Remplissage vasculaire et sepsis

- Un mal nécessaire -

Didier Journois

HEGP, Paris

FACULTÉ DE MÉDECINE PARIS DESCARTES

Didier Journois : Conflits d'intérêt

Source	Prestation	Bénéficiaire	Nature	Période	Destination des fonds
AP-HP	Praticien Hospitalier mi-temps + Gardes	DJ	< 60 k€/an salaire	1985 - actuel	DJ
Université René Descartes	Praticien Universitaire	DJ	< 50 k€/an salaire	2006 - actuel	DJ
AMGEN, Pasteur DIagnostics	Exploitation de brevets en biologie moléculaire	DJ	6 k€/an	1997 - actuel	DJ
DGS	Crédits de recherche PHRC	Études	200 k€/an	2008 - actuel	Recherche clinique
Fresenius	Contrat de formation	Pôle hospitalier	< 20 k€/an	2010 - actuel	Achat de solutés
Abbott, Novartis, HAS	Consultant	Pôle hospitalier	< 4 k€/an	2011-actuel	Production de soins - Equipement

Remplissage vasculaire

Dieu ne nous remplit qu'autant
que nous sommes vides.

[Henry de Montherlant]

Au cours d'un état de choc septique un remplissage vasculaire doit être assuré

1. Dès l'admission en réanimation
2. De façon à obtenir une PAM ≥ 70 mmHg
3. De façon à obtenir une $ScVO_2$ ≥ 70%
4. Associé à des concentrés globulaires pour Hte ≥ 30%
5. Afin de maintenir la PVC ≥ 8 cmH_2O

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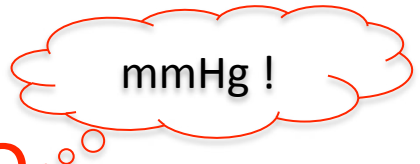


Intensive Care Med (2008) 34:17–60
DOI 10.1007/s00134-007-0934-2

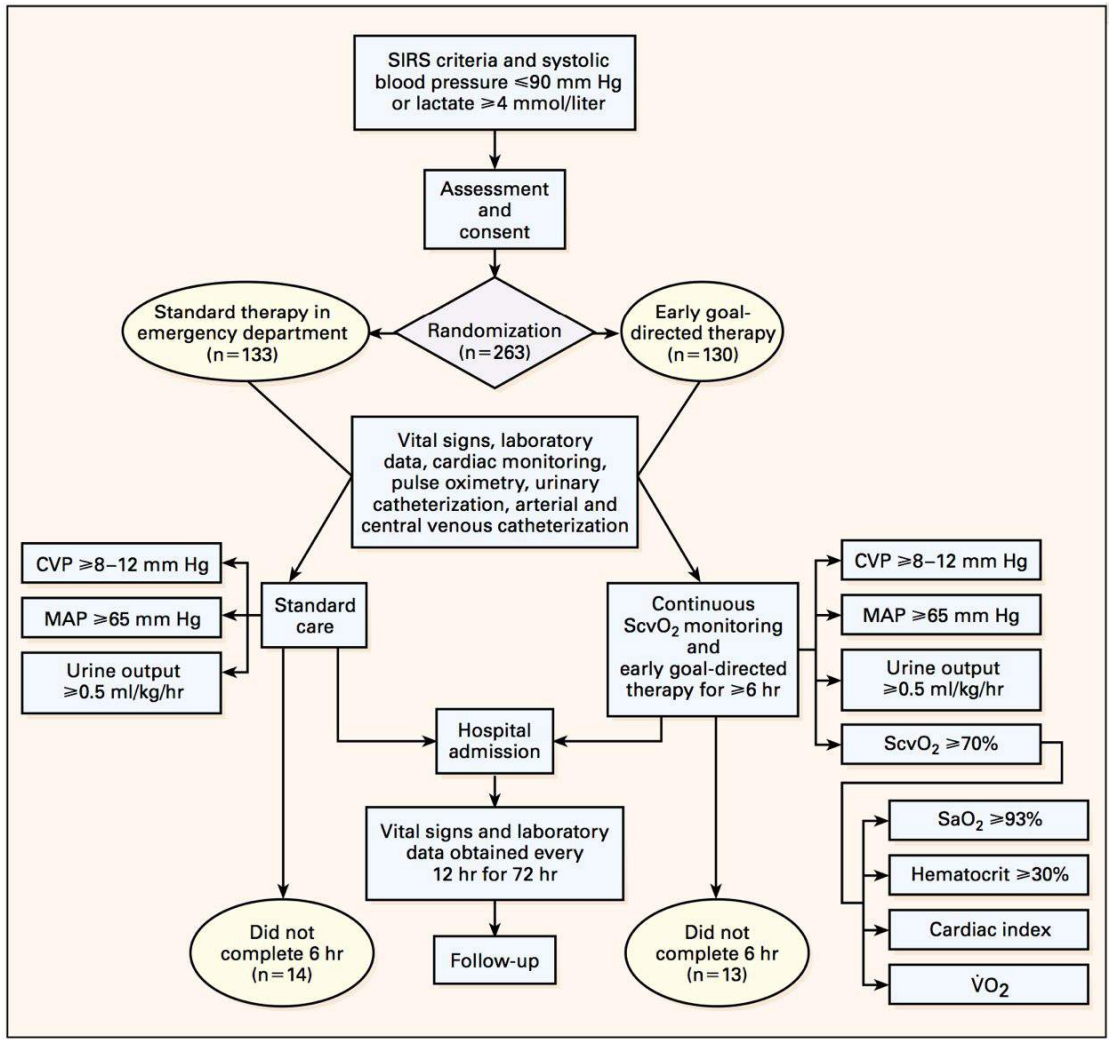
SPECIAL ARTICLE

R. Phillip Dellinger
Mitchell M. Levy
Jean M. Carlet
Julian Bion
Margaret M. Parker
Roman Jaeschke
Konrad Reinhart
Derek C. Angus
Christian Brun-Buisson
Richard Beale
Thierry Calandra
Jean-Francois Dhainaut
Herwig Gerlach
Maurene Harvey
John J. Marini
John Marshall
Marco Ranieri
Graham Ramsay
Jonathan Sevransky
B. Taylor Thompson
Sean Townsend
Jeffrey S. Vender
Janice L. Zimmerman
Jean-Louis Vincent

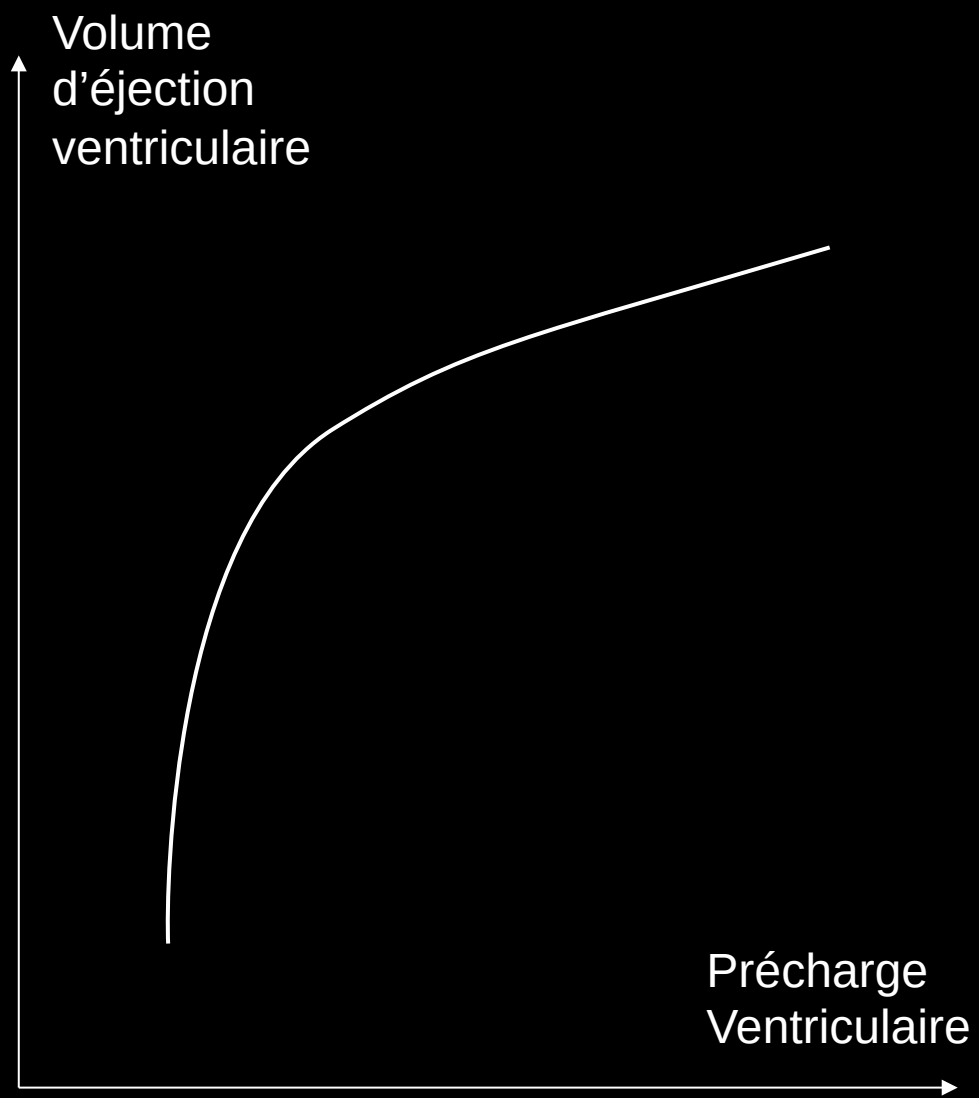
Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock: 2008

EARLY GOAL-DIRECTED THERAPY IN THE TREATMENT OF SEVERE SEPSIS AND SEPTIC SHOCK

EMANUEL RIVERS, M.D., M.P.H., BRYANT NGUYEN, M.D., SUZANNE HAVSTAD, M.A., JULIE RESSLER, B.S., ALEXANDRIA MUZZIN, B.S., BERNHARD KNOBLICH, M.D., EDWARD PETERSON, PH.D., AND MICHAEL TOMLANOVICH, M.D., FOR THE EARLY GOAL-DIRECTED THERAPY COLLABORATIVE GROUP*



Précharge cardiaque - Loi de Franck et Starling



Colloids versus crystalloids for fluid resuscitation in critically ill patients (Review)

Perel P, Roberts I

THE COCHRANE COLLABORATION®

Au cours des 4 premiers jours de réanimation l'administration de 100 mL de SSI assure une expansion volémique identique à celle de :

1. 33 mL d'albumine (4%)
2. 52 mL d'albumine (4%)
3. 68 mL d'albumine (4%)
4. 51 mL d'HEA (200/0,5)
5. 66 mL d'HEA (200/0,5)

Au cours des 4 premiers jours de réanimation l'administration de 100 mL de SSI assure une expansion volémique identique à celle de :

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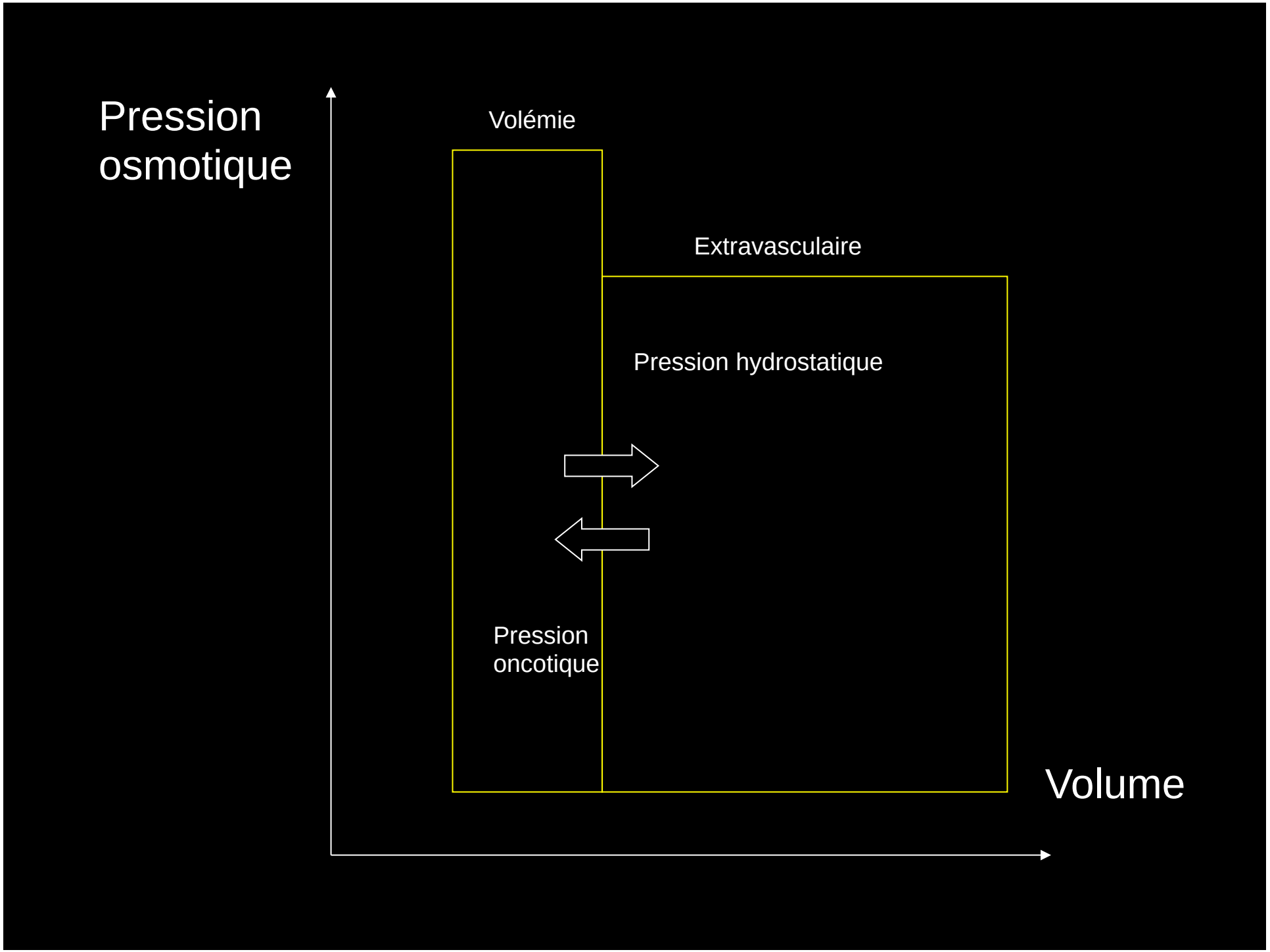
4. 51 mL d'HEA (200/0,5)
5. 66 mL d'HEA (200/0,5)

Étude SAFE

Étude « Brunkhorst »



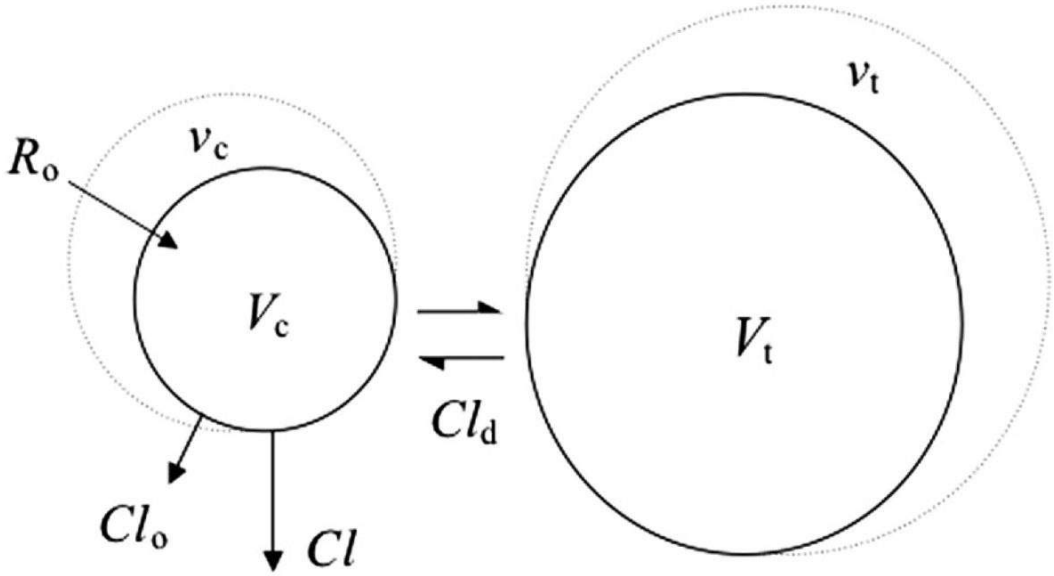
REVIEW ARTICLE

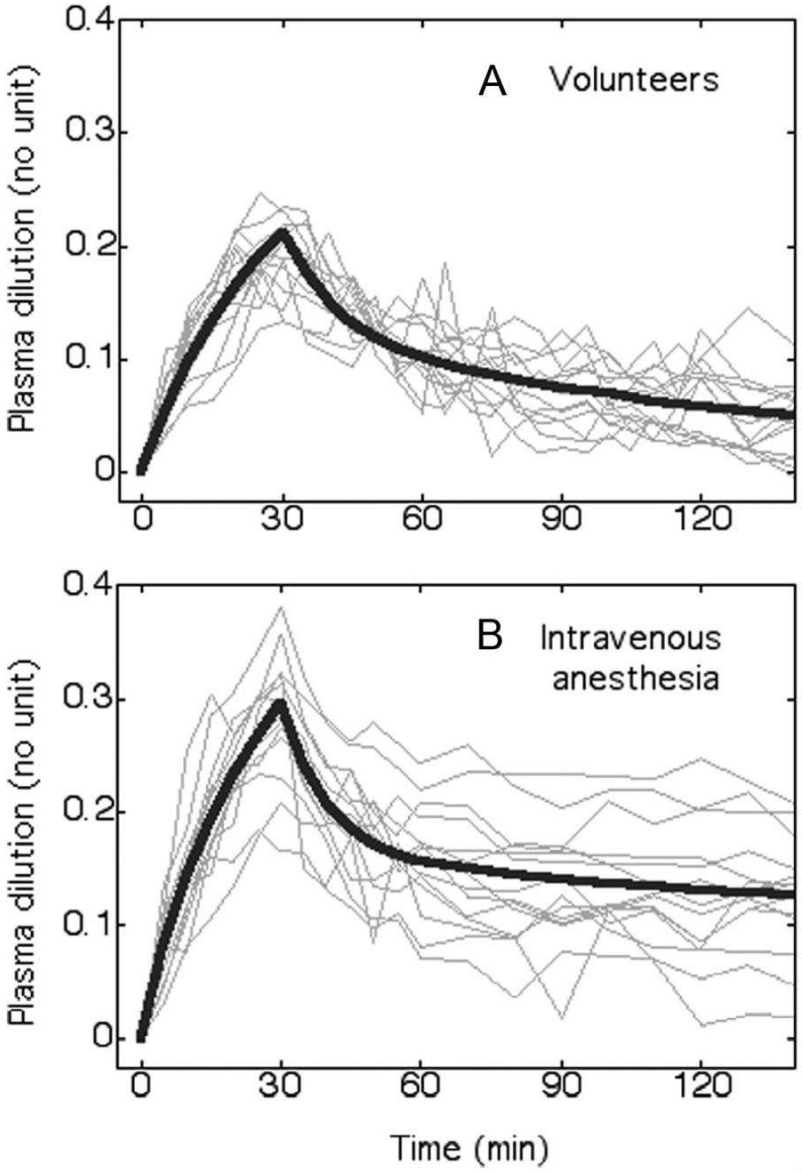
Anesthesiology 2010; 113:470–81

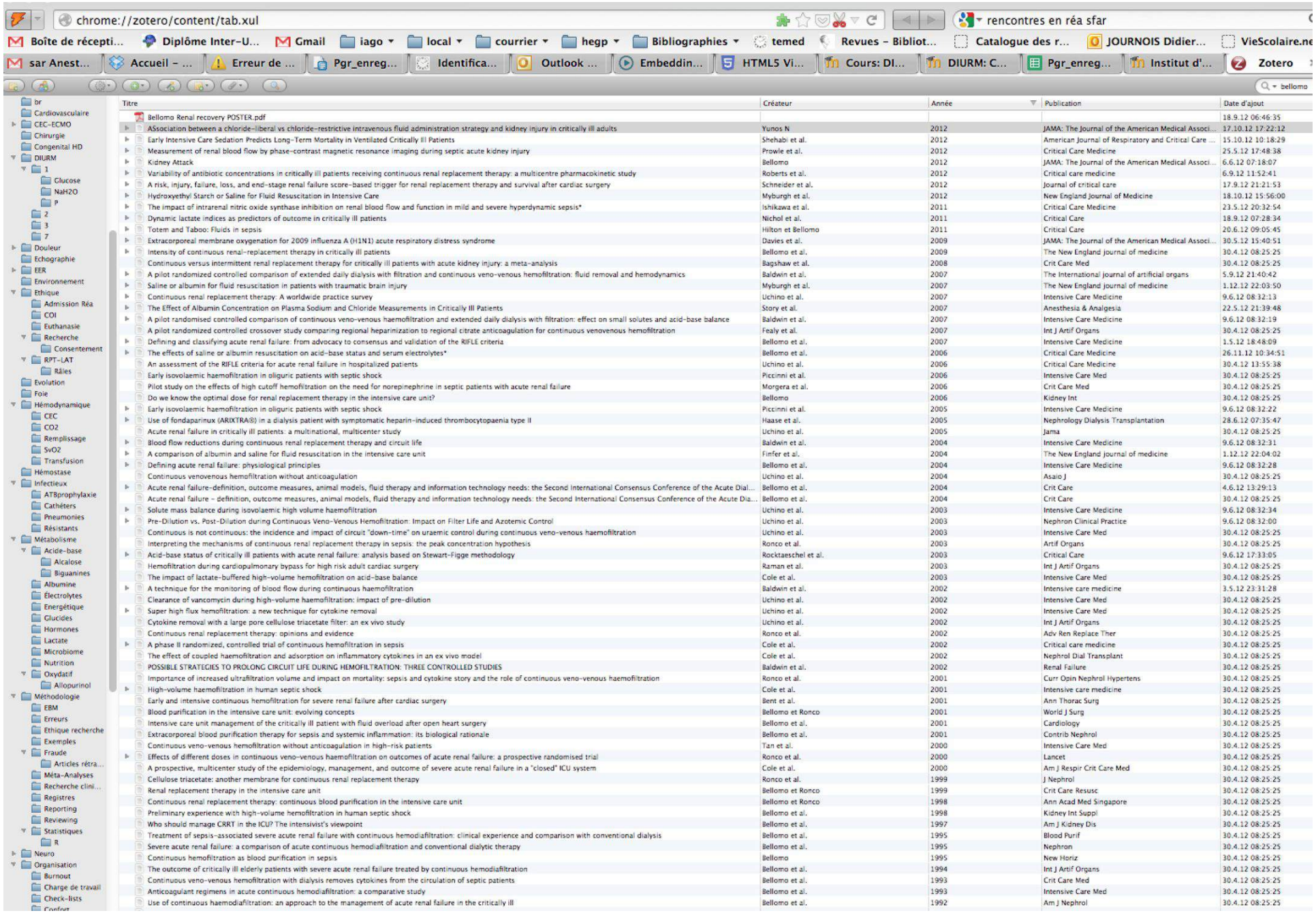
David S. Warner, M.D., Editor

Volume Kinetics for Infusion Fluids

Robert G. Hahn, M.D., Ph.D.*







ON THE ABSORPTION OF FLUIDS FROM THE CONNECTIVE TISSUE SPACES.

By ERNEST H. STARLING. (Two Figures in Text.)

(*From the Physiological Laboratory, Guy's Hospital.*)

Until within the last few years, all workers, who investigated the question of absorption by the blood vessels, confined their experiments to cases in which some substance, not occurring normally in the blood, was introduced into some connective tissue space. That, under these conditions, absorption by the blood vessels does take place, was shown by Majendie, and confirmed in recent years by Ascher[1] as well as by Tubby and myself[2]. Although the ease, with which this interchange by a process of diffusion between blood and extravascular fluids takes place, must be of great importance for the normal metabolism of the tissues (as, *e.g.* the much discussed supply of CaO to the mammary

$$J_v = K_f([P_c - P_i] - \sigma[\pi_c - \pi_i])$$

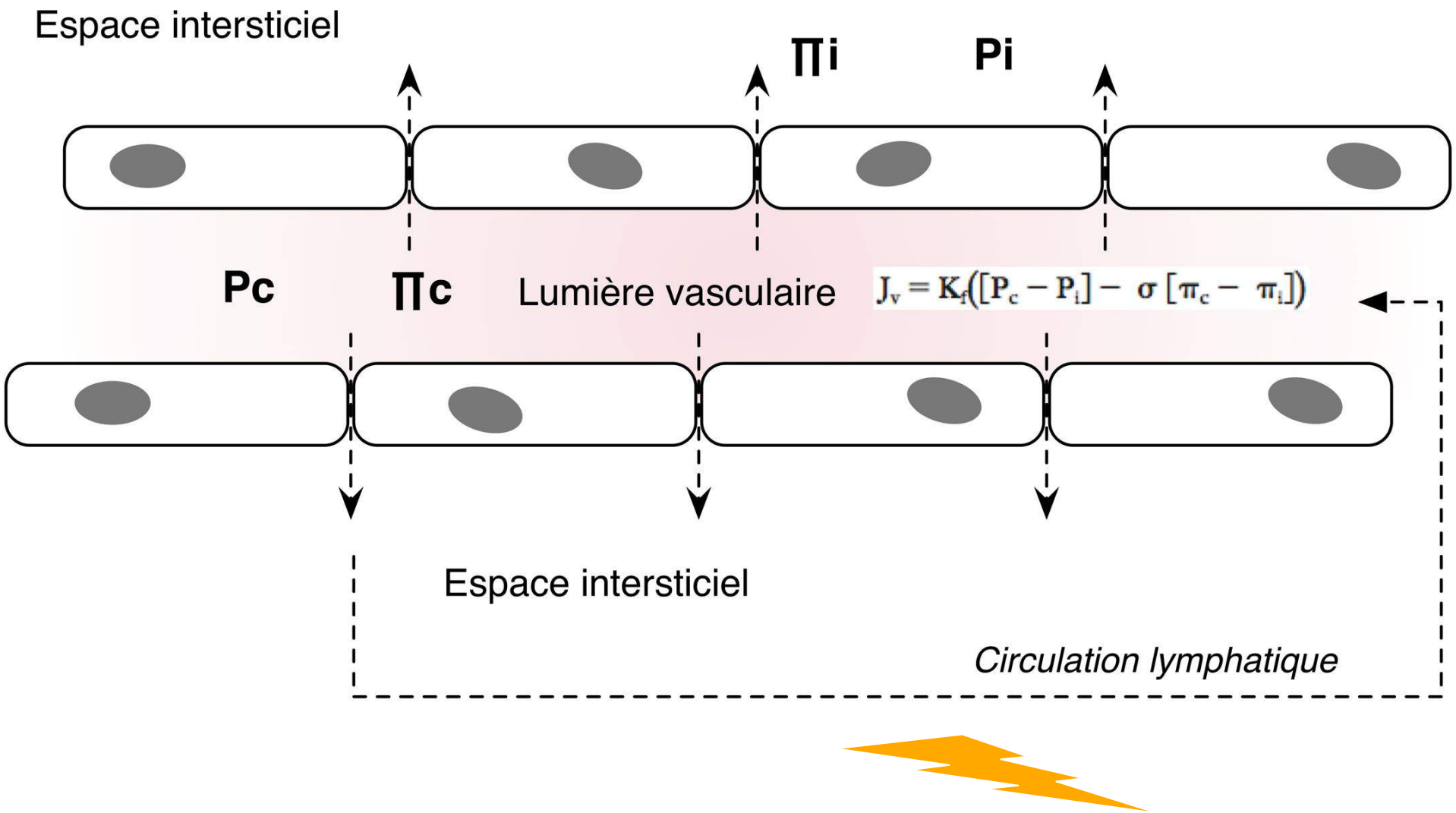
tained in the tissue-spaces have the same tonicity and the same composition in salts as blood-plasma. We have to inquire first whether the blood vessels do absorb such isotonic fluids, and secondly the manner in which this absorption takes place.

Evidence as to Absorption by Blood Vessels.

1. *Absorption from the serous cavities.*

A number of experiments have been made recently on the subject of the absorption of isotonic fluids (*e.g.* 1 % salt solution or serum) from the serous cavities. Orlow[3] showed that isotonic fluids were absorbed from the peritoneal cavity with considerable rapidity without producing any corresponding lymph-flow from the thoracic duct, and concluded

[1] *Zeitschrift f. Biologie*, 1893. 247.
[2] This *Journal*, xvi. 140. 1894.
[3] *Pflüger's Archiv*, lix. 170. 1894.

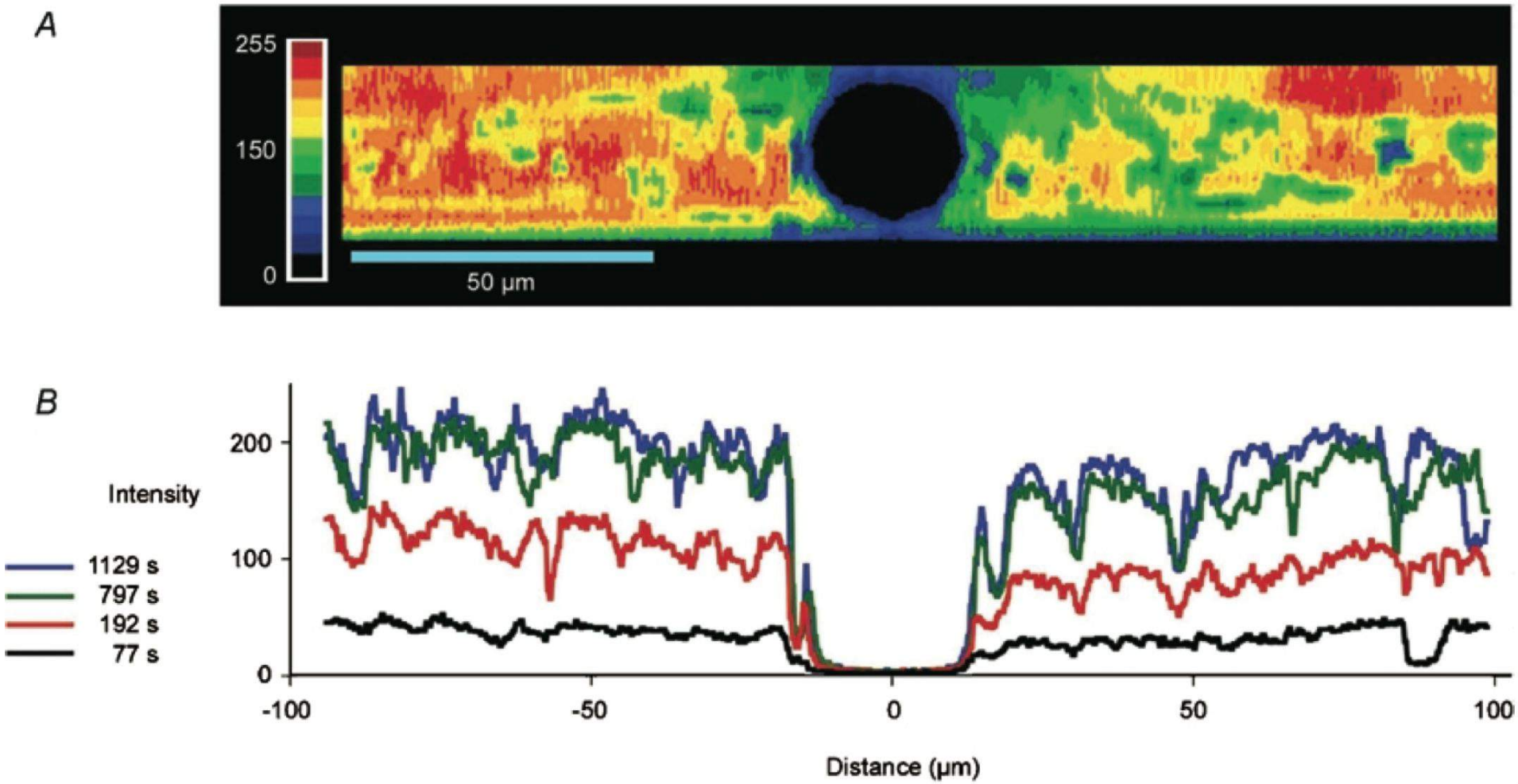


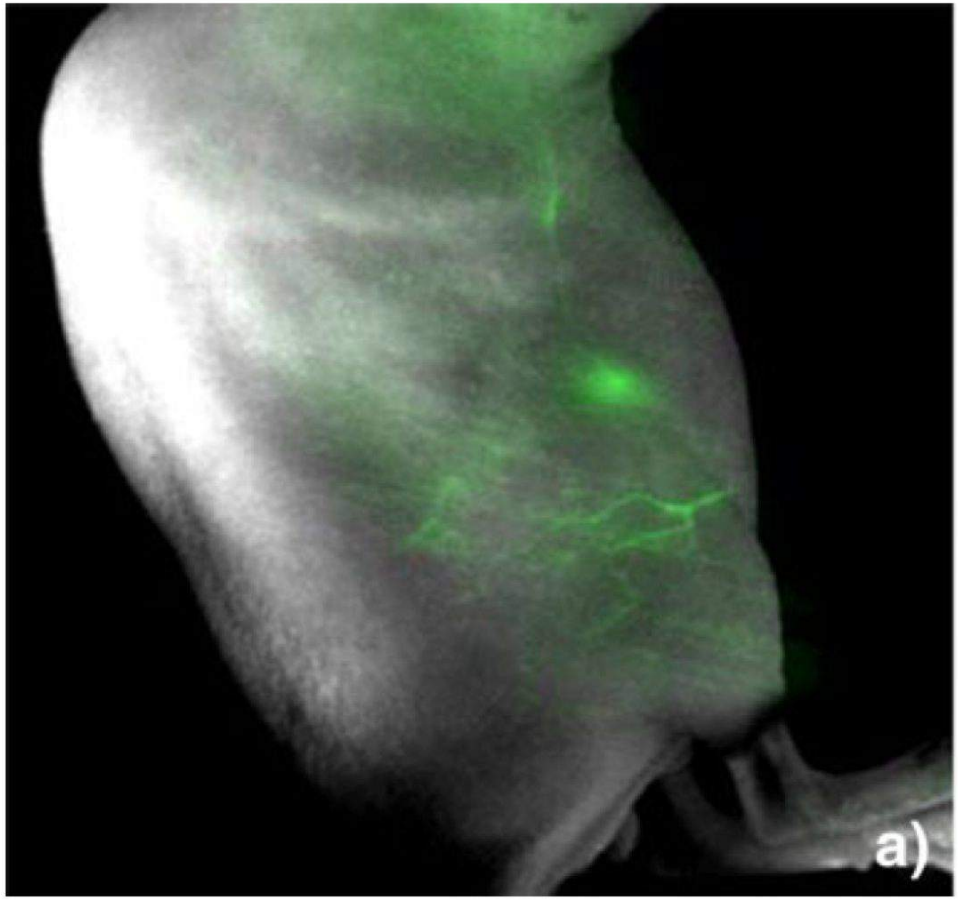
J Physiol 557.3 (2004) pp 889–907

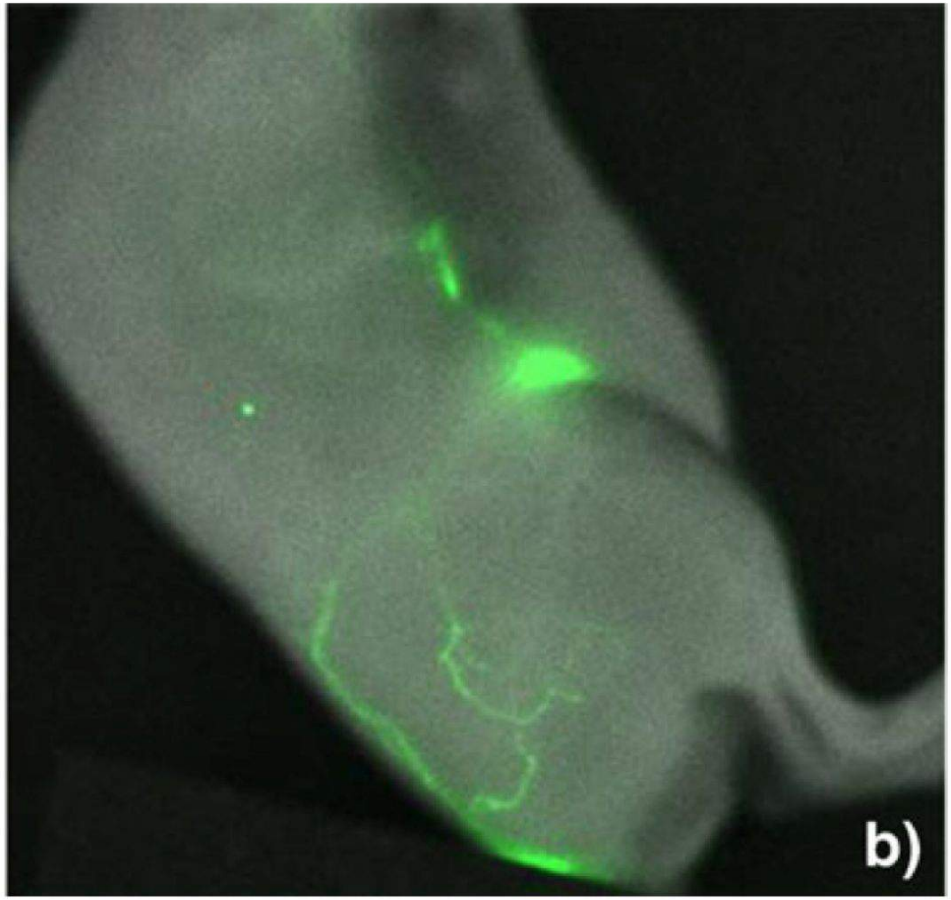
Oncotic pressures opposing filtration across non-fenestrated rat microvessels

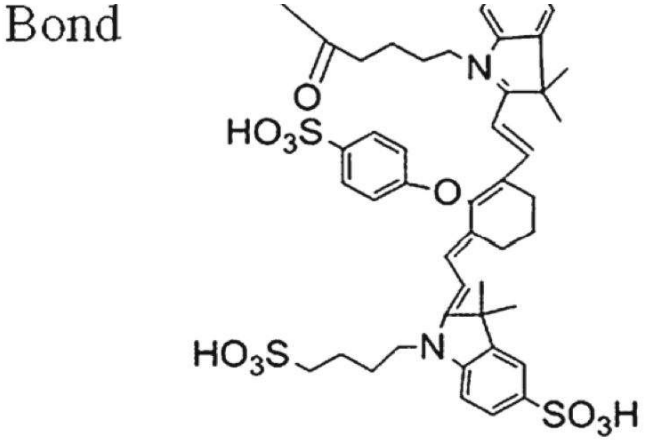
R. H. Adamson[1], J. F. Lenz[1], X. Zhang[2], G. N. Adamson[1], S. Weinbaum[2] and F. E. Curry[1]

[1]*Department of Human Physiology, University of California, Davis, CA 95616, USA*
[2]*Department of Biomedical Engineering, The City College of New York, New York, NY 10031, USA*









MOLECULAR IMAGING AND BIOLOGY

Published Online: 18 June 2011

Mol Imaging Biol (2012) 14:301–314
DOI: 10.1007/s11307-011-0499-x

RESEARCH ARTICLE

Albumin-Binding Domain Conjugate for Near-Infrared Fluorescence Lymphatic Imaging

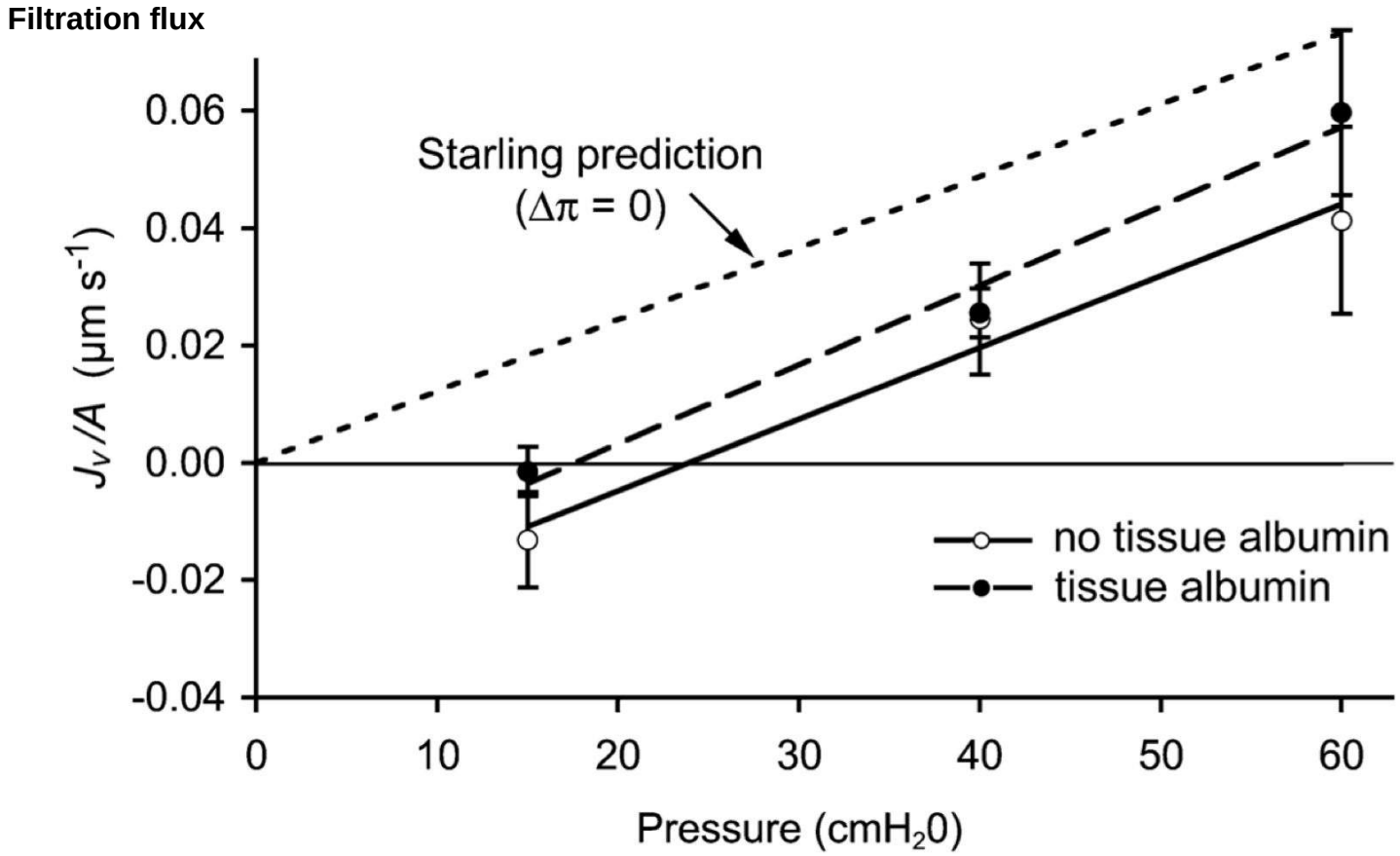
Cynthia A. Davies-Venn,[1,3] Bonnie Angermiller,[1] Nathaniel Wilganowski,[1] Pradip Ghosh,[1] Barrett R. Harvey,[2] Grace Wu,[1] Sunkuk Kwon,[1] Melissa B. Aldrich,[1] Eva M. Sevick-Muraca[1]

J Physiol 557.3 (2004) pp 889–907

Oncotic pressures opposing filtration across non-fenestrated rat microvessels

R. H. Adamson[1], J. F. Lenz[1], X. Zhang[2], G. N. Adamson[1], S. Weinbaum[2] and F. E. Curry[1]

[1]*Department of Human Physiology, University of California, Davis, CA 95616, USA*
[2]*Department of Biomedical Engineering, The City College of New York, New York, NY 10031, USA*



J. Physiol. (1980), **309**, *pp.* 341–355
With 7 text-figures
Printed in Great Britain

FILTRATION COEFFICIENTS AND OSMOTIC REFLEXION COEFFICIENTS OF THE WALLS OF SINGLE FROG MESENTERIC CAPILLARIES

BY C. C. MICHEL
From the University Laboratory of Physiology, Parks Road, Oxford, OX1 3PT

(*Received 17 December 1979*)

If the porous regions of all capillary walls contain a matrix of glycoprotein of constant concentration and composition, all capillaries should have similar reflexion coefficients to molecules such as albumin and myoglobin. The solute permeability coefficients and L_p, however, should be determined by the thickness and area of the porous regions (the size and frequency of the channels through the endothelium) as well as the properties of the matrix within them. Thus the higher L_p seen in the

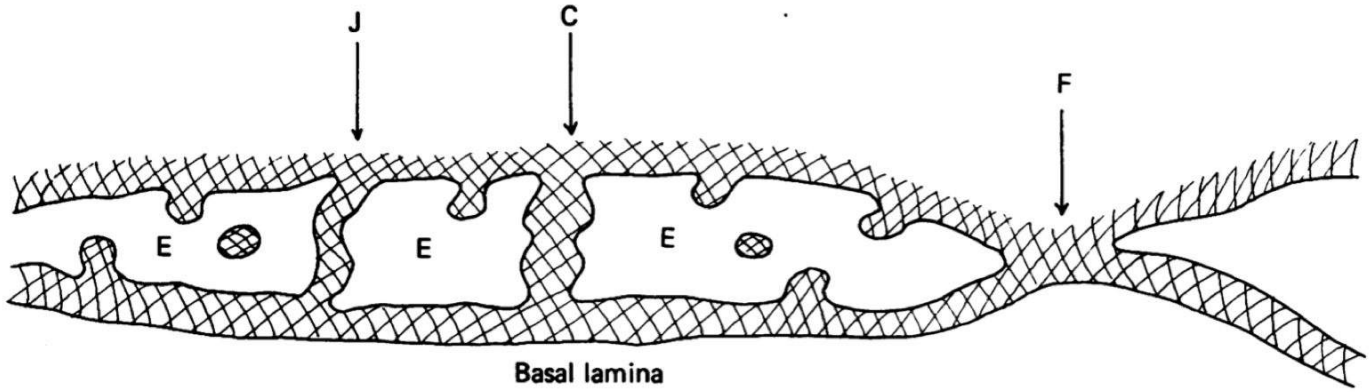
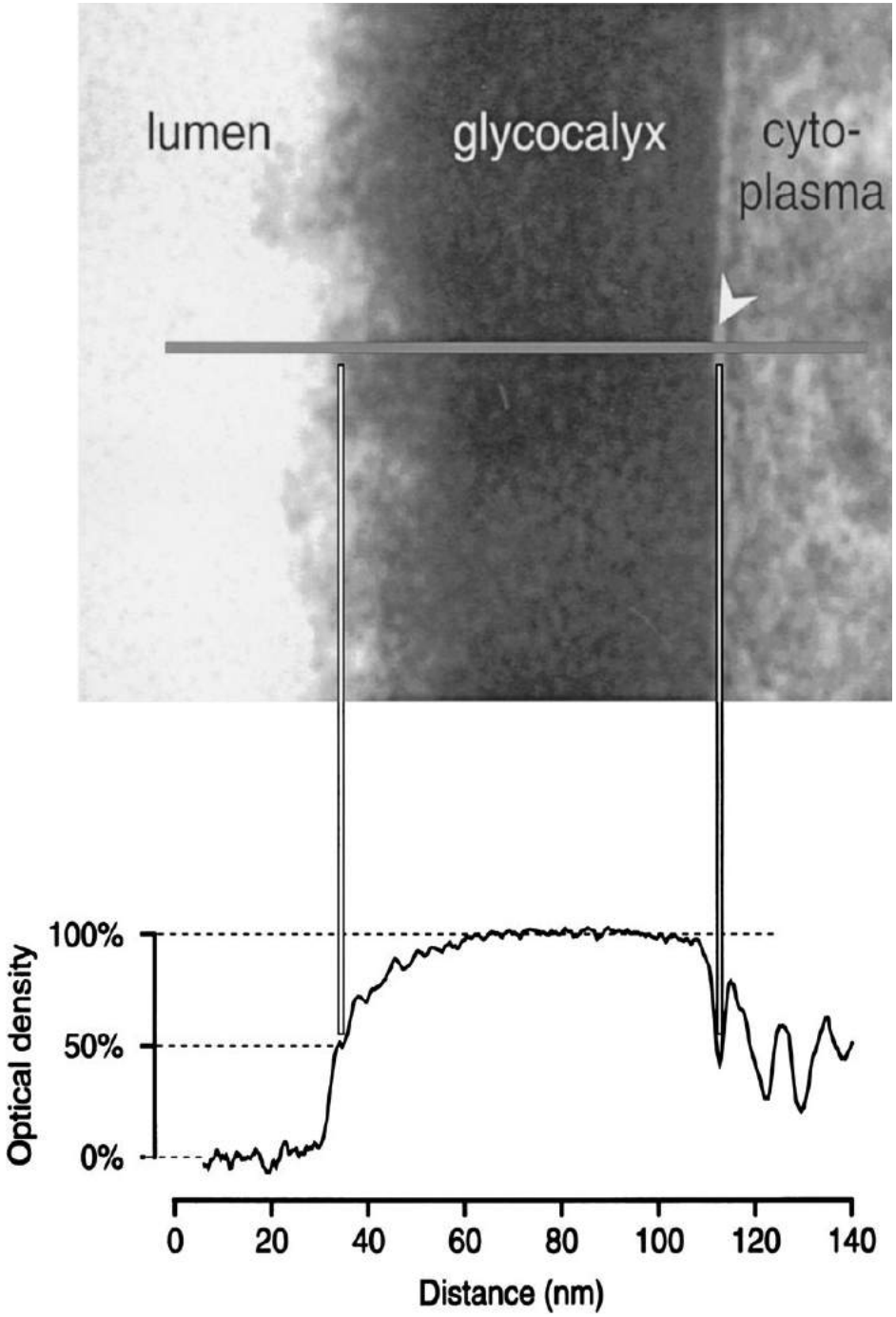
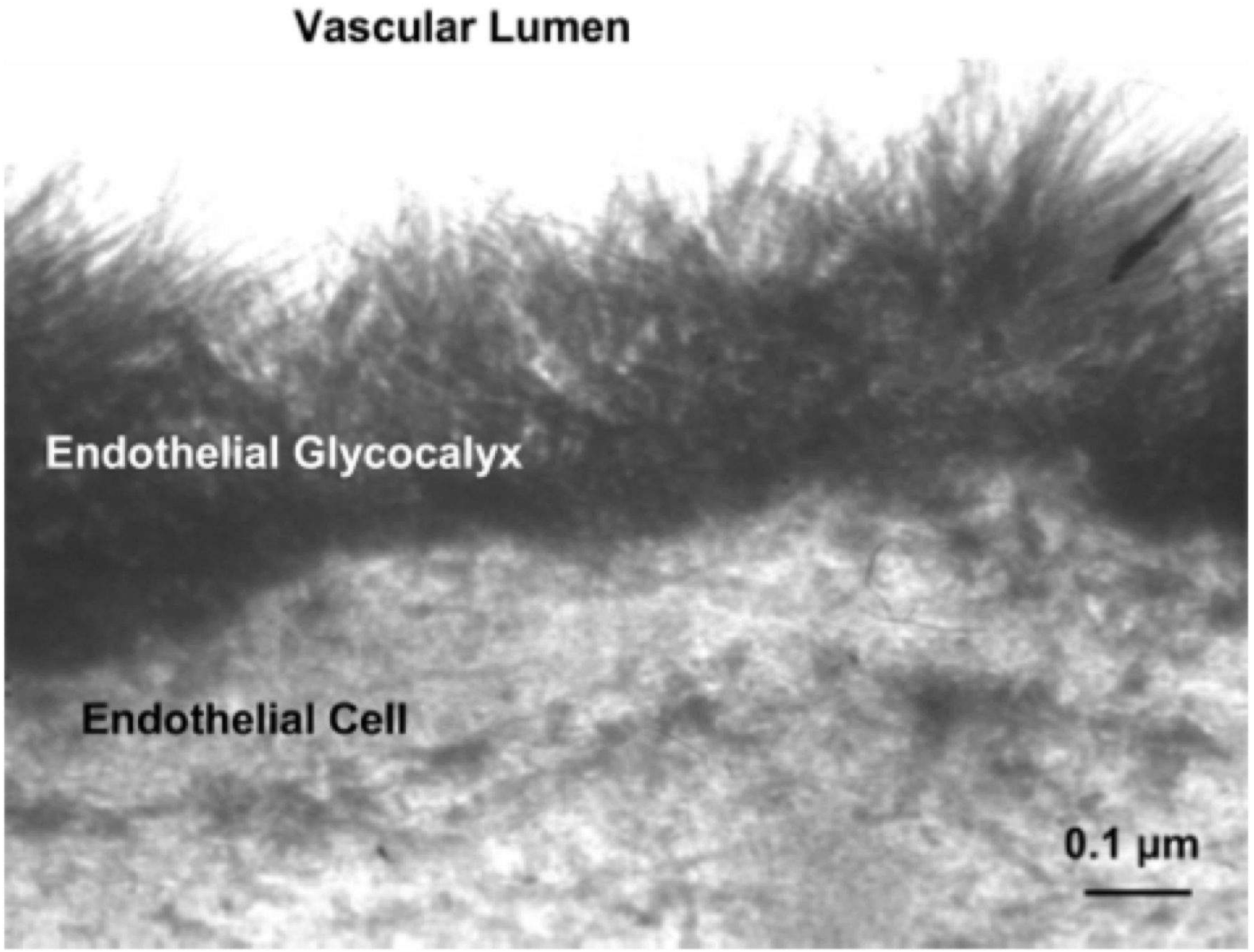
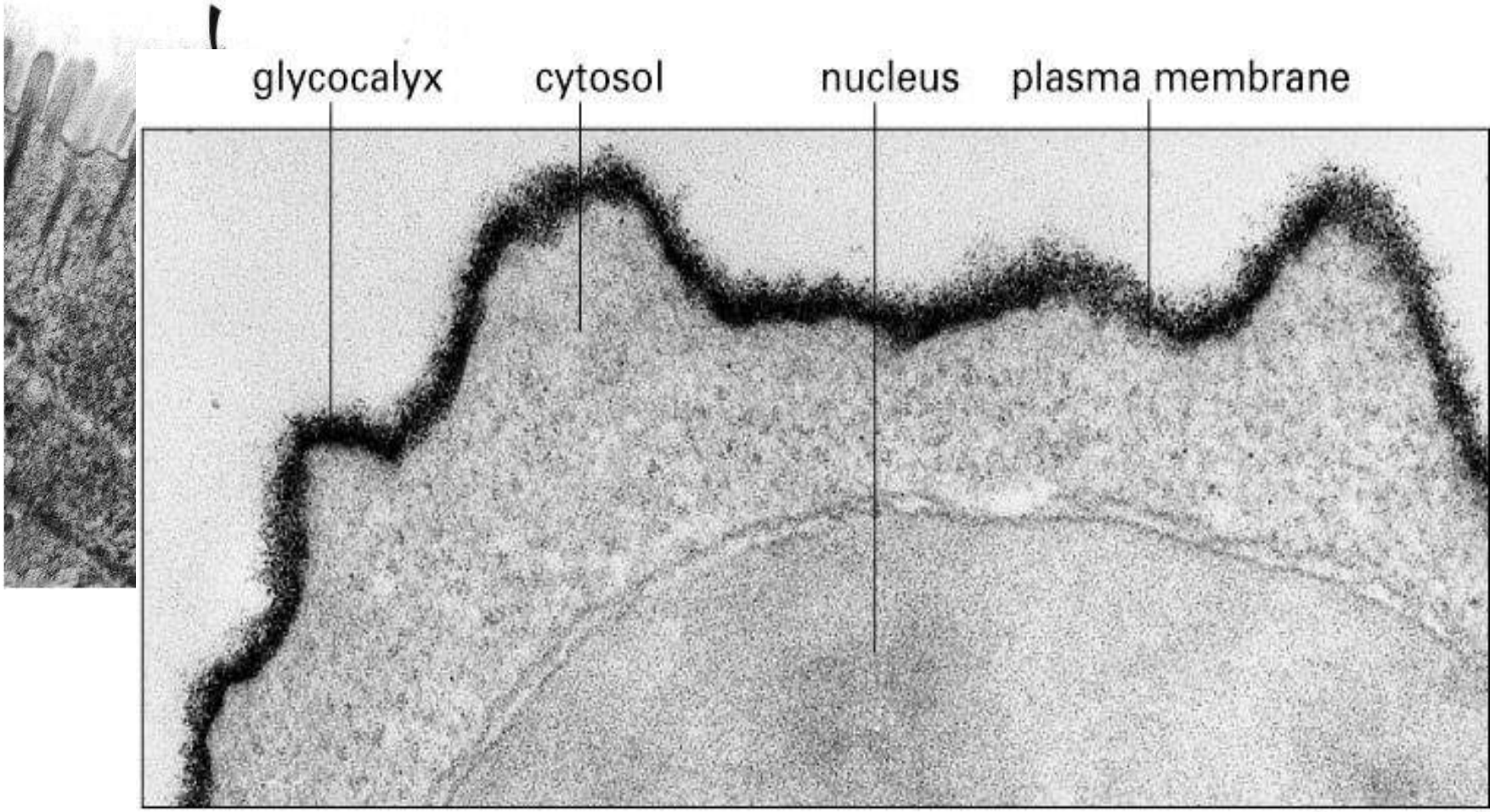


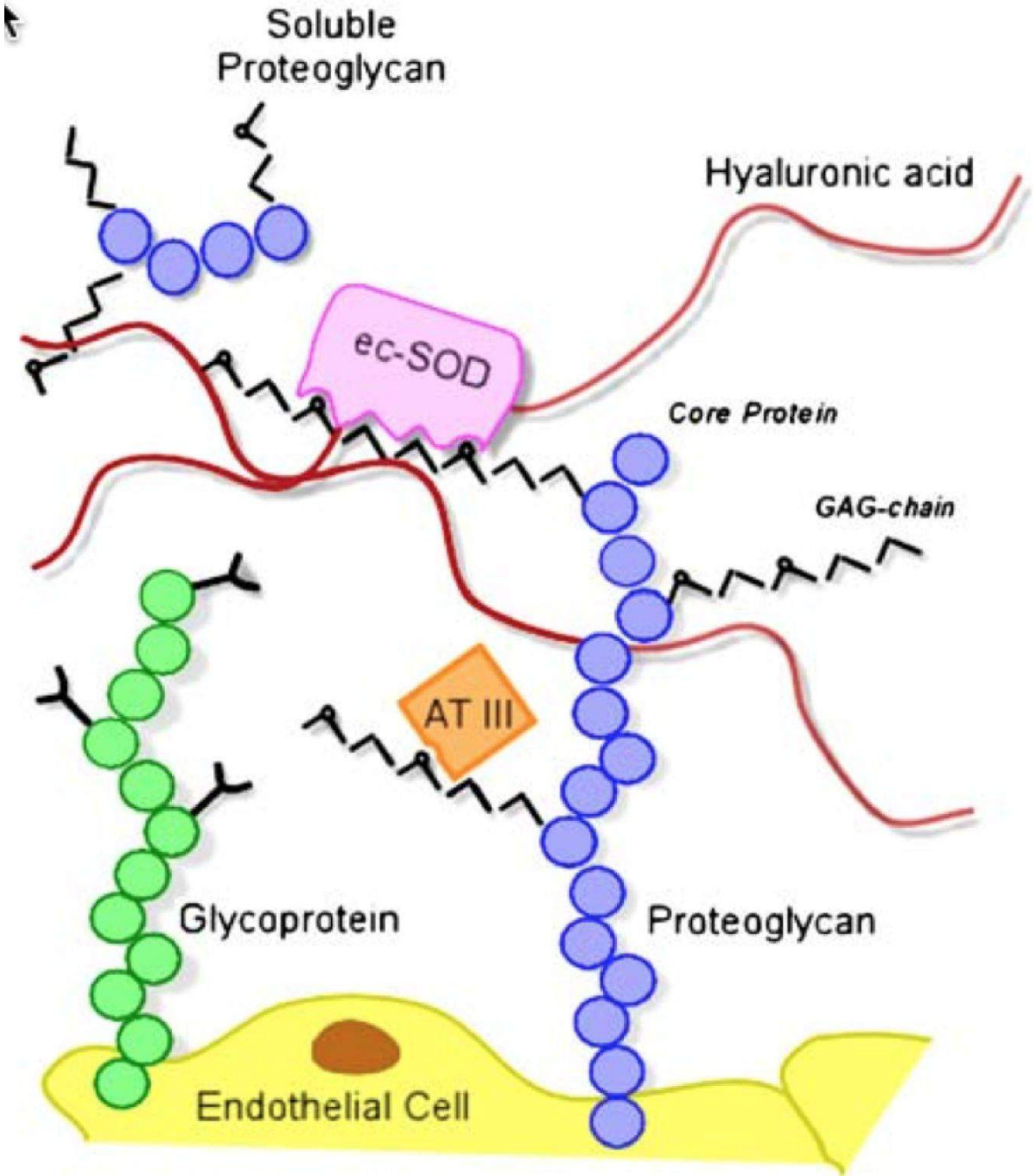
Fig. 7. A diagrammatic representation of the fibre matrix model of capillary permeability. The endothelium (E) is traversed by intercellular junctions (J), transendothelial channels (C) and fenestrations (F). The dimensions and numbers of these channels determine the area of the permeable regions of the capillary wall but the molecular sieving properties are endowed on the capillary by the size of the interstices of the fibre matrix which envelopes the cell surface and fills the channels which penetrate it.

Glycocalyx



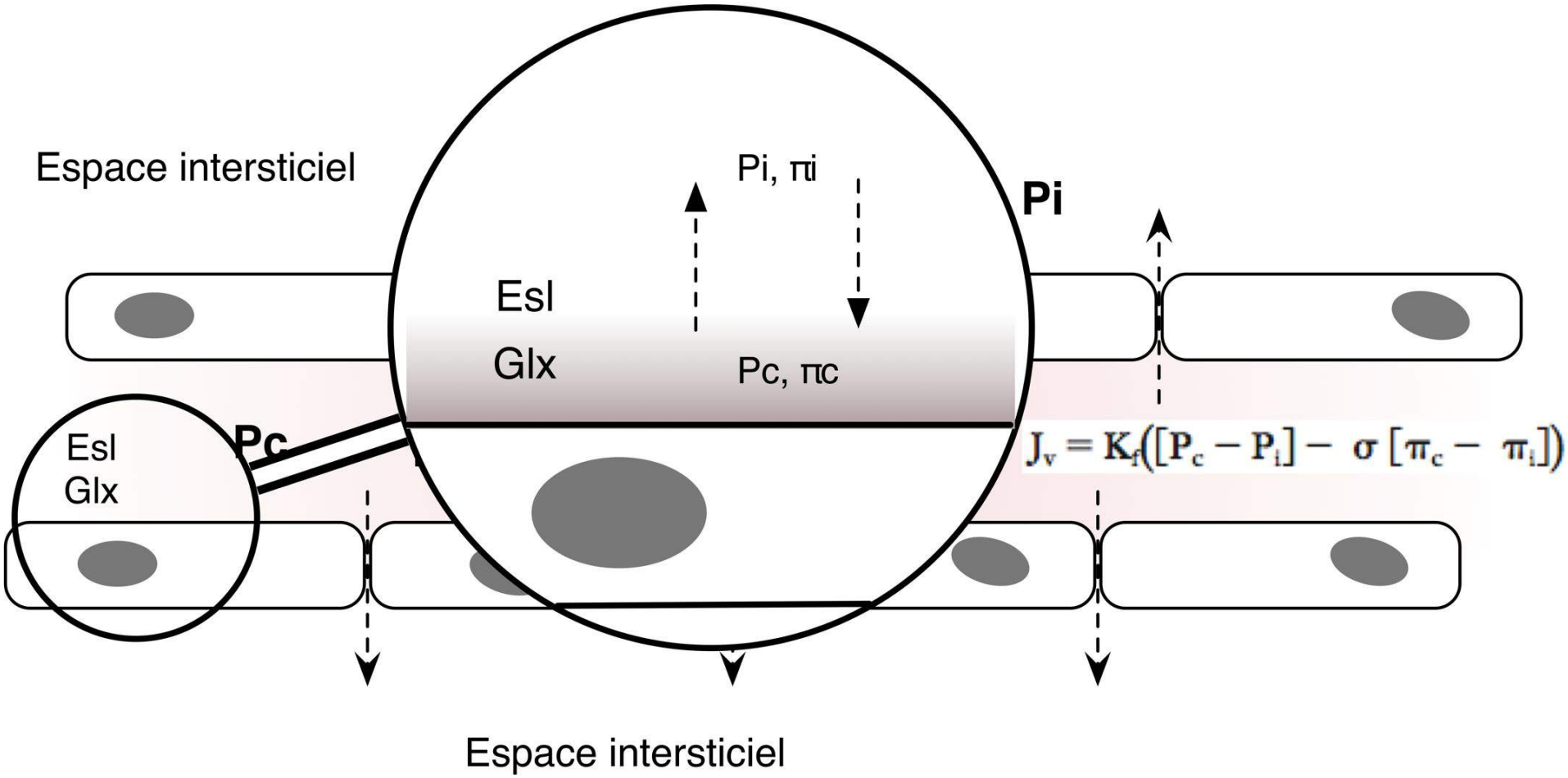






Pries AR (2000) Pflugers Arch 440:653–666

$$J_v = K_f([P_c - P_i] - \sigma[\pi_c - \pi_i])$$



Pries AR (2000) Pflugers Arch 440:653–666

Cardiovascular Research (2010) **87**, 198–210
doi:10.1093/cvr/cvq062

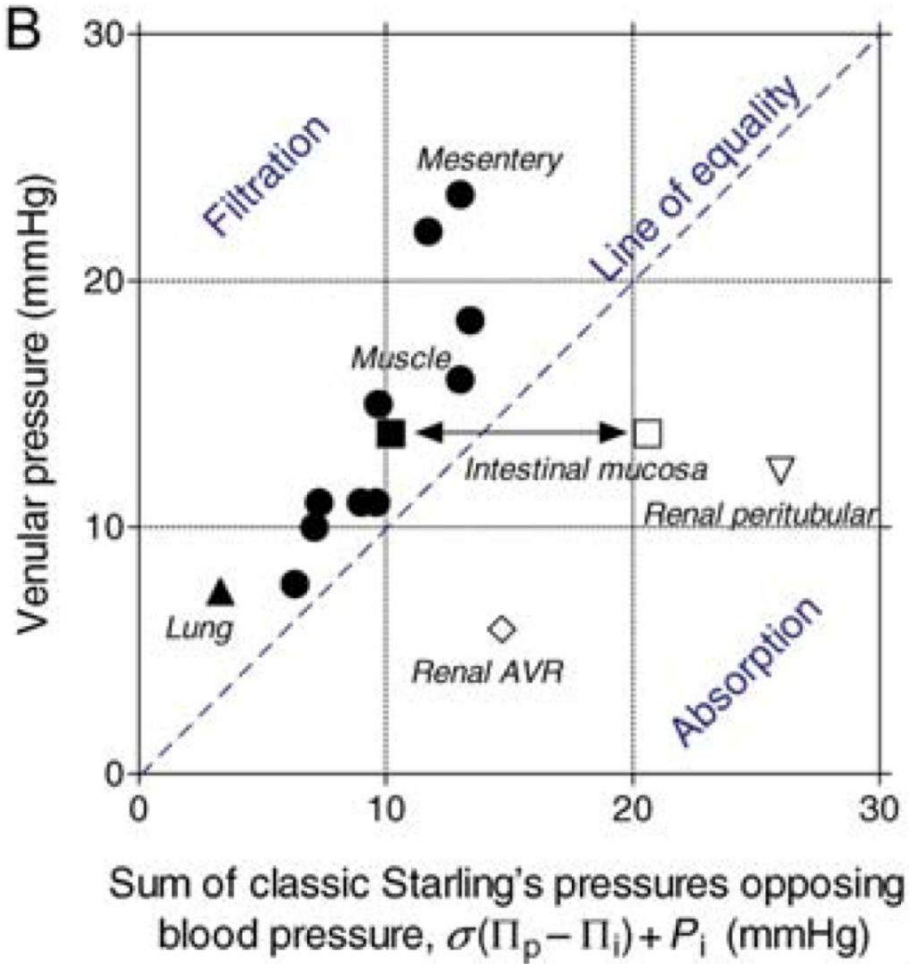
SPOTLIGHT REVIEW

Microvascular fluid exchange and the revised Starling principle

J. Rodney Levick[1] and C. Charles Michel[2]*

[1]Physiology, Basic Medical Sciences, St George's Hospital Medical School, London SW17 0RE, UK; and [2]Department of Bioengineering, Imperial College, Exhibition Road, London SW7 2AZ, UK

$$\frac{J_v}{A} = L_p\left[\Delta P - \sigma^2 \Pi_p \frac{(1 - e^{-Pe})}{(1 - \sigma . e^{-Pe})}\right]$$



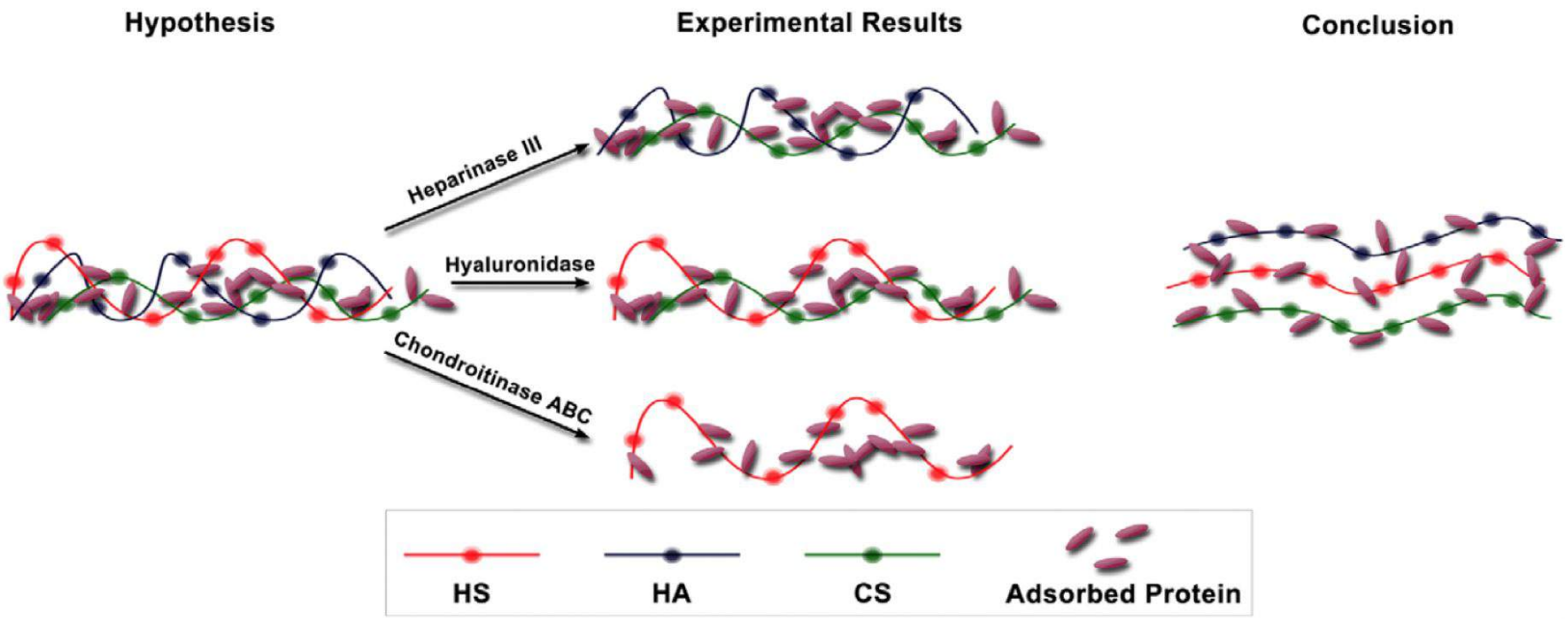
OPEN ACCESS Freely available online

PLOS ONE

The Structural Stability of the Endothelial Glycocalyx after Enzymatic Removal of Glycosaminoglycans

Ye Zeng[1], Eno E. Ebong[2], Bingmei M. Fu[1], John M. Tarbell[1]*

1 Department of Biomedical Engineering, The City College of New York, New York, New York, United States of America, **2** Department of Neuroscience, Albert Einstein College of Medicine, New York, New York, United States of America



Anesthesiology 2006; 104:1223–31

Contrasting Effects of Colloid and Crystalloid Resuscitation Fluids on Cardiac Vascular Permeability

Matthias Jacob, M.D., Dirk Bruegger, M.D.,* Markus Rehm, M.D.,† Ulrich Welsch, M.D., Ph.D.,‡ Peter Conzen, M.D.,§ Bernhard F. Becker, M.D., Ph.D.‖*

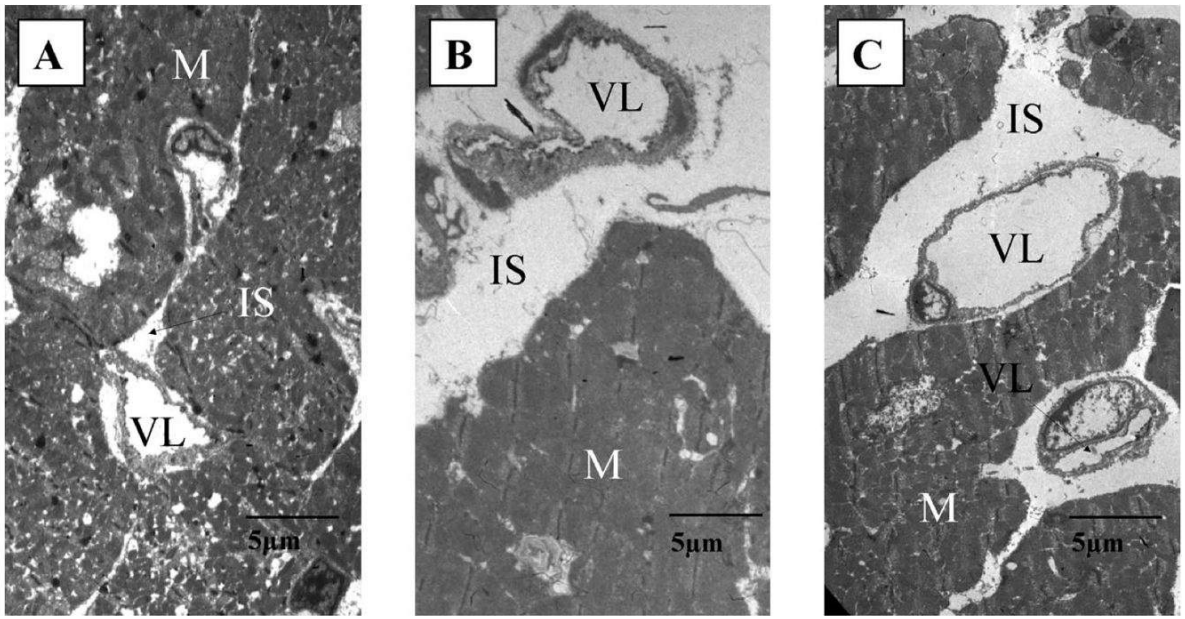
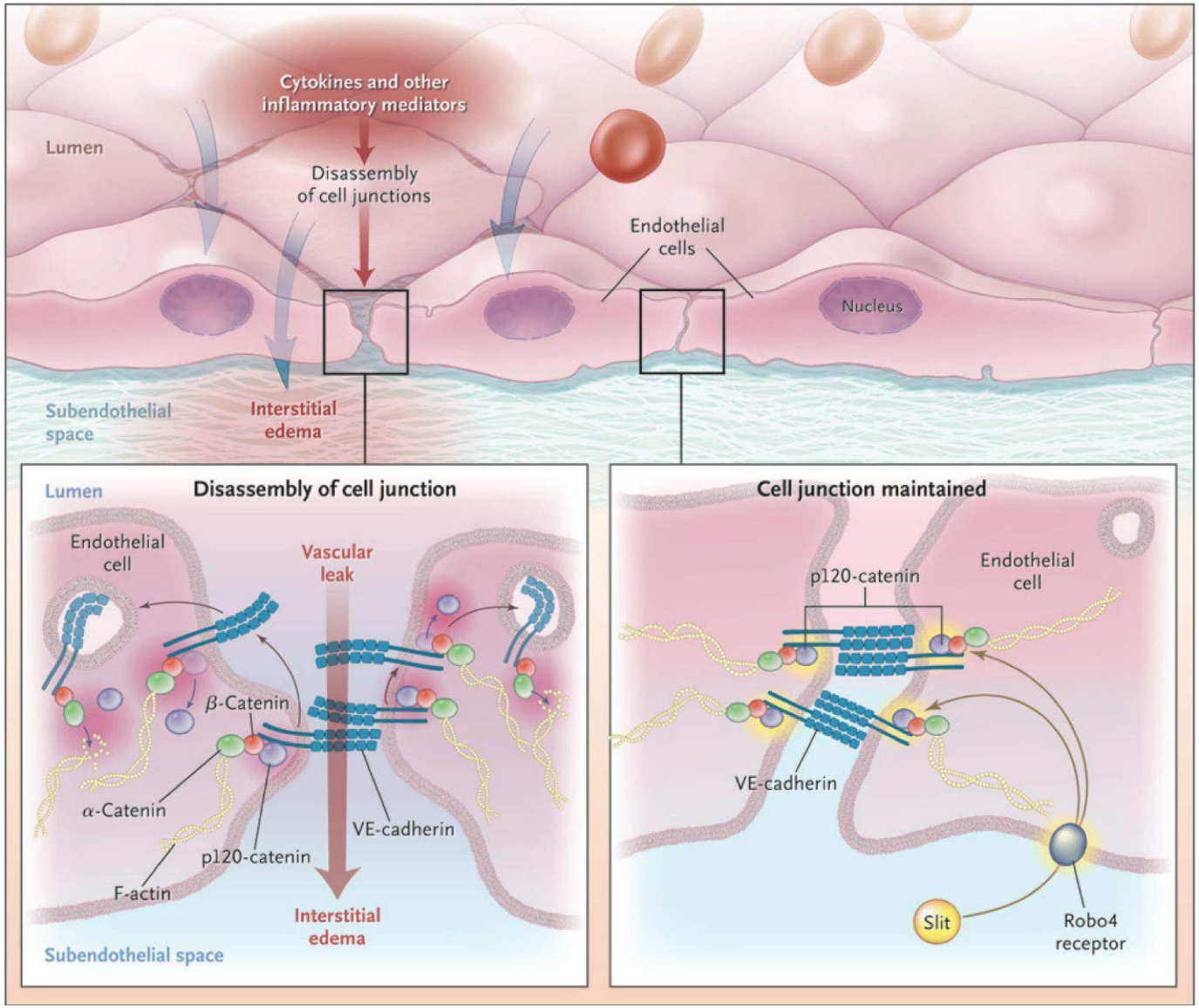


Fig. 8. Exemplary display of interstitial edema at the end of protocol, magnification ×3,640 in all panels. Groups albumin 5% (*A*), hydroxyethyl starch 6% (*B*), and NaCl (*C*). IS = interstitial space; M = myocardium; VL = vascular lumen.

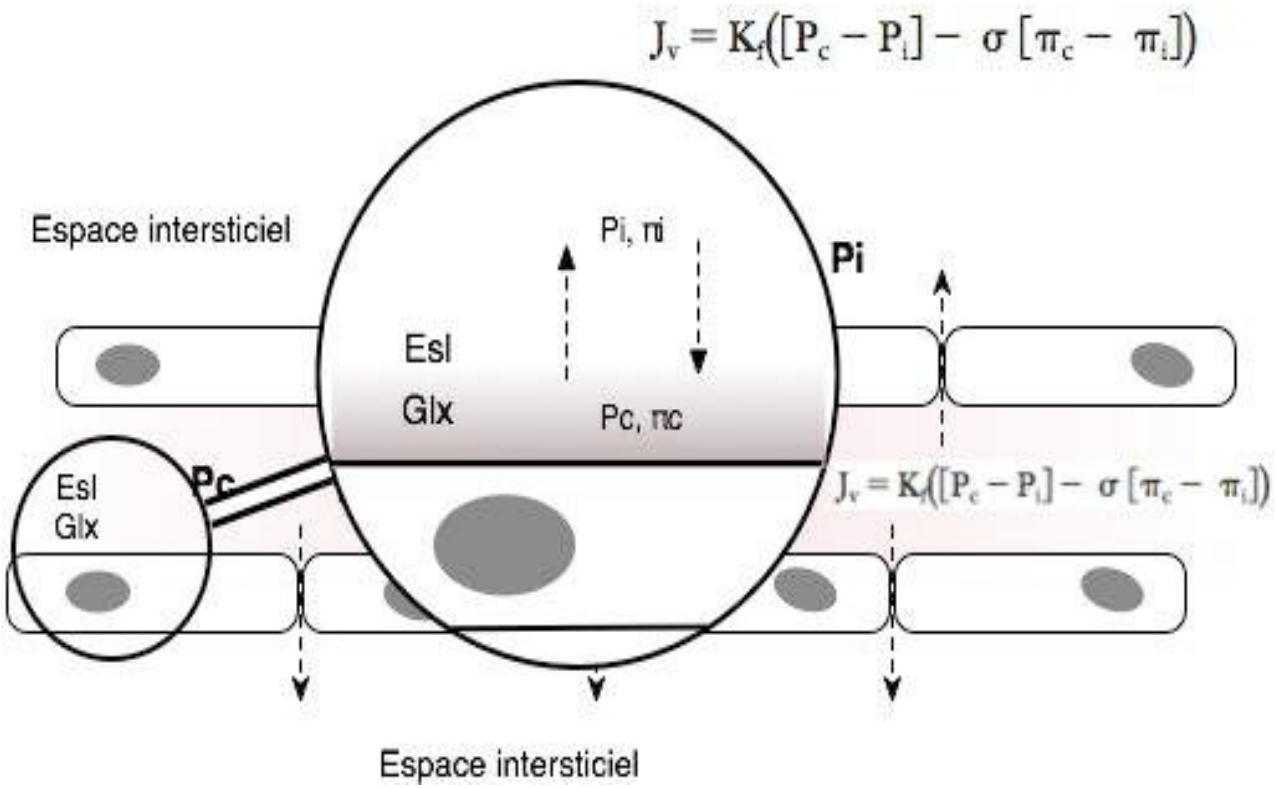
Sepsis and Endothelial Permeability

Warren L. Lee, M.D., Ph.D., and Arthur S. Slutsky, M.D.



Les cristalloïdes administrés rapidement :

- Réduisent le pouvoir oncotique du plasma
- Déplacent l'albumine du glycocalyx
- Accroissent leur propre fuite extravasculaire
- Effets de la température ?



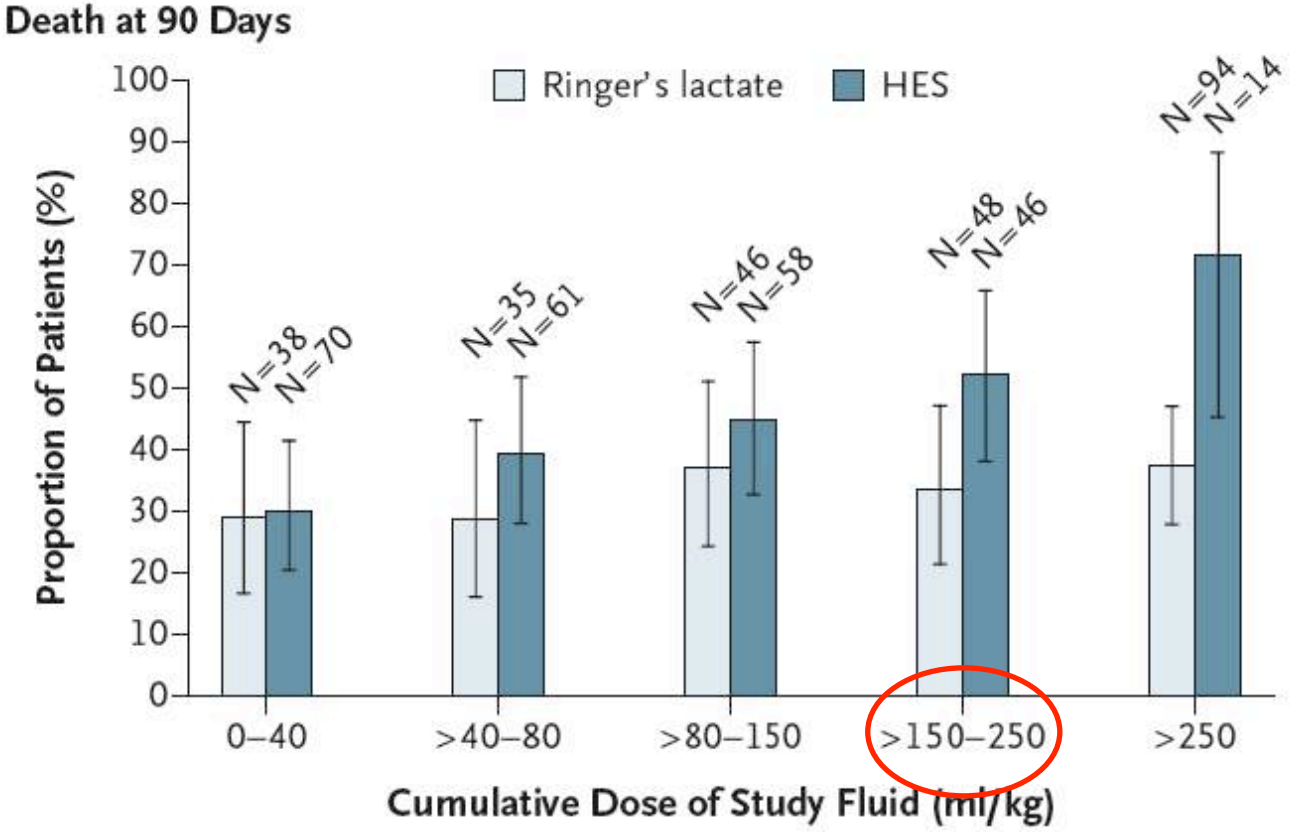
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Intensive Insulin Therapy and Pentastarch Resuscitation in Severe Sepsis

Frank M. Brunkhorst, M.D., Christoph Engel, M.D., Frank Bloos, M.D., Ph.D., Andreas Meier-Hellmann, M.D., Max Ragaller, M.D., Norbert Weiler, M.D., Onnen Moerer, M.D., Matthias Gruendling, M.D., Michael Oppert, M.D., Stefan Grond, M.D., Derk Olthoff, M.D., Ulrich Jaschinski, M.D., Stefan John, M.D., Rolf Rossaint, M.D., Tobias Welte, M.D., Martin Schaefer, M.D., Peter Kern, M.D., Evelyn Kuhnt, M.Sc., Michael Kiehntopf, M.D., Christiane Hartog, M.D., Charles Natanson, M.D., Markus Loeffler, M.D., Ph.D., and Konrad Reinhart, M.D., for the German Competence Network Sepsis (SepNet)

- L'HEA 10% (200/0,5)
- RL



PRELIMINARY COMMUNICATION

Association Between a Chloride-Liberal vs Chloride-Restrictive Intravenous Fluid Administration Strategy and Kidney Injury in Critically Ill Adults

Nor'azim Mohd Yunos, MD
Rinaldo Bellomo, MD, FCICM
Colin Hegarty, BSc
David Story, MD
Lisa Ho, MClinPharm
Michael Bailey, PhD

Context Administration of traditional chloride-liberal intravenous fluids may precipitate acute kidney injury (AKI).

Objective To assess the association of a chloride-restrictive (vs chloride-liberal) intravenous fluid strategy with AKI in critically ill patients.

Design, Setting, and Patients Prospective, open-label, sequential period pilot study of 760 patients admitted consecutively to the intensive care unit (ICU) during the control period (February 18 to August 17, 2008) compared with 773 patients admitted consecutively during the intervention period (February 18 to August 17, 2009) at a university-affiliated hospital in Melbourne, Australia.

Interventions During the control period, patients received standard intravenous fluids. After a 6-month phase-out period (August 18, 2008, to February 17, 2009), any use of chloride-rich intravenous fluids (0.9% saline, 4% succinylated gelatin solution, or 4% albumin solution) was restricted to attending specialist approval only during the intervention period; patients instead received a lactated solution (Hartmann solution), a balanced solution (Plasma-Lyte 148), and chloride-poor 20% albumin.

Main Outcome Measures The primary outcomes included increase from baseline to peak creatinine level in the ICU and incidence of AKI according to the risk, injury, failure, loss, end-stage (RIFLE) classification. Secondary post hoc analysis outcomes included the need for renal replacement therapy (RRT), length of stay in ICU and hospital, and survival.

Results Chloride administration decreased by 144 504 mmol (from 694 to 496 mmol/patient) from the control period to the intervention period. Comparing the control period with the intervention period, the mean serum creatinine level increase while in the ICU was 22.6 μmol/L (95% CI, 17.5-27.7 μmol/L) vs 14.8 μmol/L (95% CI, 9.8-19.9 μmol/L) ($P=.03$), the incidence of injury and failure class of RIFLE-defined AKI was 14% (95% CI, 11%-16%; n=105) vs 8.4% (95% CI, 6.4%-10%; n=65) ($P<.001$), and the use of RRT was 10% (95% CI, 8.1%-12%; n=78) vs 6.3% (95% CI, 4.6%-8.1%; n=49) ($P=.005$). After adjustment for covariates, this association remained for incidence of injury and failure class of RIFLE-defined AKI (odds ratio, 0.52 [95% CI, 0.37-0.75]; $P<.001$) and use of RRT (odds ratio, 0.52 [95% CI, 0.33-0.81]; $P=.004$). There were no differences in hospital mortality, hospital or ICU length of stay, or need for RRT after hospital discharge.

Conclusion The implementation of a chloride-restrictive strategy in a tertiary ICU was associated with a significant decrease in the incidence of AKI and use of RRT.

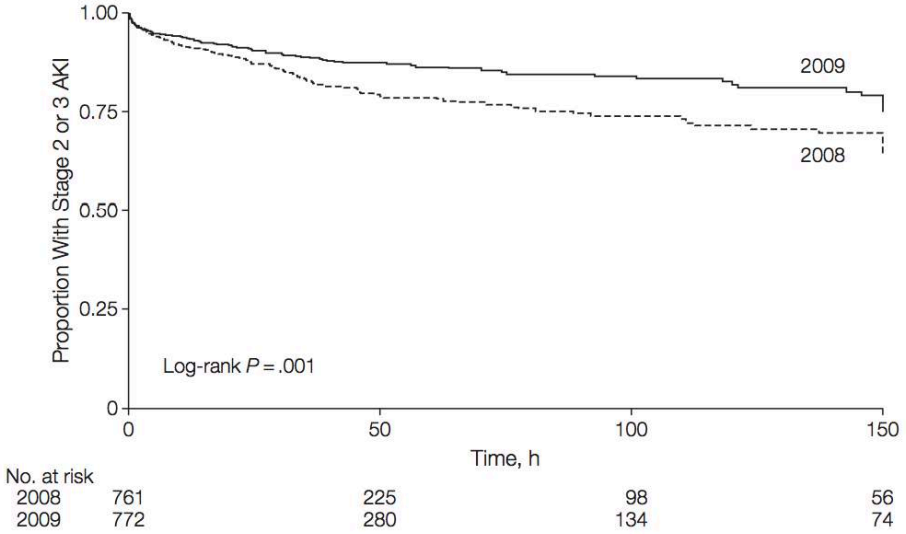
Trial Registration clinicaltrials.gov Identifier: NCT00885404

JAMA. 2012;308(15):1566-1572 www.jama.com

Author Affiliations: Johor Bahru Clinical School, Monash University Sunway Campus, Malaysia (Dr Yunos); Departments of Intensive Care (Dr Bellomo), Laboratory Medicine (Mr Hegarty), Anaesthesia (Dr Story), and Pharmacy (Ms Ho), Austin Hospital, Melbourne, Australia; and Australia and New Zealand Intensive Care Research Centre, Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Australia (Drs Bellomo and Bailey). **Corresponding Author:** Rinaldo Bellomo, MD, FCICM, Austin Health, Heidelberg, Victoria 3084, Australia (rinaldo.bellomo@austin.org.au).

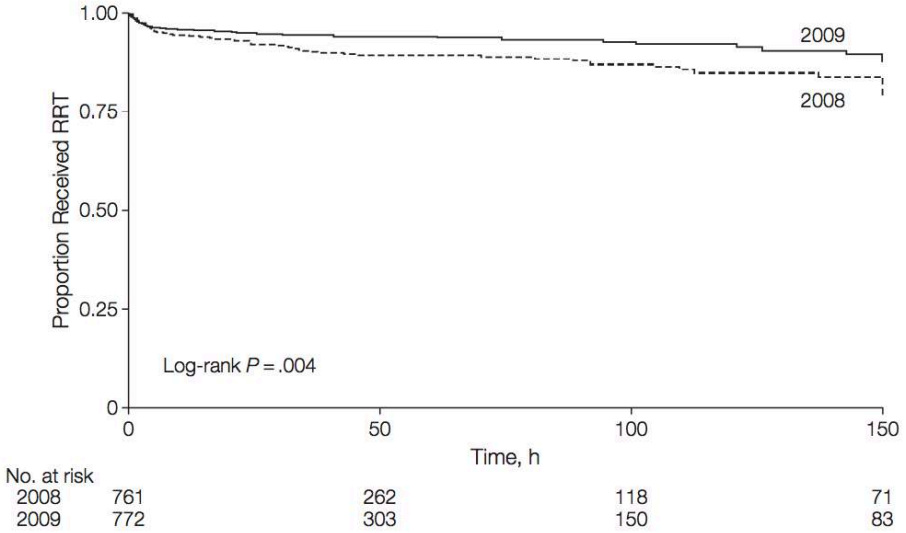
For editorial comment see p 1583.

Figure 1. Development of Stage 2 or 3 Acute Kidney Injury (AKI) While in the Intensive Care Unit (ICU)



Stage 2 or 3 defined according to the Kidney Disease: Improving Global Outcomes clinical practice guideline.

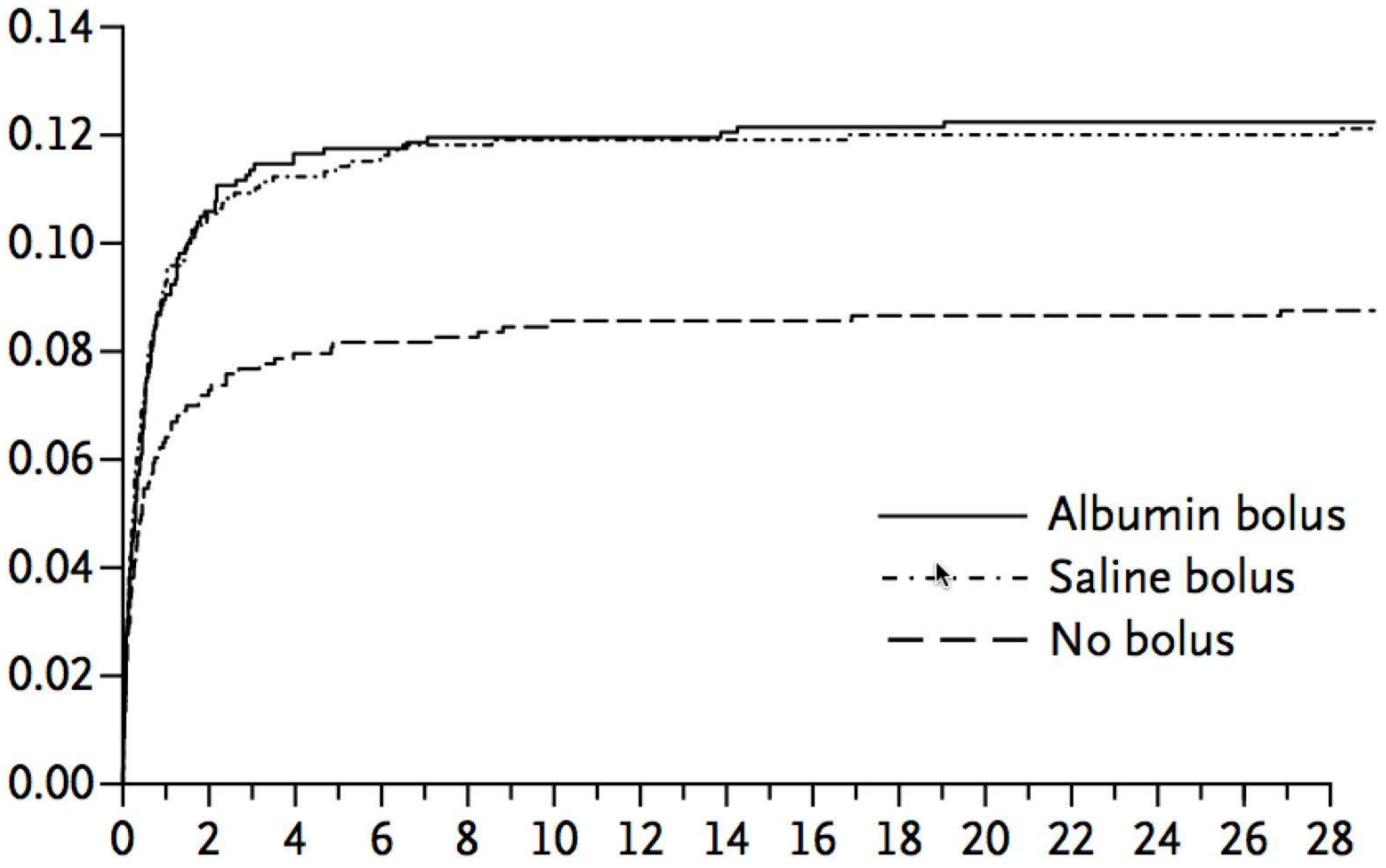
Figure 2. Renal Replacement Therapy (RRT) in the Intensive Care Unit (ICU)



ORIGINAL ARTICLE

Mortality after Fluid Bolus in African Children with Severe Infection

Kathryn Maitland, M.B., B.S., Ph.D., Sarah Kiguli, M.B., Ch.B., M.Med., Robert O. Opoka, M.B., Ch.B., M.Med., Charles Engoru, M.B., Ch.B., M.Med., Peter Olupot-Olupot, M.B., Ch.B., Samuel O. Akech, M.B., Ch.B., Richard Nyeko, M.B., Ch.B., M.Med., George Mtove, M.D., Hugh Reyburn, M.B., B.S., Trudie Lang, Ph.D., Bernadette Brent, M.B., B.S., Jennifer A. Evans, M.B., B.S., James K. Tibenderana, M.B., Ch.B., Ph.D., Jane Crawley, M.B., B.S., M.D., Elizabeth C. Russell, M.Sc., Michael Levin, F.Med.Sci., Ph.D., Abdel G. Babiker, Ph.D., and Diana M. Gibb, M.B., Ch.B., M.D., for the FEAST Trial Group*



COMMENTARY

Totem and Taboo: Fluids in sepsis

Andrew K Hilton[1] and Rinaldo Bellomo*[2]

FEAST will undoubtedly cause robust debate and anxiety as the totemic status of fluids in sepsis becomes undermined. This is a result that Sigmund Freud, the author of *Totem and Taboo* [21], would have anticipated. His and our answer is the need to confront and more fully investigate. To question the role of fluids in severe sepsis can no longer be considered taboo.

Quelle(s) macromolécule(s) s'accumule(nt) dans le secteur extra-vasculaire ?

1. L'albumine à 4%
2. Les gélatines fluides modifiées
3. L'HEA 10% (200/0,5)
4. L'HEA à 6% (200/0,6)
5. L'HEA à 6% (130/0,4)

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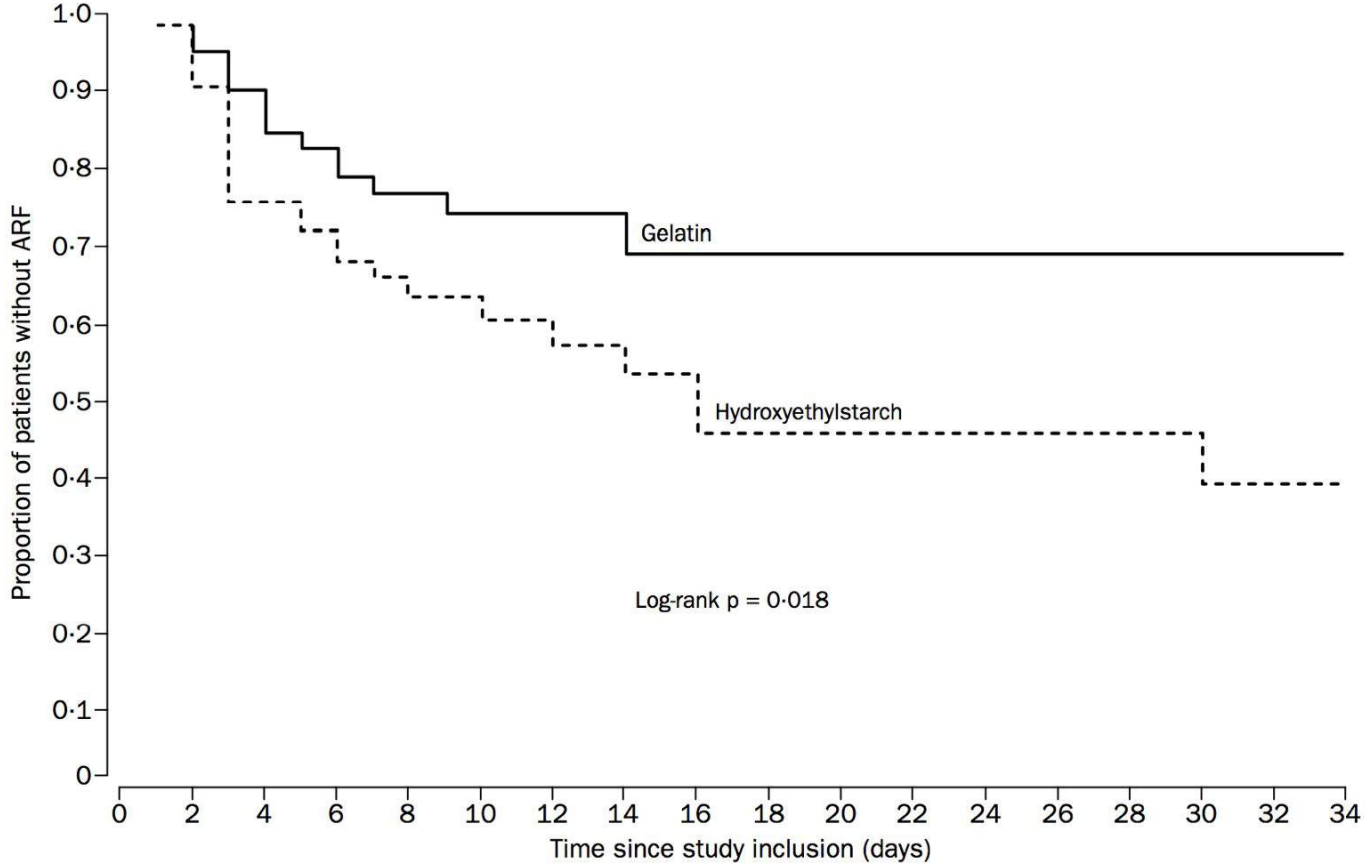
5. L'HEA à 6% (130/0,4)

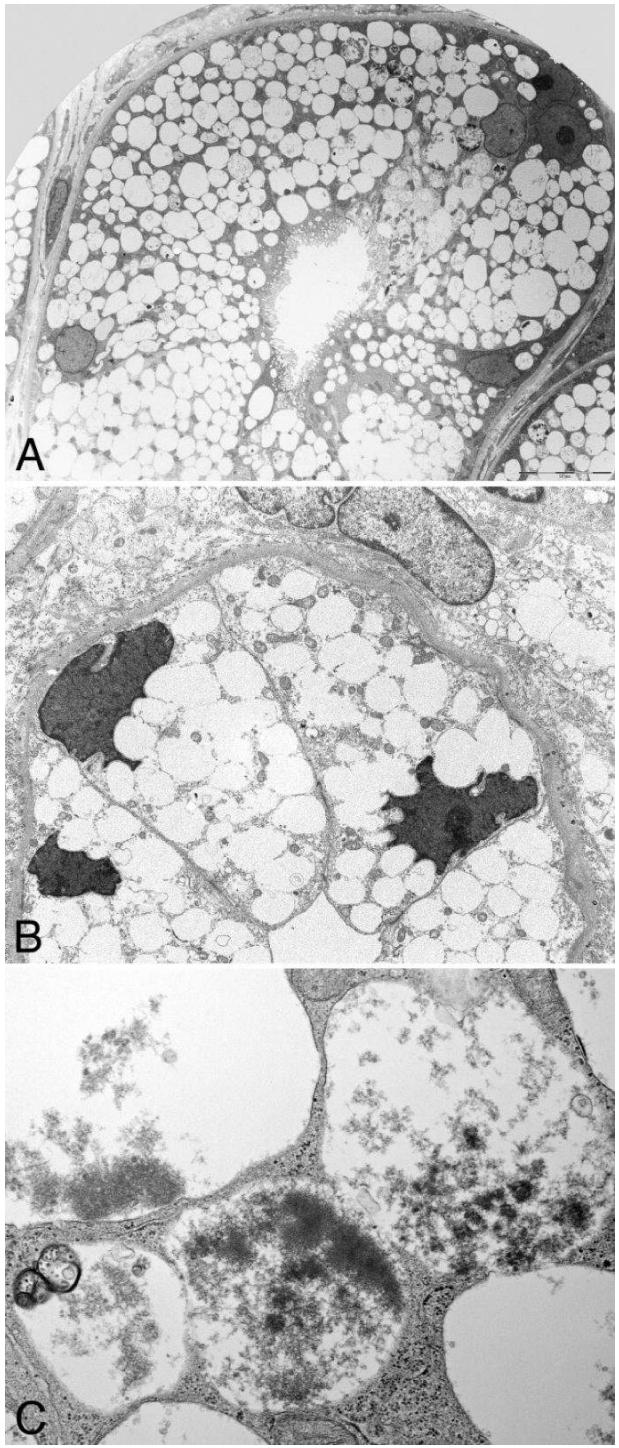
Effects of hydroxyethylstarch and gelatin on renal function in severe sepsis: a multicentre randomised study

Frédérique Schortgen, Jean-Claude Lacherade, Fabrice Bruneel, Isabelle Cattaneo, François Hemery, François Lemaire, Laurent Brochard

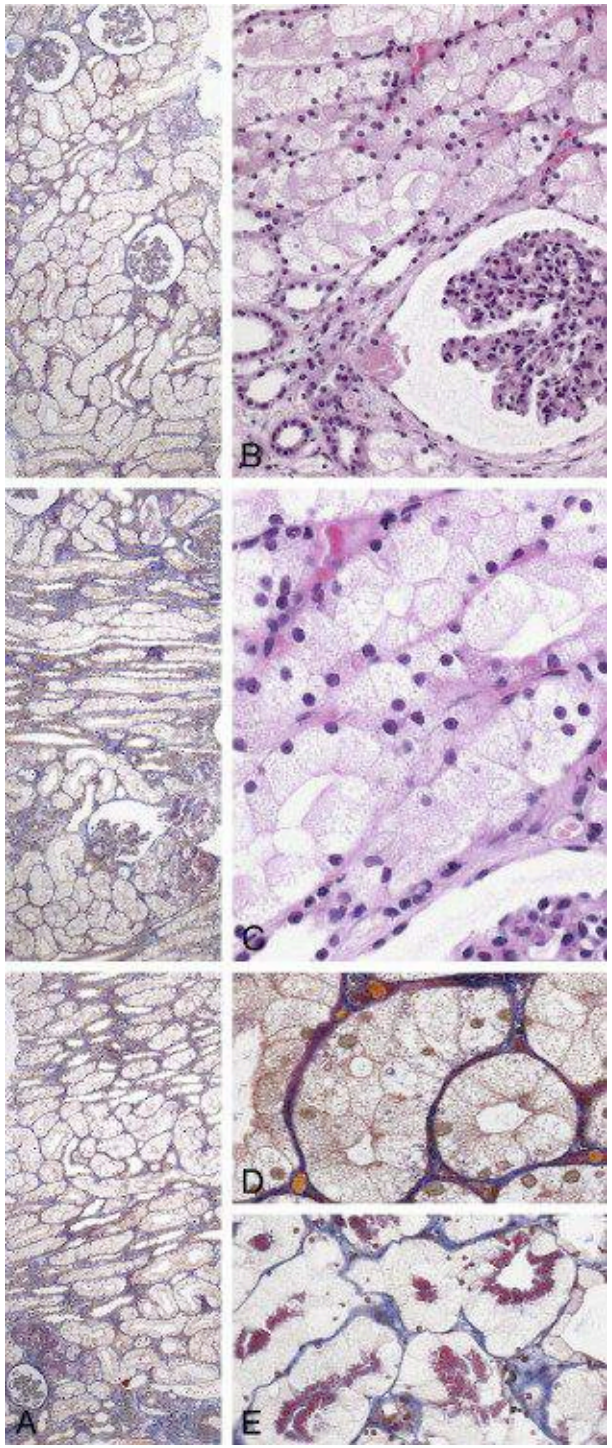


Number at risk

Gelatin	64	54	45	38	26	20	15	14	12	11	11	11	9	9	9	9	7	6
Hydroxyethylstarch	65	54	40	31	22	18	16	14	12	10	10	10	9	9	9	7	6	6



Osmotic Nephrosis



Dickenmann M et al.
AJKD. 2008;51(3):491-503.

ELSEVIER

Journal of Hepatology 35 (2001) 726–732

Journal of Hepatology

www.elsevier.com/locate/jhep

Worsening of hepatic dysfunction as a consequence of repeated hydroxyethylstarch infusions

Christos Christidis[1], Frédéric Mal[2], Jeanne Ramos[3], Agnès Senejoux[1], Patrice Callard[4], Robert Navarro[5], Jean-Claude Trinchet[1], Dominique Larrey[6], Michel Beaugrand[1], Catherine Guettier[7,*]

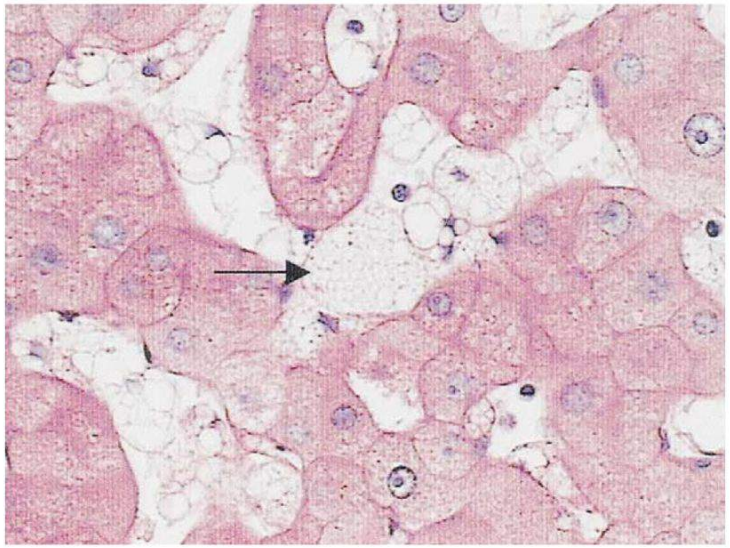


Fig. 1. Microvacuolization of Kupffer cells with pattern of sinusoidal obstruction (PAS, ×400).

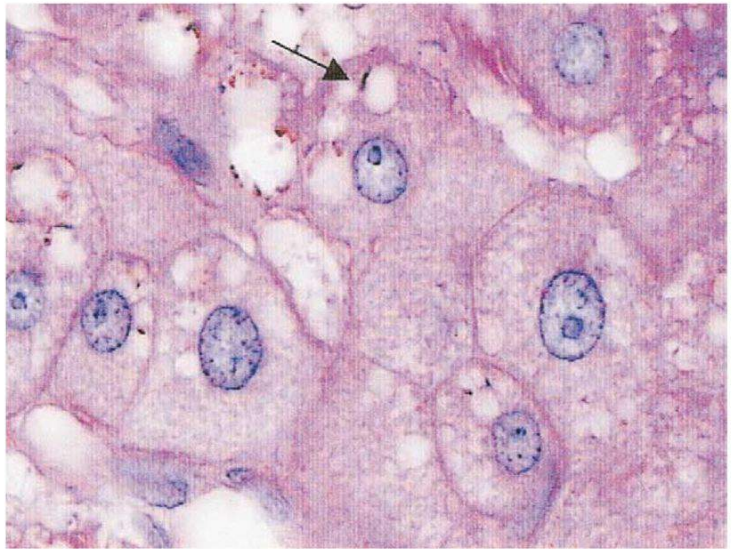


Fig. 2. PAS peripheral enhancement in hepatocyte vacuoles (PAS, ×1000).

Guidet *et al. Critical Care* 2012, **16**:R94
http://ccforum.com/content/16/3/R94

CRITICAL CARE

RESEARCH Open Access

Assessment of hemodynamic efficacy and safety of 6% hydroxyethylstarch 130/0.4 vs. 0.9% NaCl fluid replacement in patients with severe sepsis: The CRYSTMAS study

Bertrand Guidet[1,2,3*], Olivier Martinet[4], Thierry Boulain[5], Francois Philippart[6,7], Jean François Poussel[8], Julien Maizel[9], Xavier Forceville[10], Marc Feissel[11], Michel Hasselmann[4], Alexandra Heininger[12] and Hugo Van Aken[13]

Table 3 Efficacy outcomes.

	HES 130/0.4 (n = 88)	NaCl 0.9% (n = 86)	p
Mean volume of study drug used, ml (SD)	1,379 (886)	1,709 (1,164)	0.0185
Mean time to initial HDS, hours (SD)	11.8 (10.1)	14.3 (11.1)	NS
Number of patients prescribed intravenous catecholamines (%)	88 (88.0)	87 (90.6)	NS

HDS, hemodynamic stabilization; SD, standard deviation; HES, hydroxyethyl starch; NaCl, sodium chloride; NS, not significant.

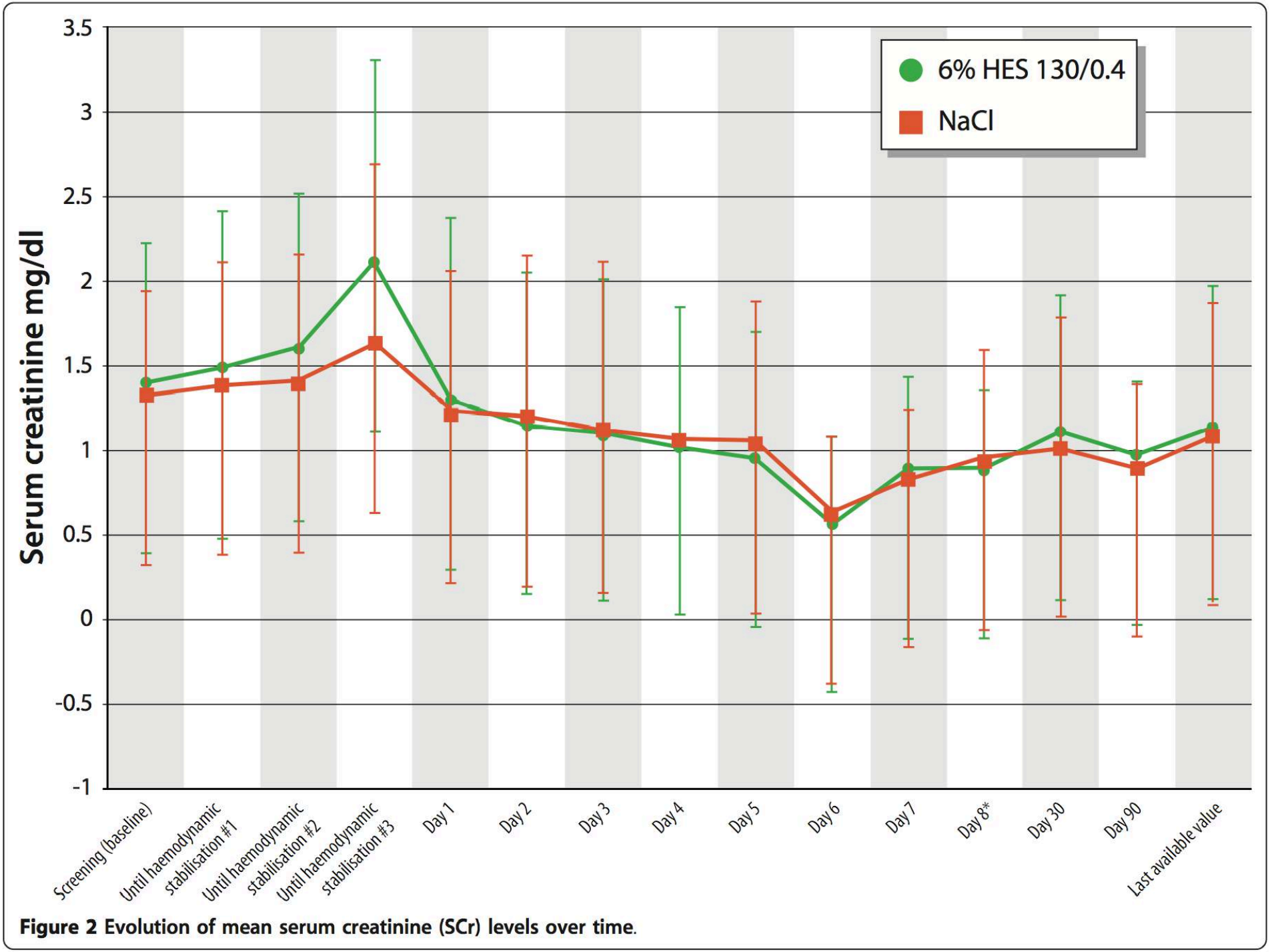


Figure 2 Evolution of mean serum creatinine (SCr) levels over time.

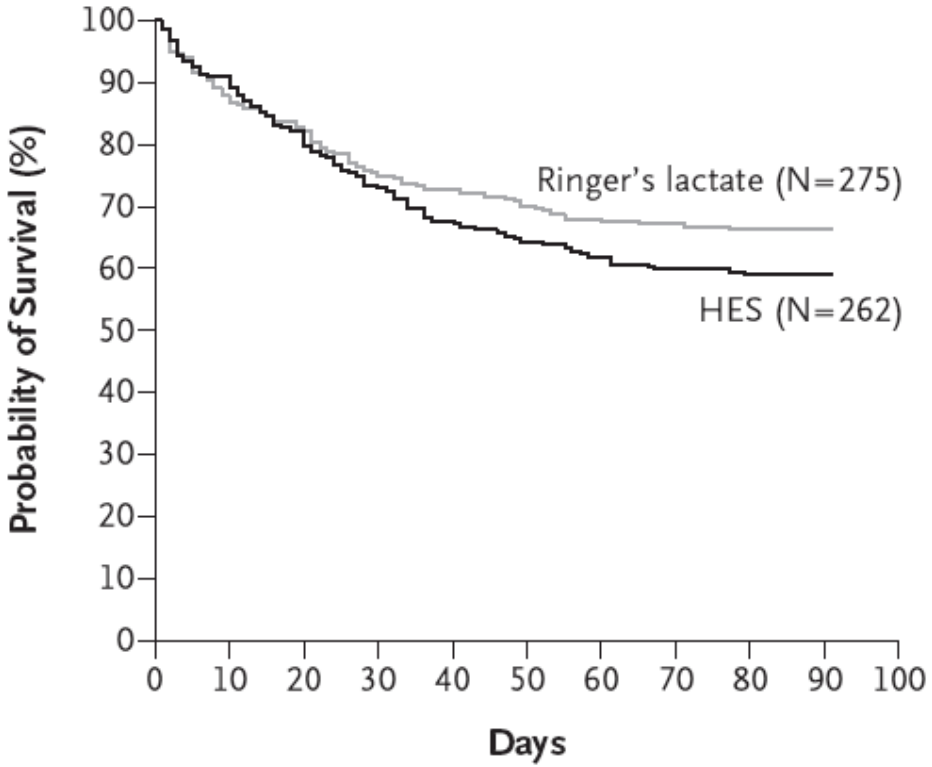
The NEW ENGLAND JOURNAL of MEDICINE

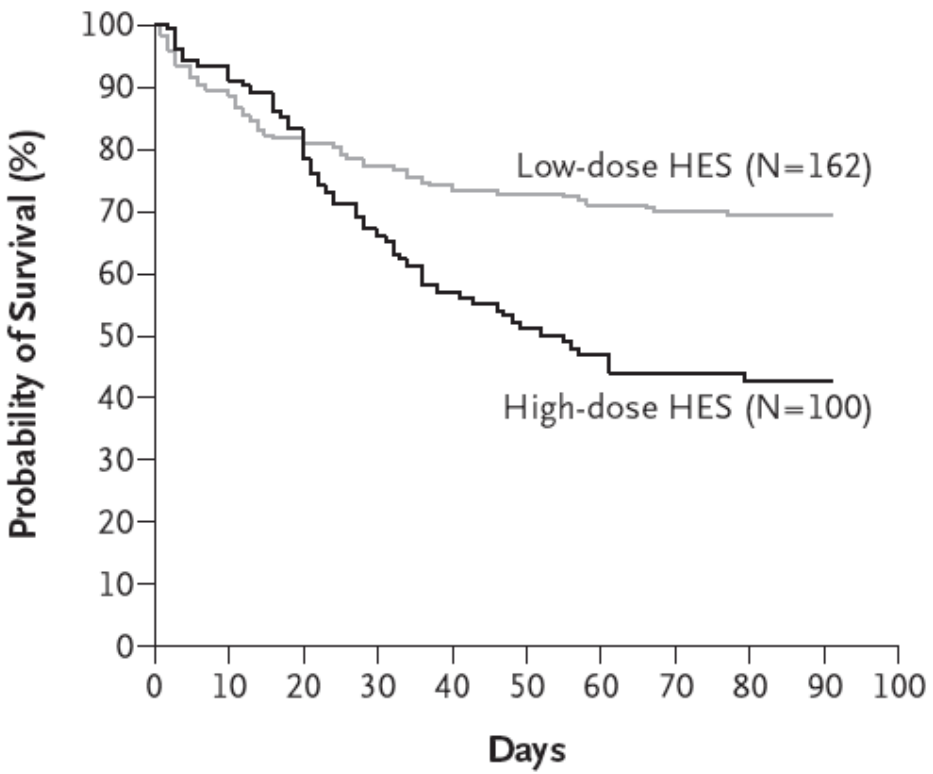
ORIGINAL ARTICLE

Intensive Insulin Therapy and Pentastarch Resuscitation in Severe Sepsis

Frank M. Brunkhorst, M.D., Christoph Engel, M.D., Frank Bloos, M.D., Ph.D., Andreas Meier-Hellmann, M.D., Max Ragaller, M.D., Norbert Weiler, M.D., Onnen Moerer, M.D., Matthias Gruendling, M.D., Michael Oppert, M.D., Stefan Grond, M.D., Derk Olthoff, M.D., Ulrich Jaschinski, M.D., Stefan John, M.D., Rolf Rossaint, M.D., Tobias Welte, M.D., Martin Schaefer, M.D., Peter Kern, M.D., Evelyn Kuhnt, M.Sc., Michael Kiehntopf, M.D., Christiane Hartog, M.D., Charles Natanson, M.D., Markus Loeffler, M.D., Ph.D., and Konrad Reinhart, M.D., for the German Competence Network Sepsis (SepNet)

- L'HEA 10% (200/0,5)
- RL



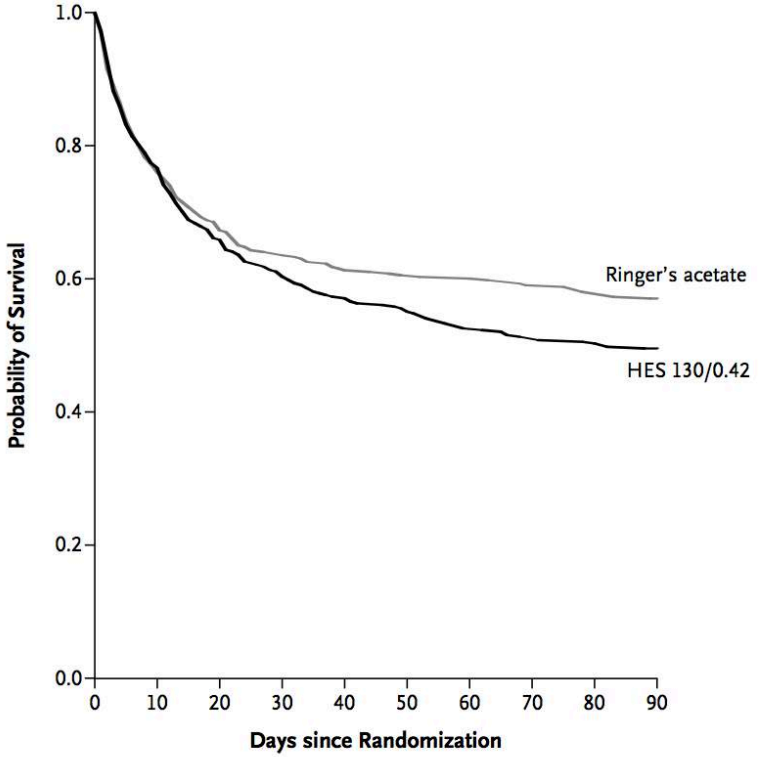


The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Hydroxyethyl Starch 130/0.42 versus Ringer's Acetate in Severe Sepsis

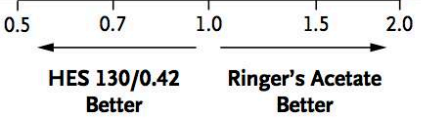
Anders Perner, M.D., Ph.D., Nicolai Haase, M.D., Anne B. Guttormsen, M.D., Ph.D., Jyrki Tenhunen, M.D., Ph.D., Gudmundur Klemenzson, M.D., Anders Åneman, M.D., Ph.D., Kristian R. Madsen, M.D., Morten H. Møller, M.D., Ph.D., Jeanie M. Elkjær, M.D., Lone M. Poulsen, M.D., Asger Bendtsen, M.D., M.P.H., Robert Winding, M.D., Morten Steensen, M.D., Pawel Berezowicz, M.D., Ph.D., Peter Søe-Jensen, M.D., Morten Bestle, M.D., Ph.D., Kristian Strand, M.D., Ph.D., Jørgen Wiis, M.D., Jonathan O. White, M.D., Klaus J. Thornberg, M.D., Lars Quist, M.D., Jonas Nielsen, M.D., Ph.D., Lasse H. Andersen, M.D., Lars B. Holst, M.D., Katrin Thormar, M.D., Anne-Lene Kjældgaard, M.D., Maria L. Fabritius, M.D., Frederik Mondrup, M.D., Frank C. Pott, M.D., D.M.Sci., Thea P. Møller, M.D., Per Winkel, M.D., D.M.Sci., and Jørn Wetterslev, M.D., Ph.D., for the 6S Trial Group and the Scandinavian Critical Care Trials Group*



- Sepsis
- 6% HES 130/0.42
- Ringer acetate

B Relative Risk of the Primary Outcome

Subgroup	HES 130/0.42 (no. of events/no. in subgroup)	Ringer's Acetate (no. of events/no. in subgroup)	Relative Risk (95% CI)	P Value for Heterogeneity
Shock at the time of randomization				0.22
Yes	179/336	148/337	1.21 (1.04–1.42)	
No	23/62	25/63	0.93 (0.60–1.46)	
Acute kidney injury at the time of randomization				0.60
Yes	72/142	63/140	1.13 (0.88–1.44)	
No	130/256	110/260	1.20 (1.00–1.45)	
All patients	202/398	173/400	1.17 (1.01–1.36)	

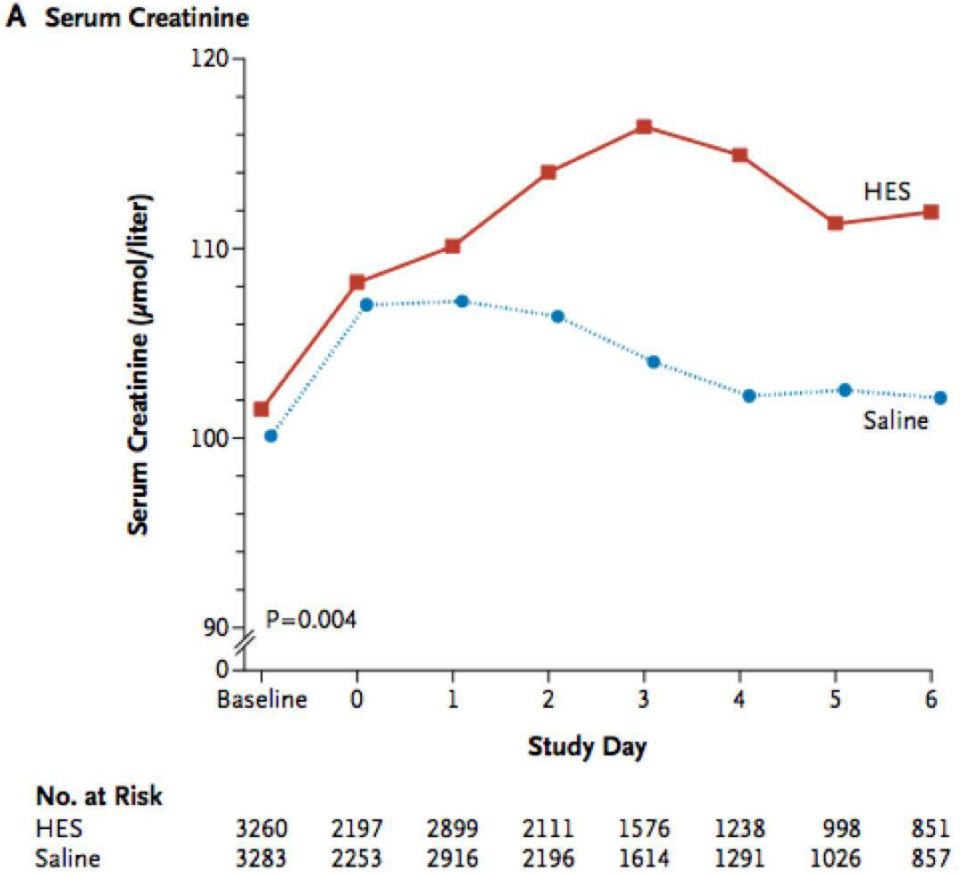


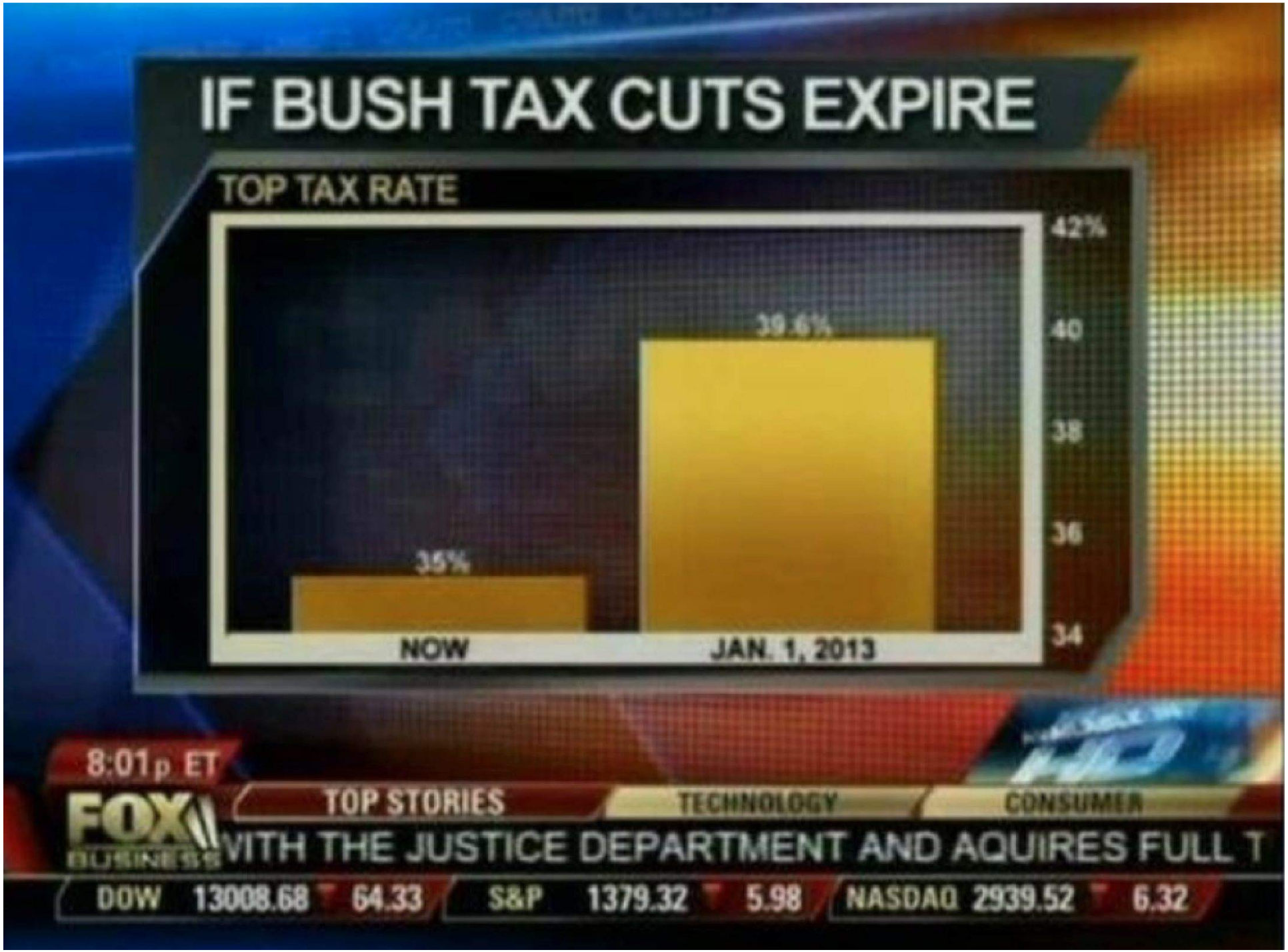
ORIGINAL ARTICLE

Hydroxyethyl Starch or Saline for Fluid Resuscitation in Intensive Care

John A. Myburgh, M.D., Ph.D., Simon Finfer, M.D., Rinaldo Bellomo, M.D., Laurent Billot, M.Sc., Alan Cass, M.D., Ph.D., David Gattas, M.D., Parisa Glass, Ph.D., Jeffrey Lipman, M.D., Bette Liu, Ph.D., Colin McArthur, M.D., Shay McGuinness, M.D., Dorrilyn Rajbhandari, R.N., Colman B. Taylor, M.N.D., and Steven A.R. Webb, M.D., Ph.D., for the CHEST Investigators and the Australian and New Zealand Intensive Care Society Clinical Trials Group*

- 7000 pts
- 6% HES 130/0.42
- SSI
- Mortality (90d) p=0.26



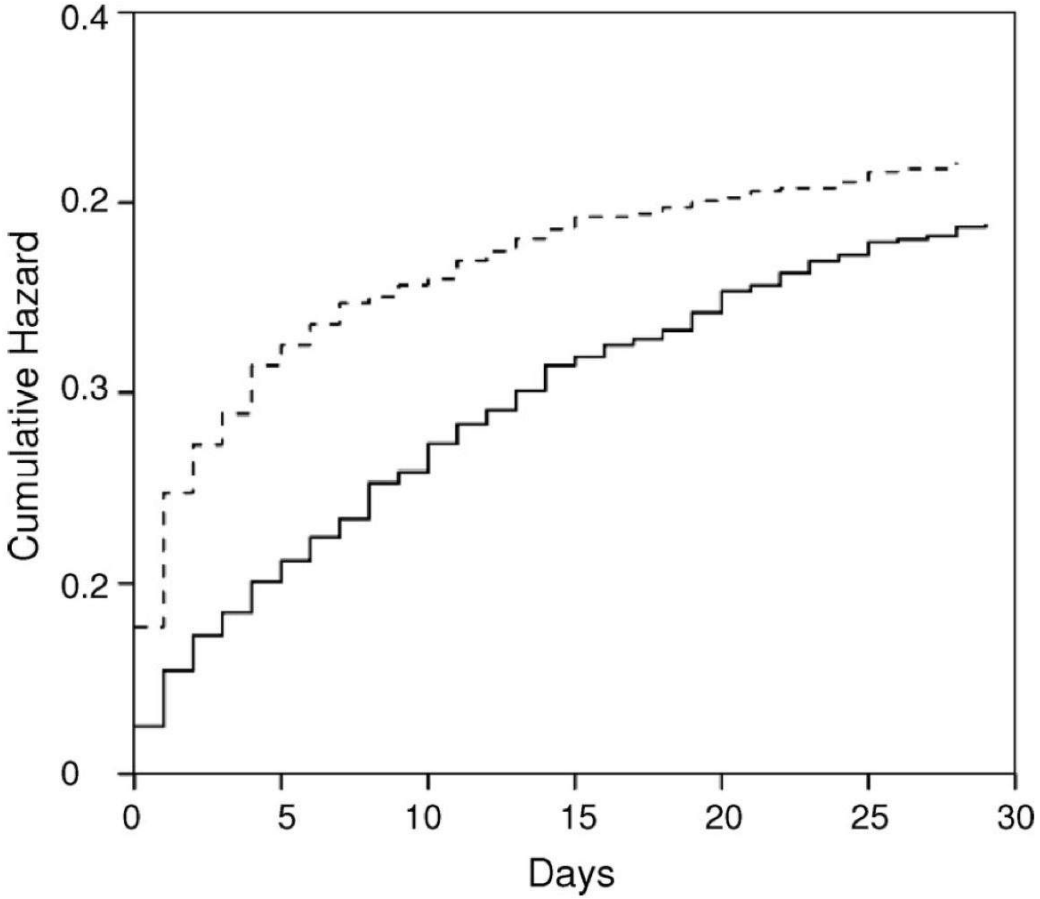


Anesthesiology 2008; 108:31-9

Are Blood Transfusions Associated with Greater Mortality Rates?

Results of the Sepsis Occurrence in Acutely Ill Patients Study

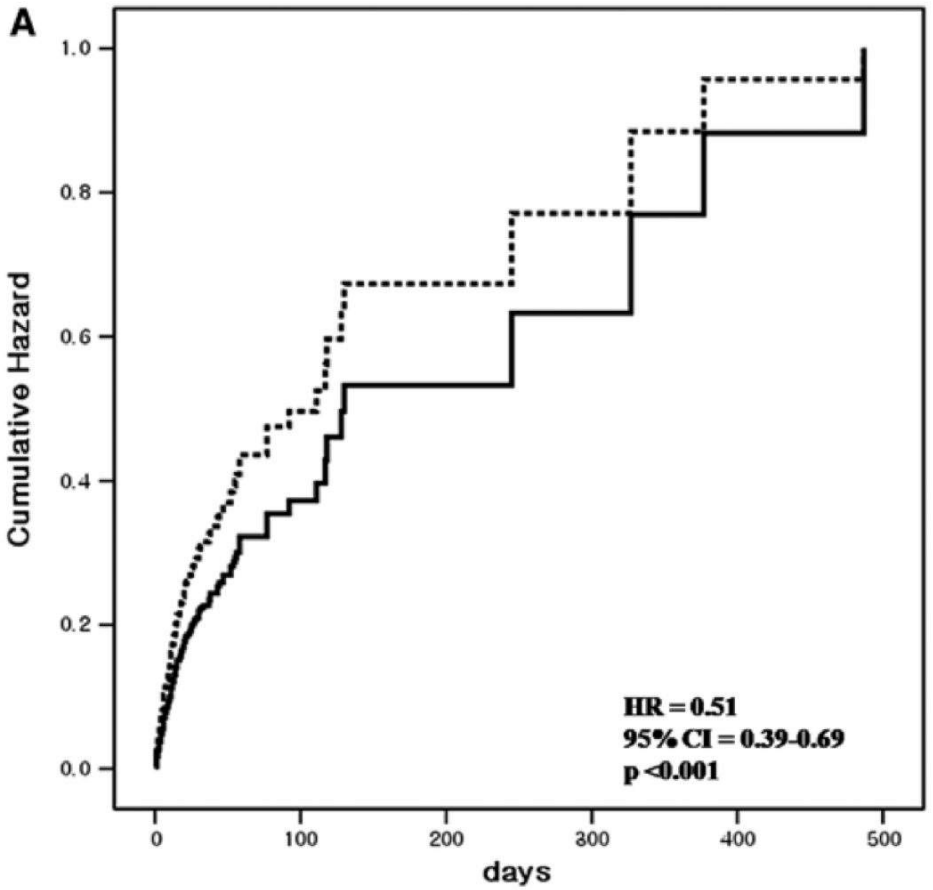
Jean-Louis Vincent, M.D., Ph.D., Yasser Sakr, M.B., B.Ch., Ph.D.,† Charles Sprung, M.D.,‡ Svein Harboe, M.D.,§ Pierre Damas, M.D.‖ on behalf of the Sepsis Occurrence in Acutely Ill Patients (SOAP) Investigators*

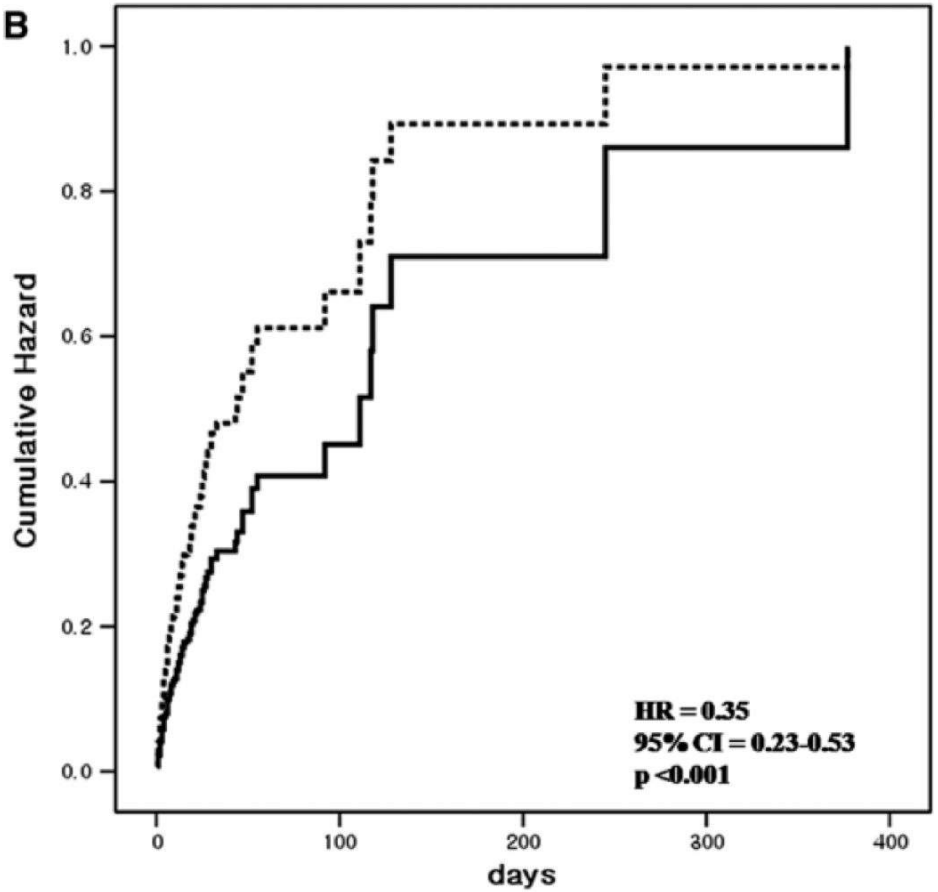


- 3,147 patients,
- 1,040 (33.0%) received a blood transfusion
- Propensity (matching score)

Red blood cell transfusions are associated with lower mortality in patients with severe sepsis and septic shock: A propensity-matched analysis*

Dae Won Park, MD, PhD; Byung-Chul Chun, MD, PhD; Soon-Sun Kwon, PhD; Young Kyung Yoon, MD, PhD; Won Suk Choi, MD, PhD; Jang Wook Sohn, MD, PhD; Kyong Ran Peck, MD, PhD; Yang Soo Kim, MD, PhD; Young Hwa Choi, MD, PhD; Jun Yong Choi, MD, PhD; Sang Il Kim, MD, PhD; Joong Sik Eom, MD, PhD; Hyo Youl Kim, MD, PhD; Hee Jin Cheong, MD, PhD; Young Goo Song, MD, PhD; Hee Jung Choi, MD, PhD; June Myung Kim, MD, PhD; Min Ja Kim, MD, PhD





L’avenir ?

Volume

- Amélioration de la logistique de prise en charge
- Visée hémodynamique non oncotique = volume
  - Solutés « globulaires »

Cristalloïdes à réviser

- Quantité
- Composition
- Température, débit

Mise à l’écart des solutés oncotiques

Approches complémentaires

- Précocité du traitement vasoconstricteur
- Optimisation de la sédation
- Drainage lymphatique

Respect de la physiologie endothéliale

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