone Positioning in Patients with ARDS

Christopher Lai*, Xavier Monnet and Jean-Louis Teboul

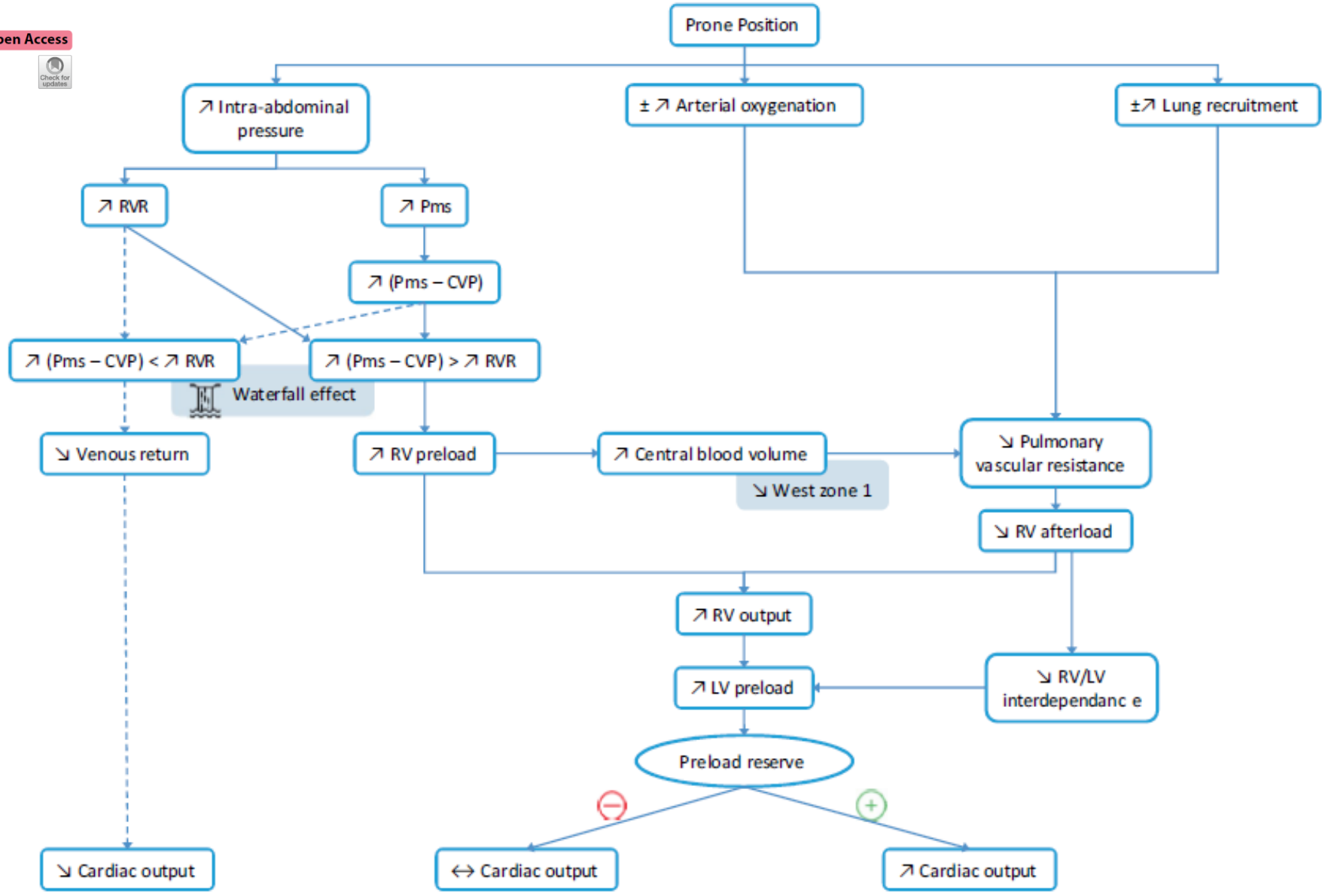


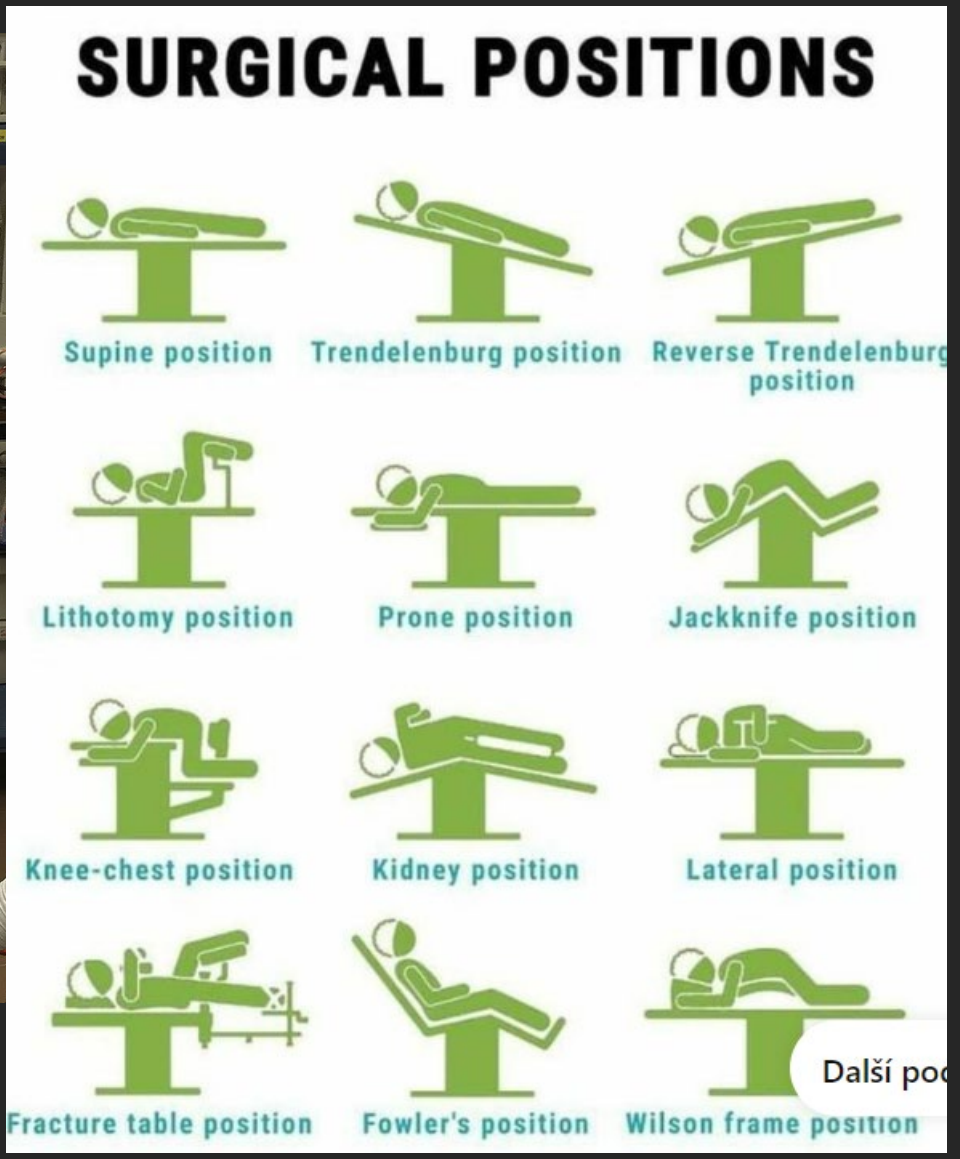
Fig. 1 Hemodynamic effects of prone positioning. *CVP* central venous pressure, *LV* left ven- tricular, *Pms* mean systemic pressure, *RV* right ventricular, *RVR* resistance to venous return

TAKE HOME MESSAGE #2

- PRONAČNÍ POLOHA VÝZNAMNĚ ZMĚNÍ V/Q POMĚR V PLÍCI A MÁ POTENCIÁL ZLEPŠIT AFTERLOAD PRAVÉ KOMORY
- TLAKEM NA HRUDNÍK A DUTINU BŘIŠNÍ U NĚKTERÝCH NEMOCNÝCH MŮŽE SNÍŽIT ŽILNÍ NÁVRAT
- ZMĚNY LEVOSTRANNÝCH PERFUZNÍCH PARAMETRŮ JSOU SEKUNDÁRNÍ

...A CO NA TO ANESTEZIE...

...A CO NA TO ANESTEZIE...



...A CO NA TO ANESTEZIE...

ANESTEZIE = VASO/VENODILATACE

RELAXACE = ZTRÁTA SVALOVÉ PUMPY

UPV = ZVÝŠENÍ NITROHRUDNÍHO TLAKU

OVLIVNĚNÍ BARORECEPTORŮ

SNÍŽENÍ ŽILNÍHO NÁVRATU = PRELAOD PRAVÉHO SRDCE

POOLING VENOZNÍ KRVE V DEPENDENTNÍCH REGIONECH

SNÍŽENÍ SRDEČNÍHO VÝDEJE

RIZIKO HYPOPERFUZE NON-DEPENDENTNÍCH REGIONŮ

HYDROSTATICKÉ OTOKY

RIZIKO ŽILNÍ TROMBOZY

ZVĚTŠENÍ ŽILNÍHO KOMPARTMENTU = KRVÁCENÍ/MONROE-KELLY

RIZIKO POŠKOZENÍ MOZKU

TAKE HOME MESSAGE #3

- POLOHOVÁNÍ PACIENTA V ANESTEZII VŽDY VEDE K RIZIKU VENOZNÍ KONGESCE DEPENDENTNÍCH ČÁSTÍ
- A HYPOPERFUZI NON-DEPENDENTNÍCH

- U EXTRÉMNÍCH POLOH JE NUTNO DBÁT HLAVNĚ NA DOPAD POLOHY NA PROKRVENÍ MOZKU – JAK KONGESCE TAK HYPOPERFUZE

NA POLOZE ZÁLEŽÍ...

např. TOTO JE JEDINÁ, V NÍŽ NENÍ
CHIRURG NEBEZPEČNÝ SVÉMU OKOLÍ...

DĚKUJI
ZA
POZORNOST

benesj@fnplzen.cz