



Non-dialytic treatment of AKI

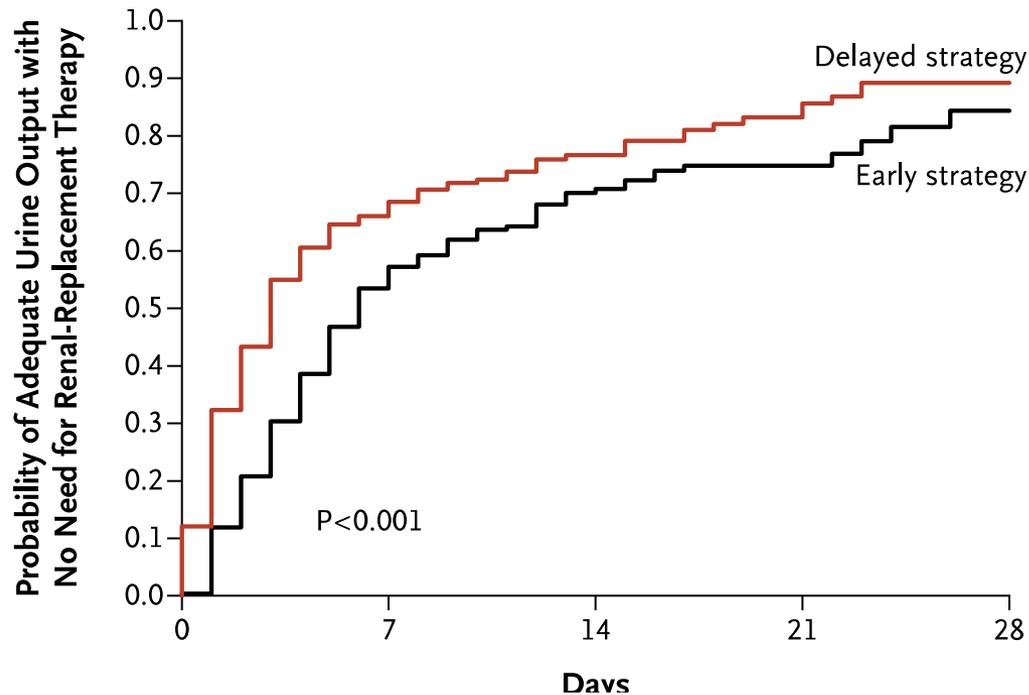
Pr Nicolas Lerolle

Département de réanimation médicale et médecine
hyperbare

Dialysis as a treatment of AKI ?

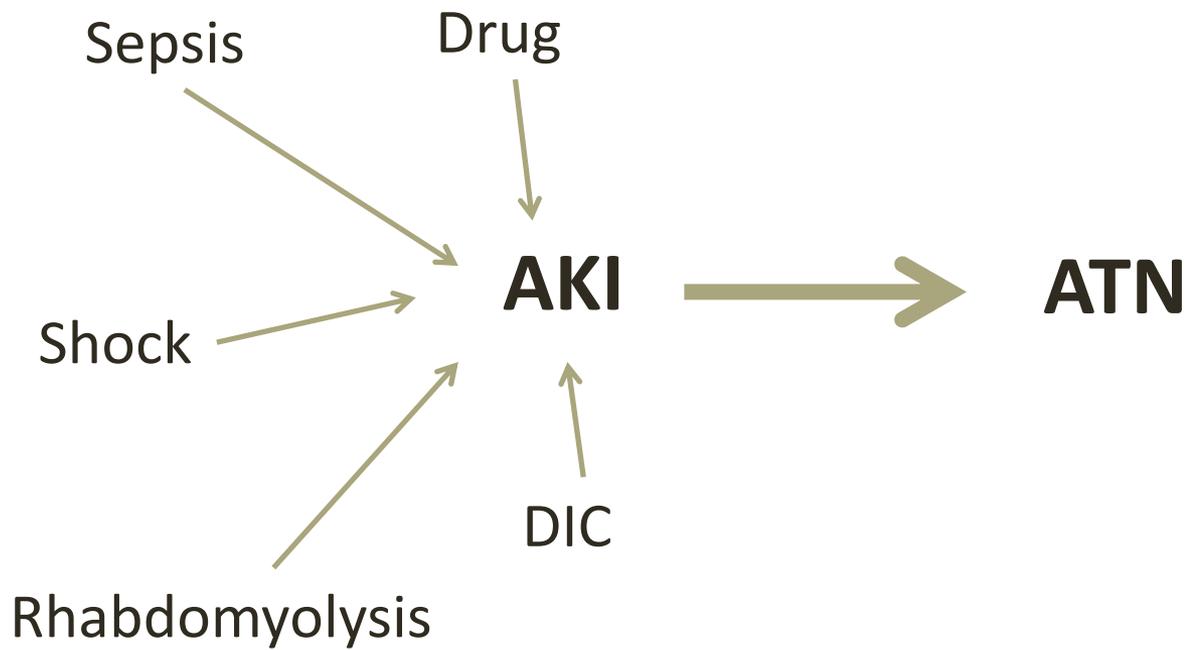


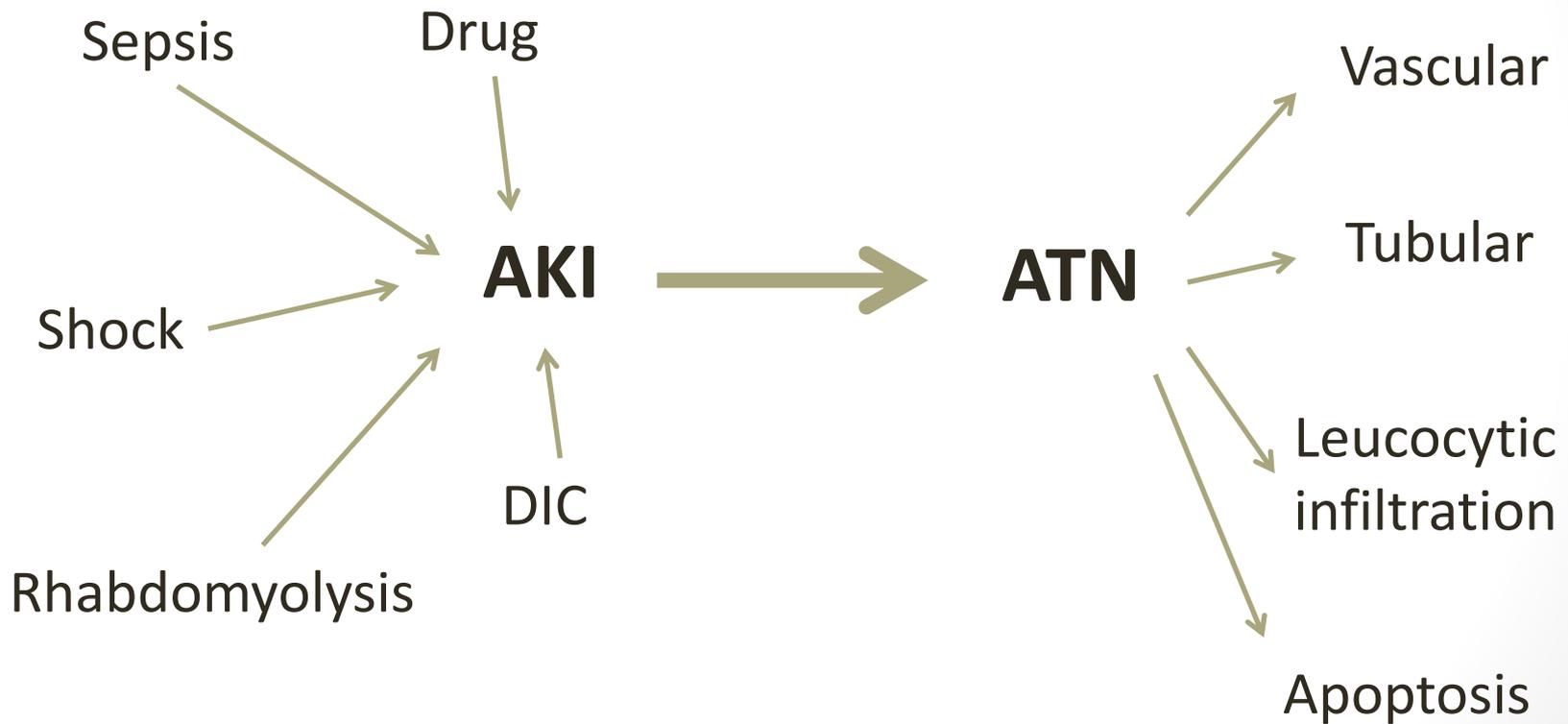
The NEW ENGLAND JOURNAL of MEDICINE



Initiation Strategies for Renal-Replacement Therapy in the Intensive Care Unit

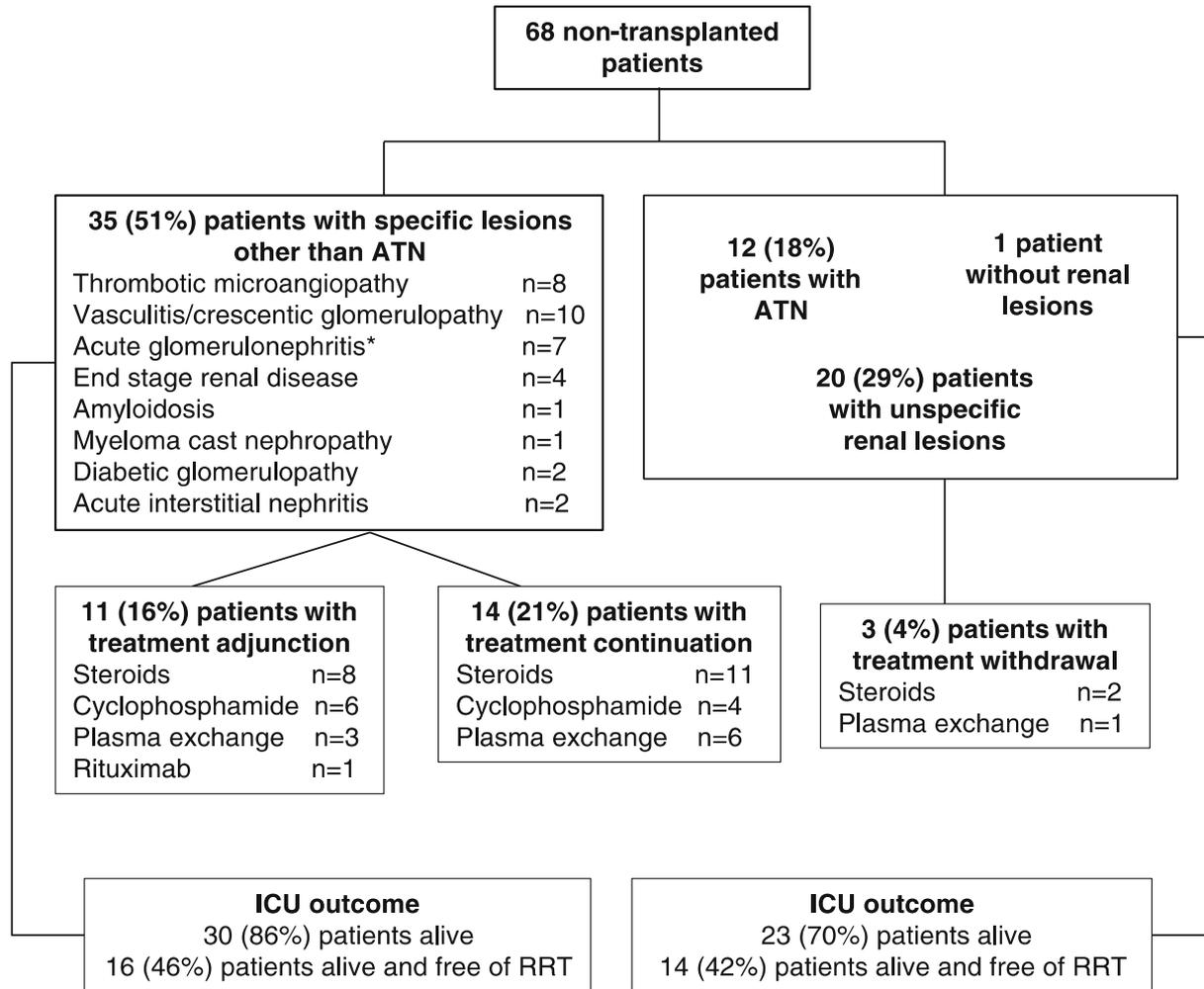
Stéphane Gaudry, M.D., David Hajage, M.D., Frédérique Schortgen, M.D.,







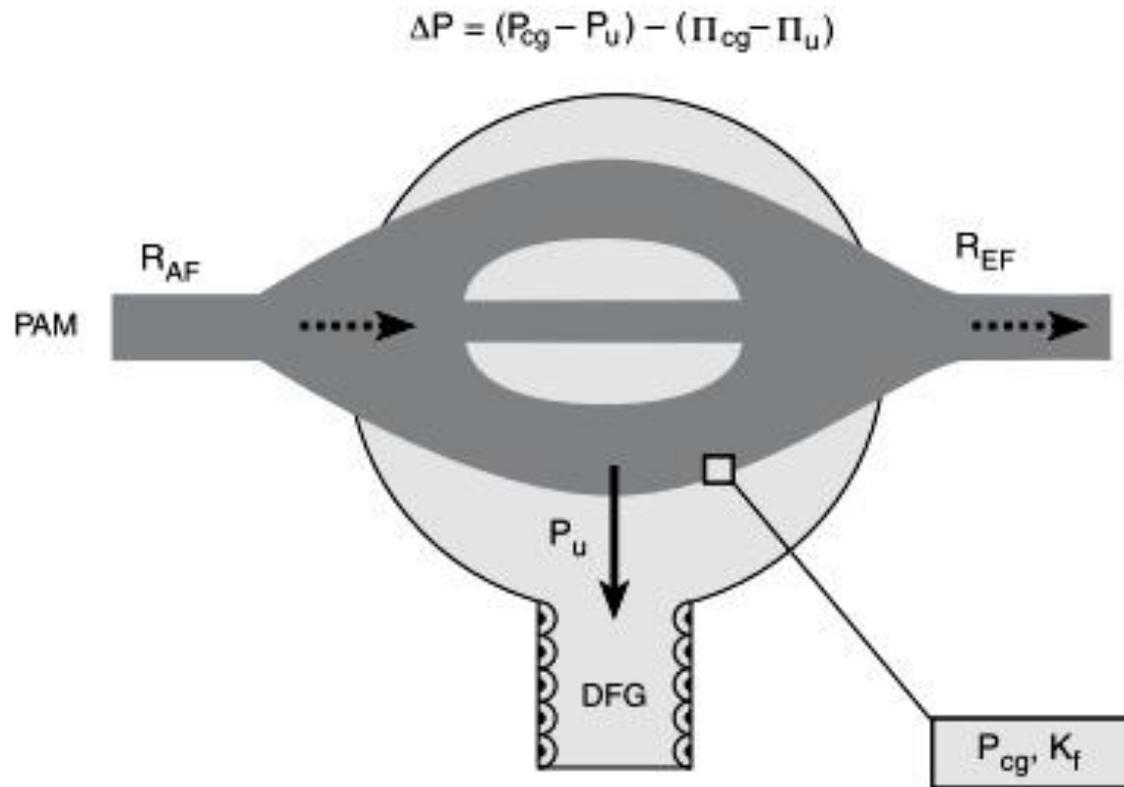
Safety and diagnostic yield of renal biopsy in the intensive care unit







Hemodynamics of AKI





RESEARCH

Open Access

Relation between mean arterial pressure and renal function in the early phase of shock: a prospective, explorative cohort study

Julie Badin¹, Thierry Boulain^{1*}, Stephan Ehrmann², Marie Skarzynski¹, Anne Bretagnol¹, Jennifer Buret², Dalila Benzekri-Lefevre¹, Emmanuelle Mercier², Isabelle Runge¹, Denis Garot², Armelle Mathonnet¹, Pierre-François Dequin² and Dominique Perrotin²

AUC for time-averaged MAP from H6 to H24

Septic shock and AKI at H6

Prediction of AKI H72

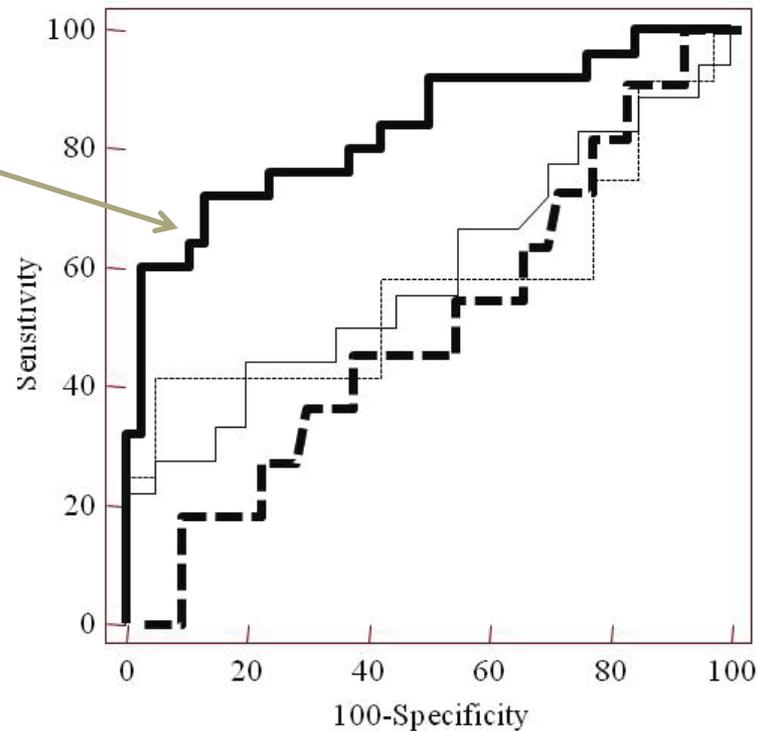


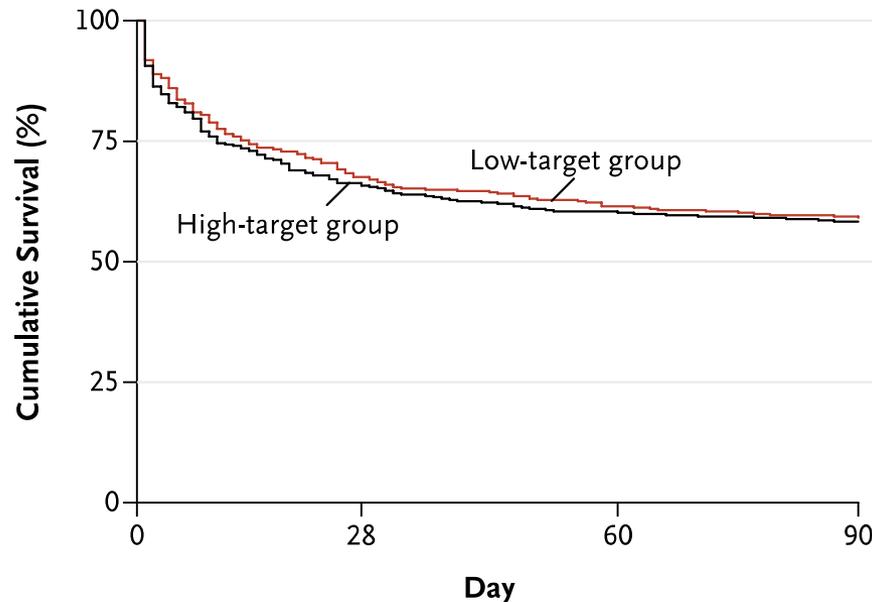
Figure 5 Performance of mean arterial pressure to predict acute kidney insufficiency (AKI) at H72.



ORIGINAL ARTICLE

High versus Low Blood-Pressure Target in Patients with Septic Shock

Pierre Asfar, M.D., Ph.D., Ferhat Meziani, M.D., Ph.D., Jean-François Hamel, M.D.,



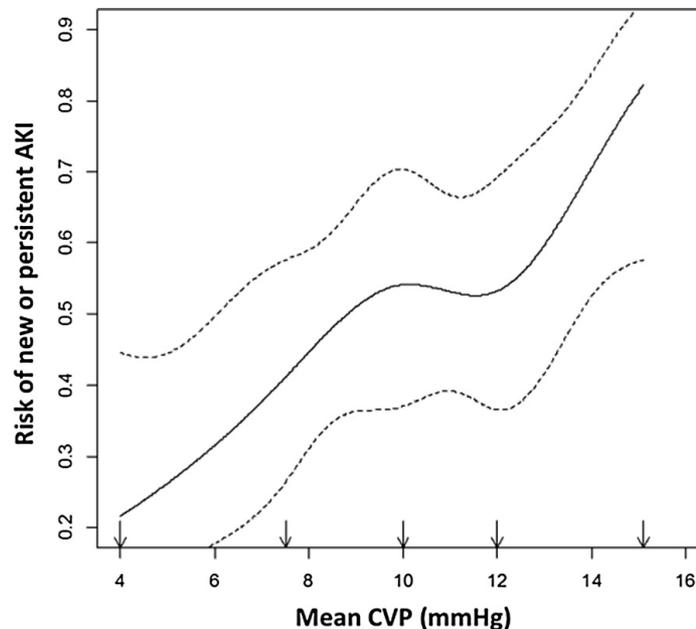
Patients hypertendus
PAM 80-85 mmHg

→ Réduction EER et doublement
créatinine

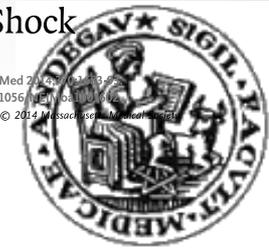


Association between systemic hemodynamics and septic acute kidney injury in critically ill patients: a retrospective observational study

Matthieu Legrand^{1,2*}, Claire Dupuis¹, Christelle Simon¹, Etienne Gayat^{1,3}, Joaquim Mateo¹, Anne-Claire Lukaszewicz^{1,2,4} and Didier Payen^{1,2,4}



Et PAD



The Effects of Alternative Resuscitation Strategies on Acute Kidney Injury in Patients with Septic Shock

John A. Kellum^{1,2}, Lakhmir S. Chawla^{2,3}, Christopher Keener^{1,4}, Kai Singbartl^{2,5}, Paul M. Palevsky^{2,6,7}, Francis L. Pike¹, Donald M. Yealy⁸, David T. Huang¹, and Derek C. Angus¹; for the ProCESS and ProGrESS-AKI Investigators*

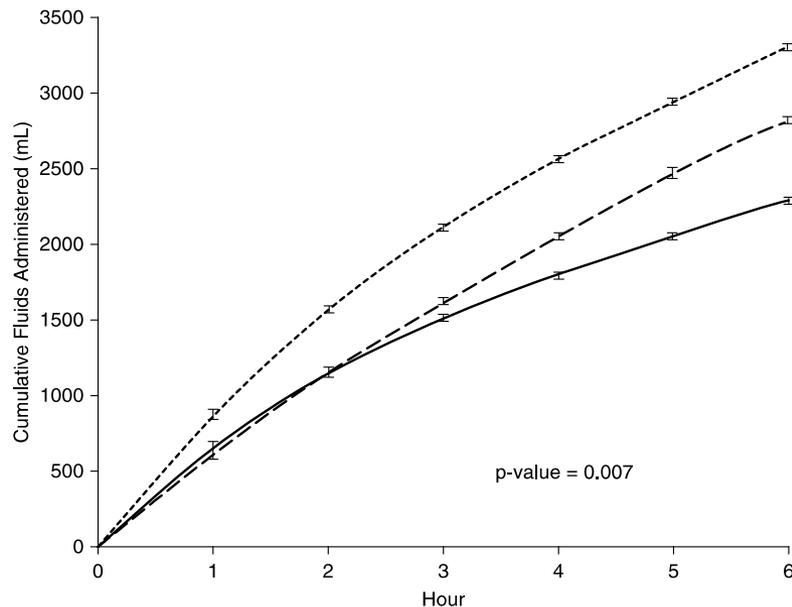


Figure 2. Cumulative fluid use by study arm. Total fluid received over the first 6 hours. *Solid line*, usual care; *long dashes*, early goal-directed therapy; *short dashes*, protocol-based standard care.

AKI 2-3 new onset

Protocol 30,2%
 EGDT 32,7% 0,59
 Standart 34,2%

RRT 1 week

6 %
 3,1 % 0,04
 2,8 %



Comparison of Two Fluid-Management Strategies in Acute Lung Injury

The National Heart, Lung, and Blood Institute Acute Respiratory Distress Syndrome (ARDS) Clinical Trials Network*

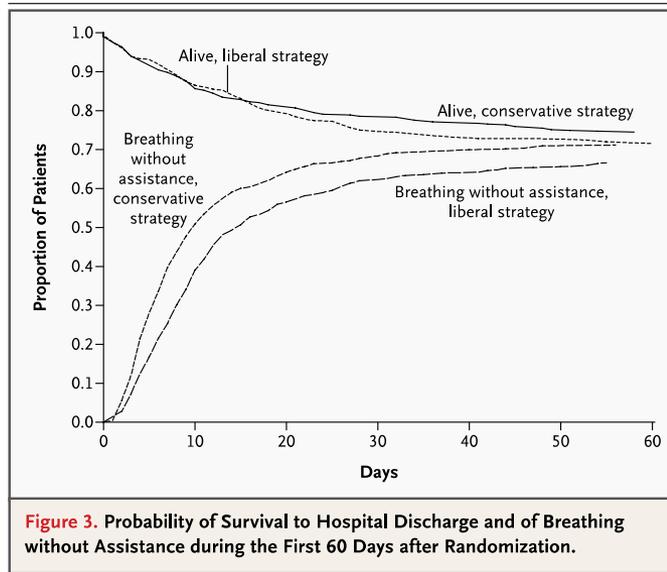


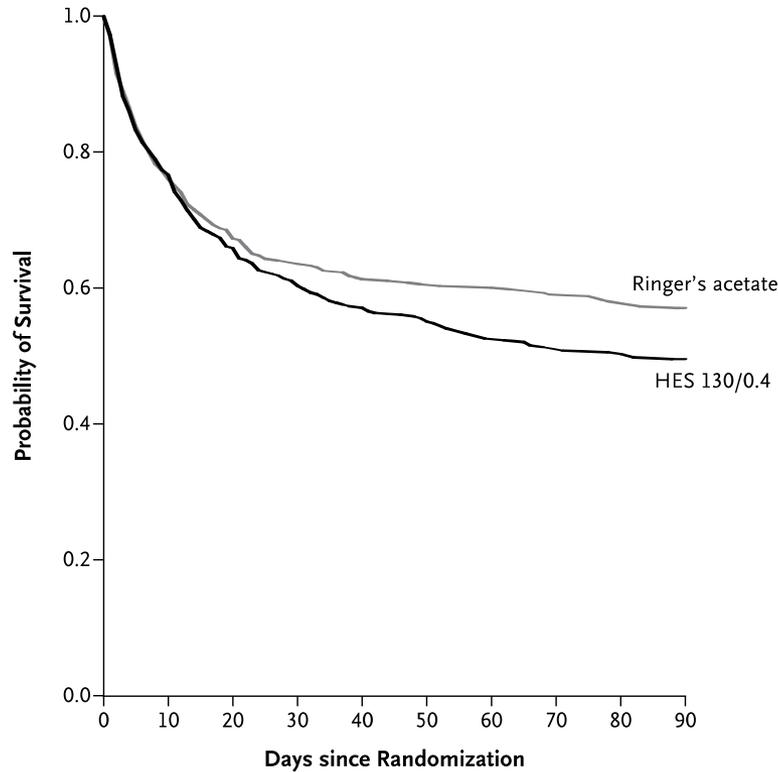
Table 3. Main Outcome Variables.*

Outcome	Conservative Strategy	Liberal Strategy	P Value
Death at 60 days (%)	25.5	28.4	0.30
Ventilator-free days from day 1 to day 28[†]	14.6±0.5	12.1±0.5	<0.001
ICU-free days[‡]			
Days 1 to 7	0.9±0.1	0.6±0.1	<0.001
Days 1 to 28	13.4±0.4	11.2±0.4	<0.001
Organ-failure-free days^{‡‡}			
Days 1 to 7			
Cardiovascular failure	3.9±0.1	4.2±0.1	0.04
CNS failure	3.4±0.2	2.9±0.2	0.02
Renal failure	5.5±0.1	5.6±0.1	0.45
Hepatic failure	5.7±0.1	5.5±0.1	0.12
Coagulation abnormalities	5.6±0.1	5.4±0.1	0.23
Days 1 to 28			
Cardiovascular failure	19.0±0.5	19.1±0.4	0.85
CNS failure	18.8±0.5	17.2±0.5	0.03
Renal failure	21.5±0.5	21.2±0.5	0.59
Hepatic failure	22.0±0.4	21.2±0.5	0.18
Coagulation abnormalities	22.0±0.4	21.5±0.4	0.37
Dialysis to day 60			
Patients (%)	10	14	0.06
Days	11.0±1.7	10.9±1.4	0.96



Hydroxyethyl Starch 130/0.4 versus Ringer's Acetate in Severe Sepsis

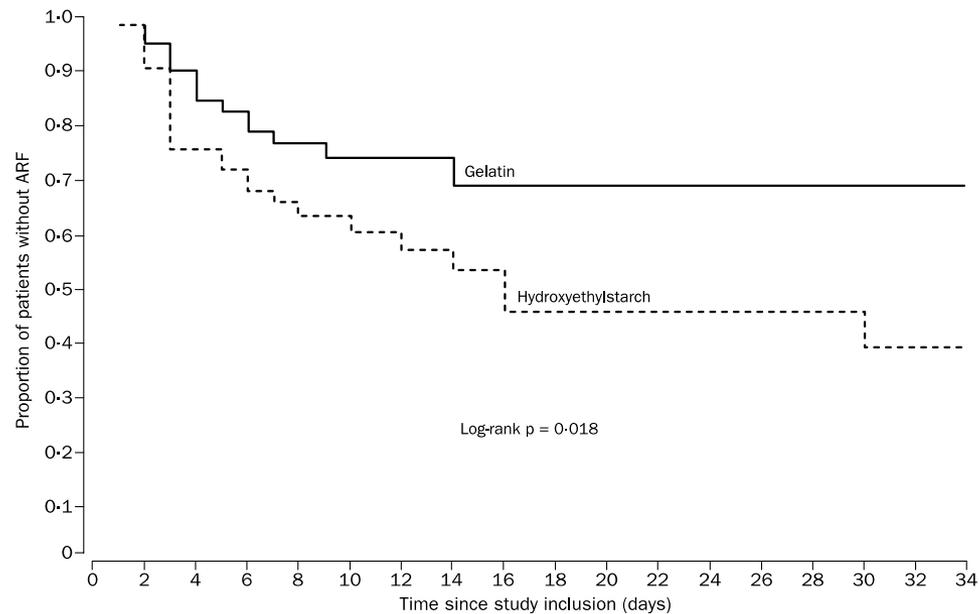
Anders Perner, M.D., Ph.D., Nicolai Haase, M.D.,



Use of renal-replacement therapy — no. (%)‡ 87 (22) 65 (16) 1.35 (1.01–1.80) 0.04



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



Effect of hydroxyethylstarch in brain-dead kidney donors on renal function in kidney-transplant recipients.

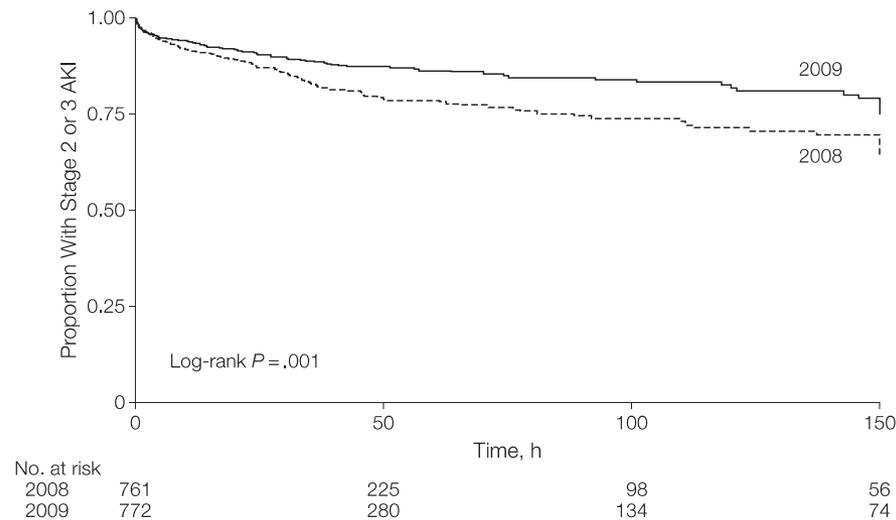
Cittanova ML1 Lancet. 1996 Dec 14;348(9042):1620-2.

Lancet 2001; **357**: 911–16



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

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.

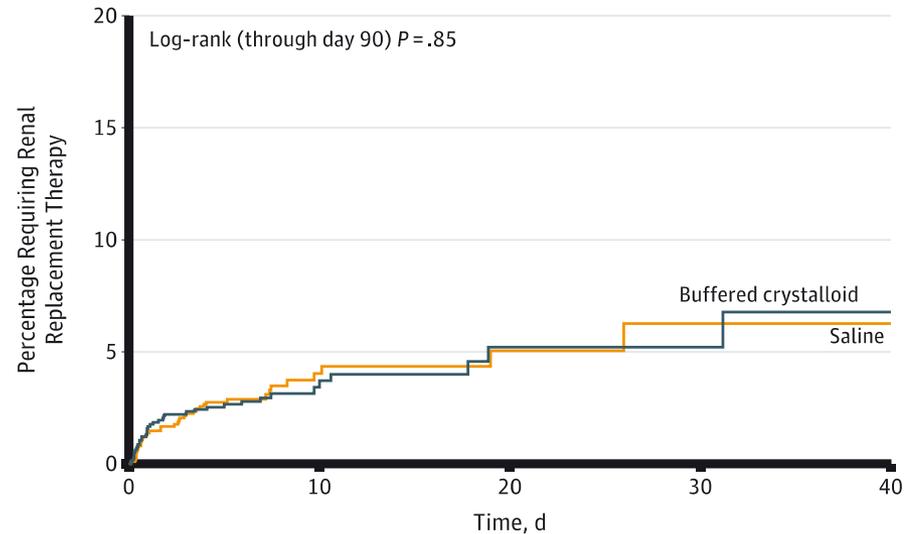


Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of a Buffered Crystalloid Solution vs Saline on Acute Kidney Injury Among Patients in the Intensive Care Unit

The SPLIT Randomized Clinical Trial

Paul Young, FCICM; Michael Bailey, PhD; Richard Beasley, DSc; Seton Henderson, FCICM; Diane Mackle, MN; Colin McArthur, FCICM; Shay McGuinness, FANZCA; Jan Mehrtens, RN; John Myburgh, PhD; Alex Psirides, FCICM; Sumeet Reddy, MBChB; Rinaldo Bellomo, FCICM; for the SPLIT Investigators and the ANZICS CTG



Characteristic	No. (%)	
	Buffered Crystalloid (n = 1152)	Saline (n = 1110)
Fluid volume	2000 ₍₁₀₀₀₋₃₅₀₀₎	2000 ₍₁₀₀₀₋₃₂₅₀₎ mL

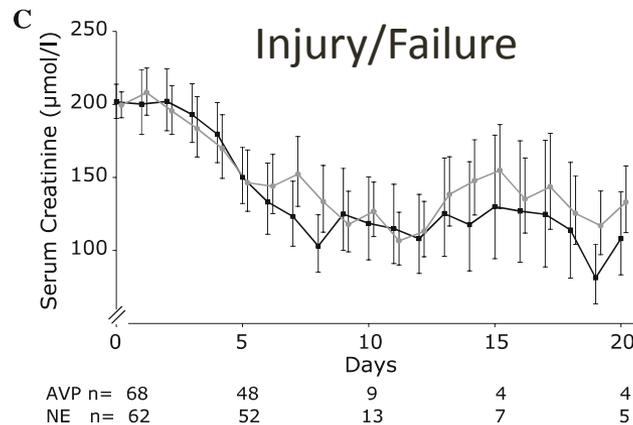
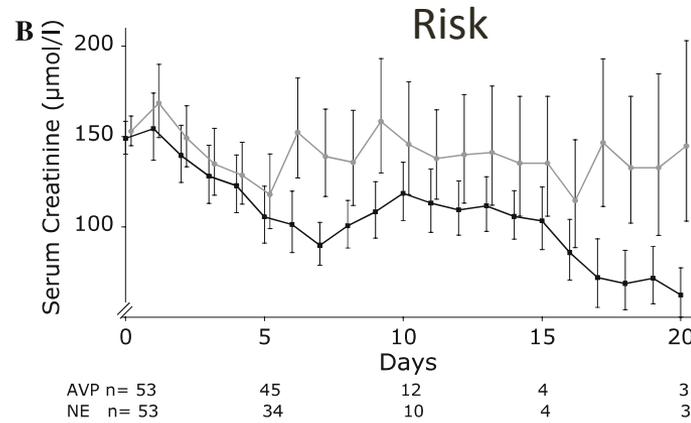
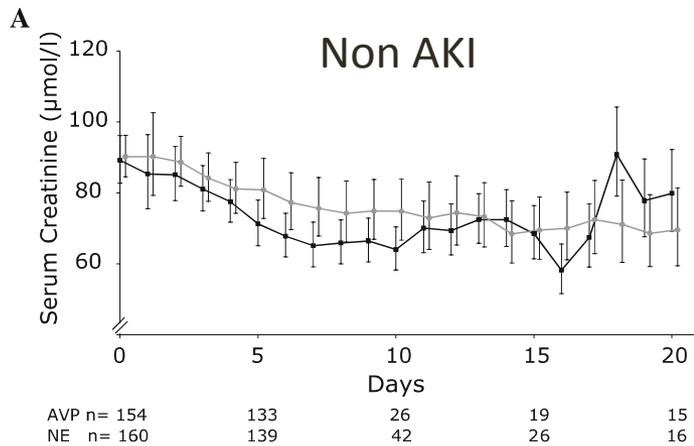
	7 weeks	7 weeks	7 weeks	7 weeks
Centre 1	trial fluid A	trial fluid B	trial fluid A	trial fluid B
Centre 2	trial fluid B	trial fluid A	trial fluid B	trial fluid A
Centre 3	trial fluid A	trial fluid B	trial fluid A	trial fluid B
Centre 4	trial fluid B	trial fluid A	trial fluid B	trial fluid A

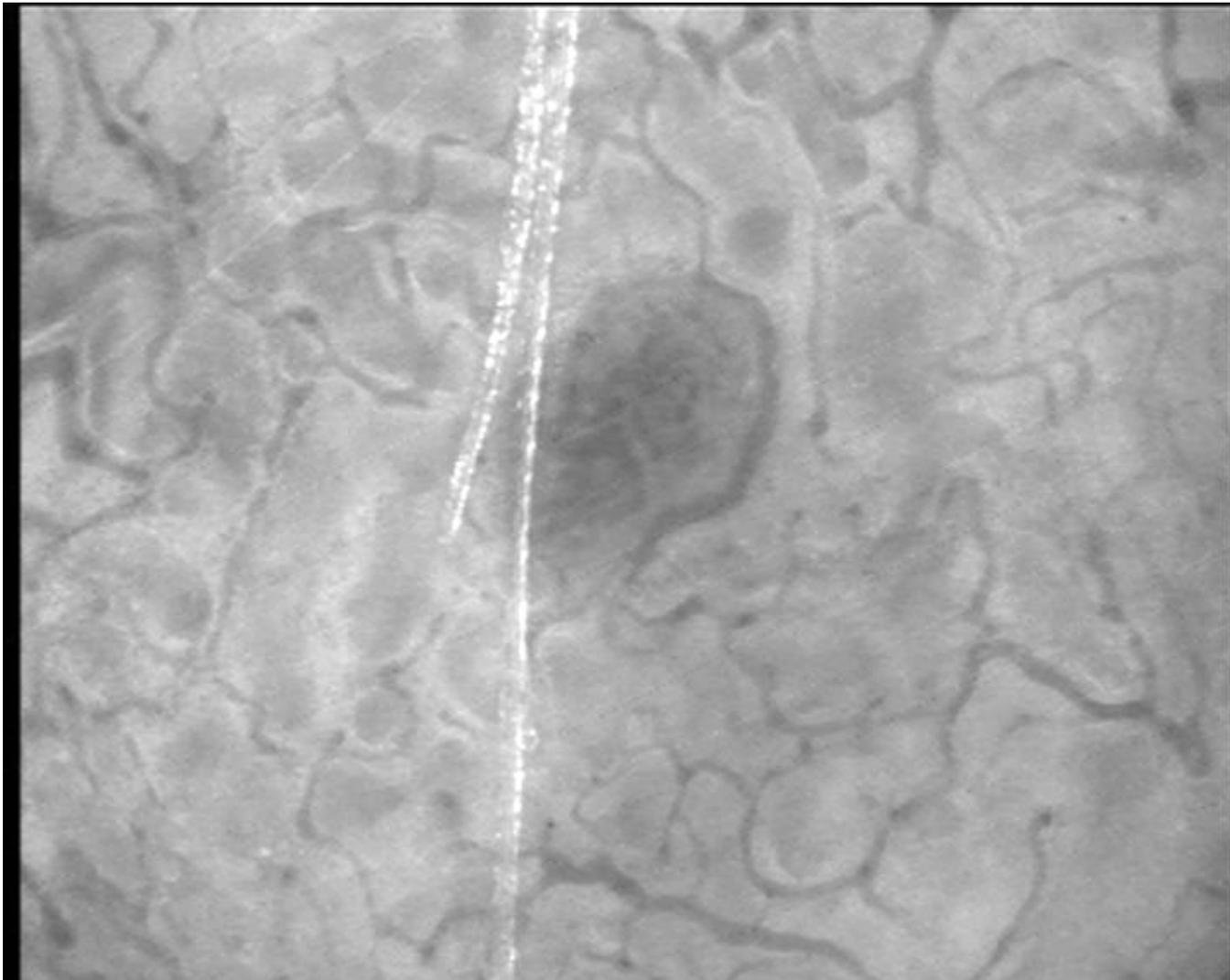
JAMA. 2015;314(16):1701-1710. doi:10.1001/jama.2015.12334
Published online October 7, 2015.



Anthony C. Gordon
James A. Russell
Keith R. Walley
Joel Singer

The effects of vasopressin on acute kidney injury in septic shock







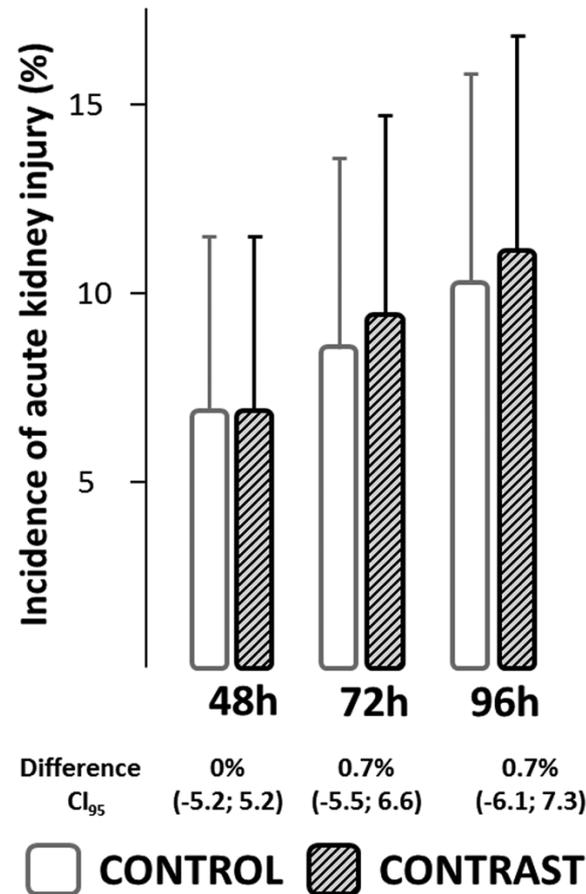
ICU Drugs





Acute Kidney Injury in the Critically Ill: Is Iodinated Contrast Medium Really Harmful?*

Stephan Ehrmann, MD¹; Julie Badin, MD¹; Laurent Savath, MD²; Olivier Pajot, MD³; Denis Garot, MD¹; Tàì Pham, MD⁴; Xavier Capdevila, MD, PhD²; Dominique Perrotin, MD¹; Karim Lakhal, MD²

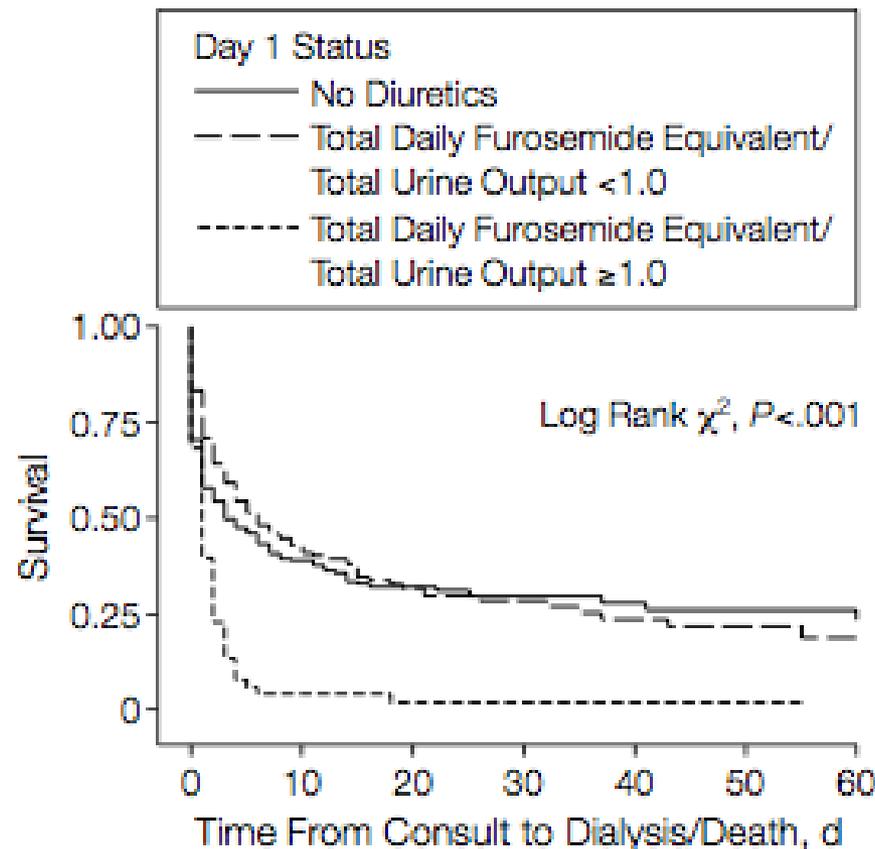




Diuretics, Mortality, and Nonrecovery of Renal Function in Acute Renal Failure

Ravindra L. Mehta, MD

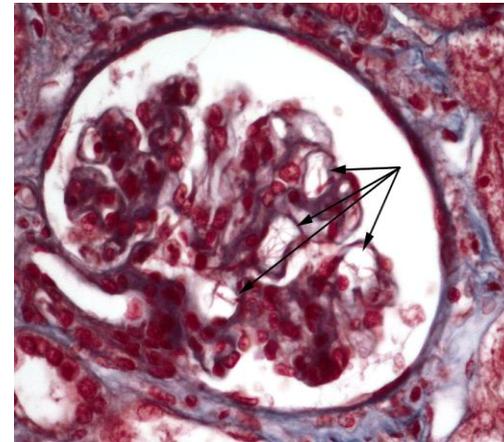
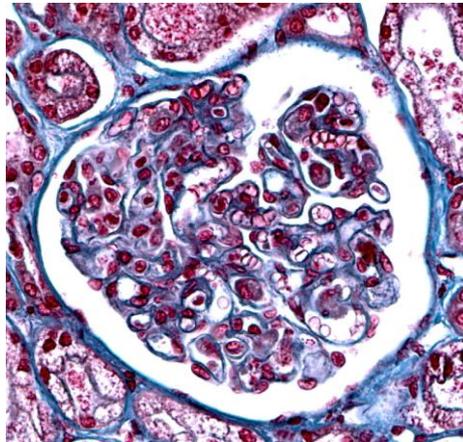
Context Acute renal failure is associated with high mortality and morbidity. Diuretic



JAMA. 2002;288:2547-2553



Modulation of innate immunity and coagulation process

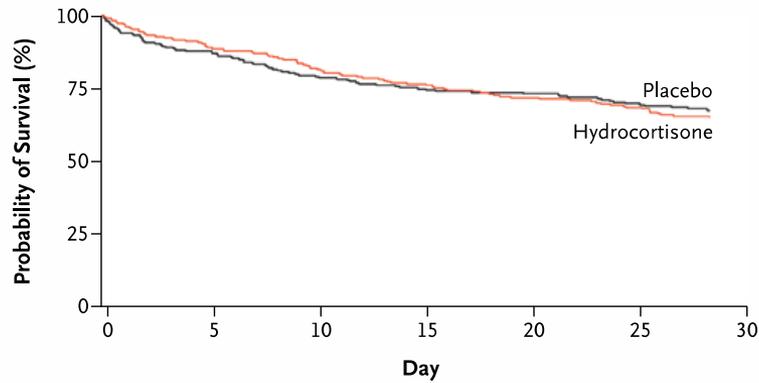


Intensive Care Med
DOI 10.1007/s00134-009-1723-x
Nicolas Lerolle
Dominique Nochy
Emmanuel Guérot
Patrick Bruneval
Jean-Yves Fagon
Jean-Luc Diehl
Gary Hill

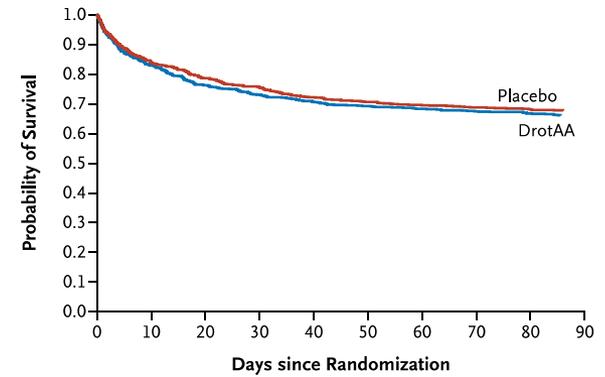
ORIGINAL
Histopathology of septic shock induced acute kidney injury: apoptosis and leukocytic infiltration



C All Patients

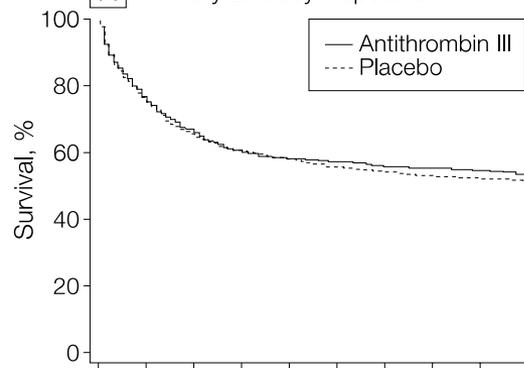


N Engl J Med 2008;358:111-24.

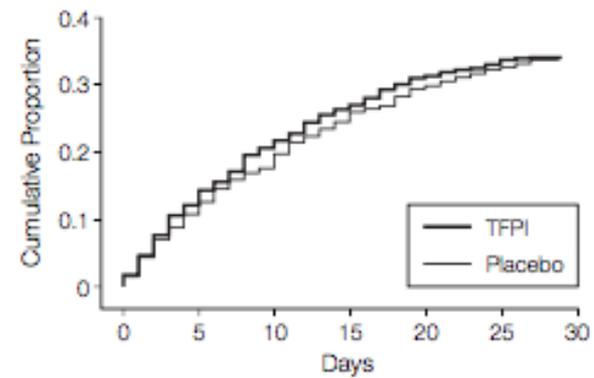


N Engl J Med 2012;366:2055-64.

A Primary Efficacy Population



JAMA. 2001;286(15):1869-1878 (doi:10.1001/jama.286.15.1869)



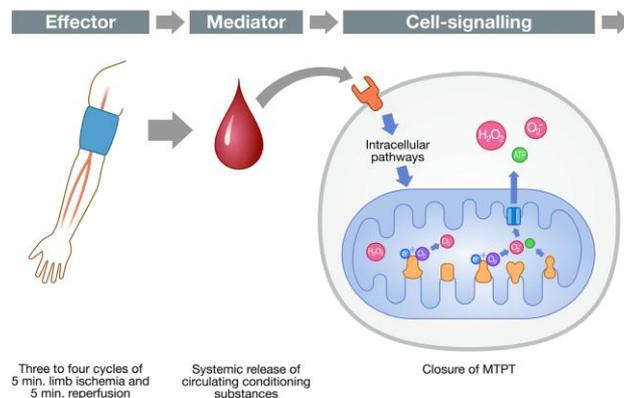
JAMA. 2003;290:238-247



Effect of Remote Ischemic Preconditioning on Kidney Injury Among High-Risk Patients Undergoing Cardiac Surgery A Randomized Clinical Trial

Alexander Zarbock, MD; Christoph Schmidt, MD; Hugo Van Aken, MD; Carola Wempe, PhD; Sven Martens, MD; Peter K. Zahn, MD;

	Control (n = 120)	RIPC (n = 120)	ARR or Median Difference (95% CI)	P Value
Primary Outcome, No. (%)				
AKI within 72 h	63 (52.5)	45 (37.5)	15 (2.56 to 27.44)	.02
AKI stage				
1	32 (26.7)	30 (25)		
2	14 (11.7)	8 (6.7)		
3	17 (14.2)	7 (5.8)		



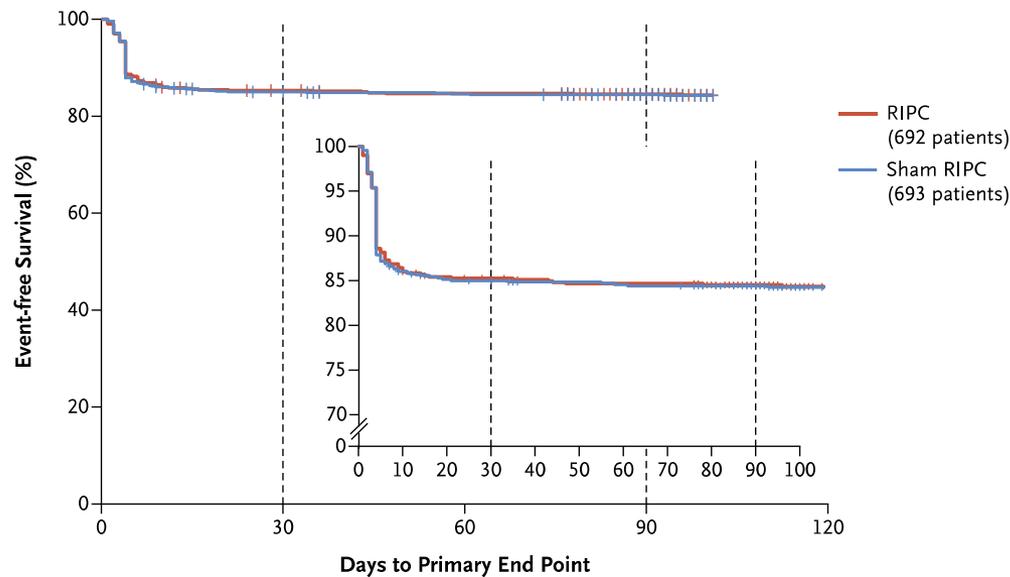
JAMA. 2015;313(21):2133-2141. doi:10.1001/jama.2015.4189

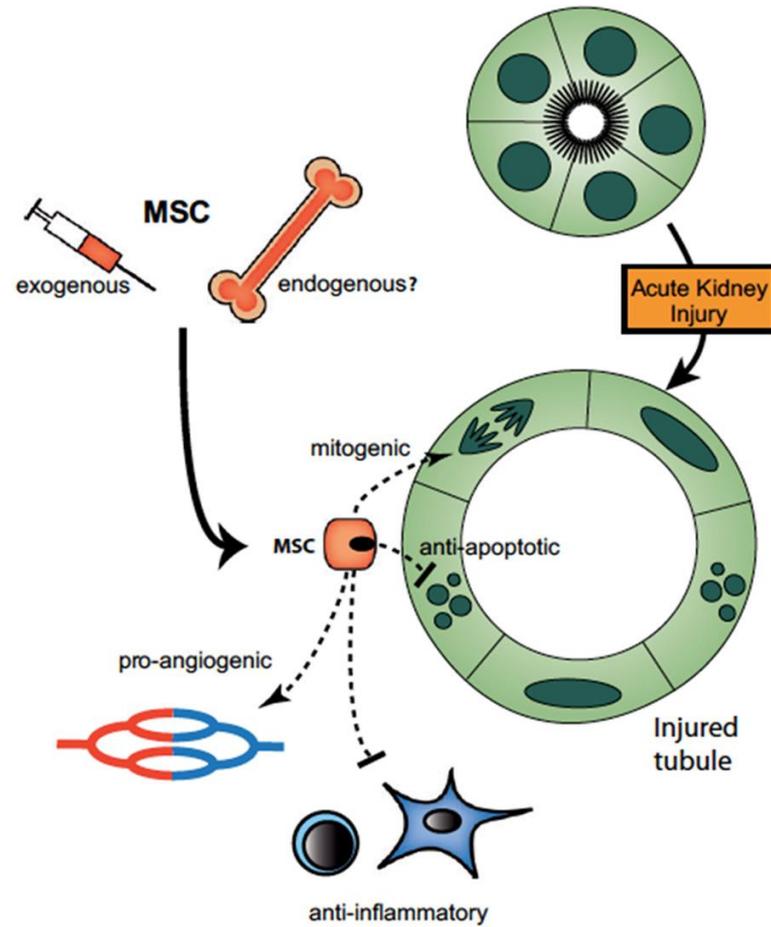
(Circ Res 2013;113:1278-1280.)



A Multicenter Trial of Remote Ischemic Preconditioning for Heart Surgery

P. Meybohm, B. Bein, O. Brosteanu, J. Cremer, M. Gruenewald, C. Stoppe, M. Coburn, G. Schaelte, A. Böning, B. Niemann, J. Roesner, F. Kletzin, U. Strouhal, C. Reyher, R. Laufenberg-Feldmann, M. Ferner, I.F. Brandes, M. Bauer, S.N. Stehr, A. Kortgen, M. Wittmann, G. Baumgarten, T. Meyer-Treschan, P. Kienbaum, M. Heringlake, J. Schön, M. Sander, S. Treskatsch, T. Smul, E. Wolwender, T. Schilling, G. Fuernau, D. Hasenclever, and K. Zacharowski, for the RIPHeart Study Collaborators*



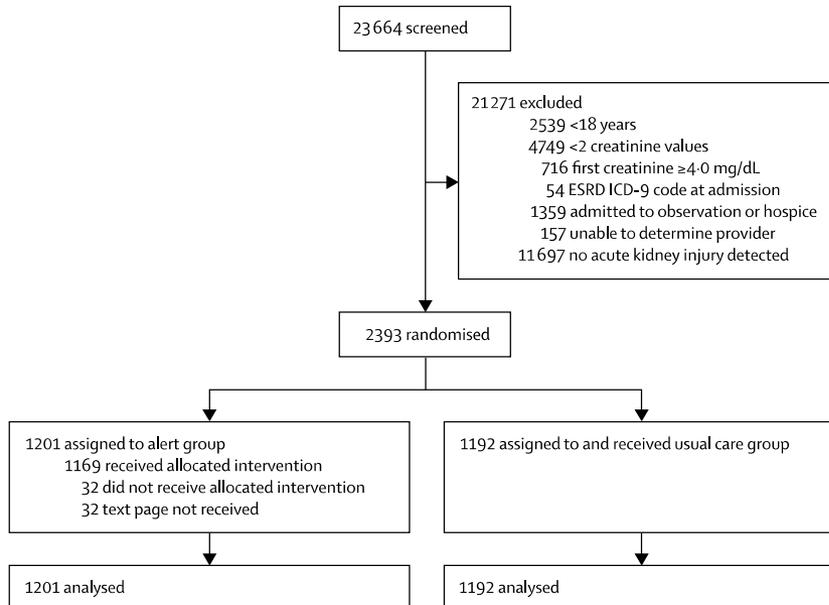




Automated, electronic alerts for acute kidney injury: a single-blind, parallel-group, randomised controlled trial



F Perry Wilson, Michael Shashaty, Jeffrey Testani, Iram Aqeel, Yuliya Borovskiy, Susan S Ellenberg, Harold I Feldman, Hilda Fernandez, Yevgeniy Gitelman, Jennie Lin, Dan Negoianu, Chirag R Parikh, Peter P Reese, Richard Urbani, Barry Fuchs



“[Initials], [Room Number], has been identified as having acute kidney injury (AKI) based upon the latest creatinine value. Please take appropriate diagnostic and therapeutic measures. **THIS ALERT DOES NOT FIRE FOR ALL PATIENTS WITH AKI.** For more information, please visit [internal study website].”

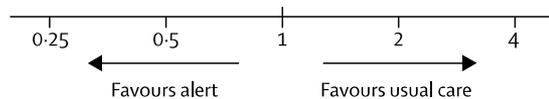


Automated, electronic alerts for acute kidney injury: a single-blind, parallel-group, randomised controlled trial



F Perry Wilson, Michael Shashaty, Jeffrey Testani, Iram Aqeel, Yuliya Borovskiy, Susan S Ellenberg, Harold I Feldman, Hilda Fernandez, Yevgeniy Gitelman, Jennie Lin, Dan Negoianu, Chirag R Parikh, Peter P Reese, Richard Urbani, Barry Fuchs

	Events, n (%)		Odds ratio (95% CI)	p value
	Alert group (n=1201)	Usual care group (n=1192)		
Medical intensive care unit (n=278)				
Renal consult	24 (17%)	18 (13%)	1.38 (0.68-2.85)	0.34
Dialysis	27 (19%)	20 (15%)	1.41 (0.72-2.81)	0.29
Death	40 (29%)	44 (32%)	0.85 (0.50-1.47)	0.55
Death or dialysis	58 (41%)	55 (40%)	1.07 (0.64-1.77)	0.79
Medical ward (n=1044)				
Renal consult	41 (8%)	58 (11%)	0.68 (0.43-1.05)	0.06
Dialysis	29 (6%)	30 (6%)	0.96 (0.55-1.68)	0.87
Death	28 (5%)	29 (6%)	0.96 (0.54-1.69)	0.87
Death or dialysis	50 (10%)	52 (10%)	0.95 (0.62-1.46)	0.80
Surgical intensive care unit (n=444)				
Renal consult	38 (17%)	32 (15%)	1.19 (0.69-2.05)	0.51
Dialysis	30 (13%)	32 (15%)	0.90 (0.51-1.59)	0.70
Death	36 (16%)	32 (15%)	1.11 (0.64-1.93)	0.68
Death or dialysis	49 (22%)	50 (23%)	0.94 (0.59-1.51)	0.79

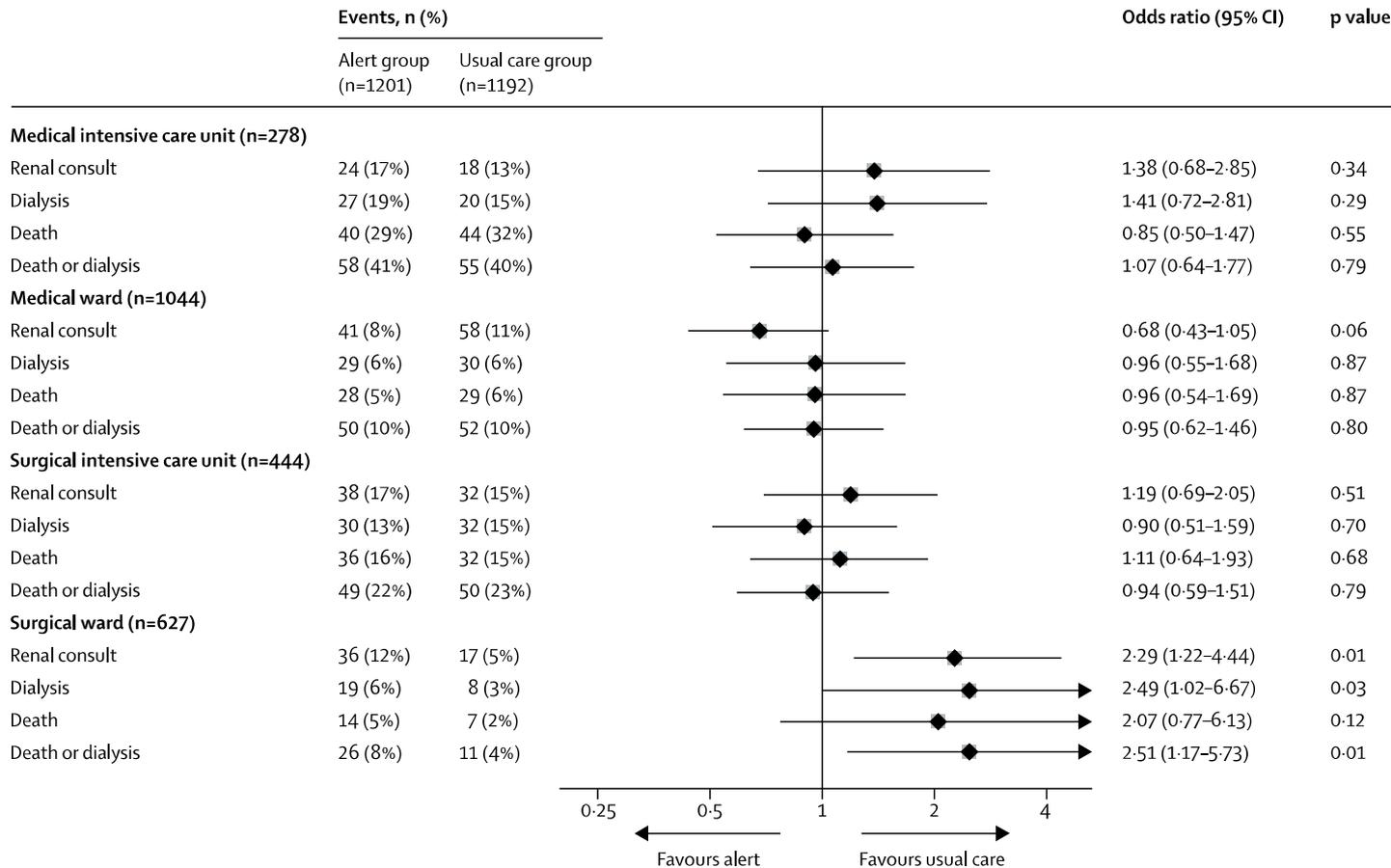




Automated, electronic alerts for acute kidney injury: a single-blind, parallel-group, randomised controlled trial

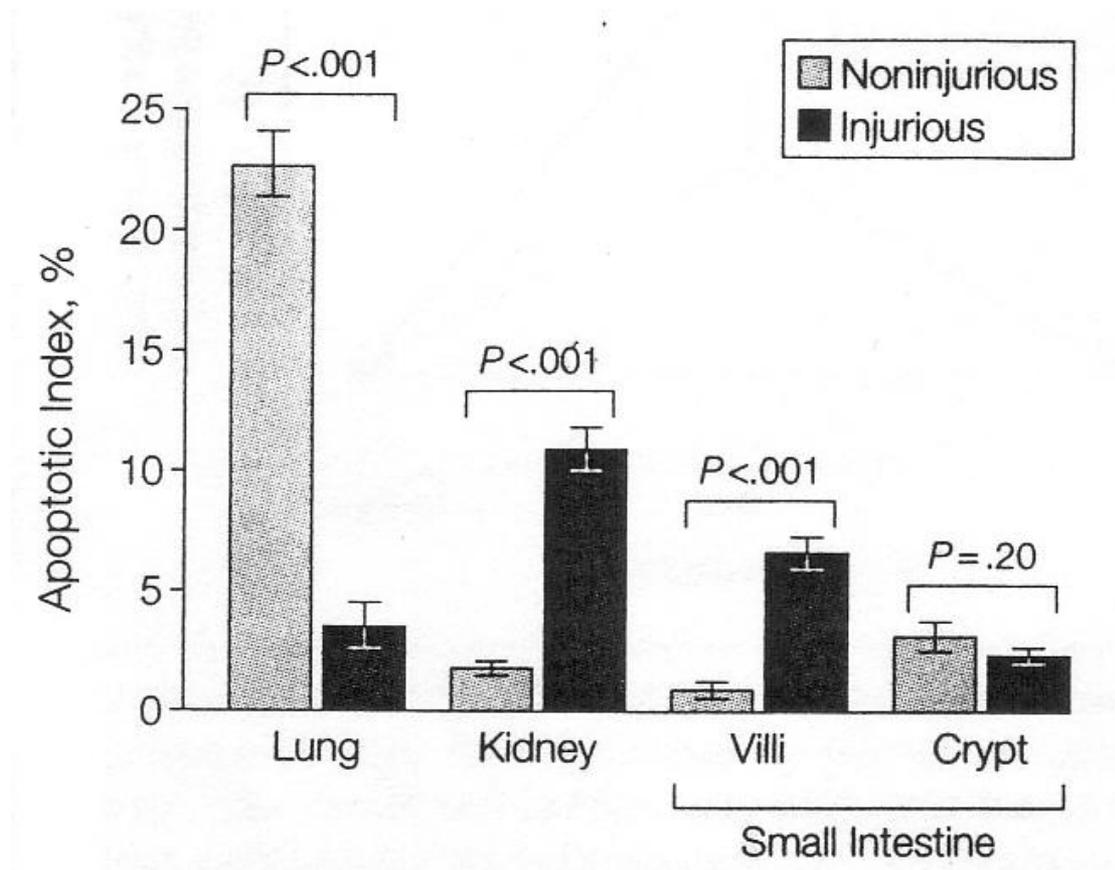


F Perry Wilson, Michael Shashaty, Jeffrey Testani, Iram Aqeel, Yuliya Borovskiy, Susan S Ellenberg, Harold I Feldman, Hilda Fernandez, Yevgeniy Gitelman, Jennie Lin, Dan Negoianu, Chirag R Parikh, Peter P Reese, Richard Urbani, Barry Fuchs





Organ Cross-Talk



Imai JAMA 2003



Nephrologist follow-up improves all-cause mortality of severe acute kidney injury survivors

Ziv Harel^{1,2,3}, Ron Wald^{1,3}, Joanne M. Bargman¹, Muhammad Mamdani^{2,3,4}, Edward Etchells^{2,4}, Amit X. Garg^{4,5}, Joel G. Ray^{2,3,4}, Jin Luo⁴, Ping Li⁴, Robert R. Quinn⁶, Alan Forster^{4,7}, Jeff Perl^{1,3} and Chaim M. Bell^{2,3,4}

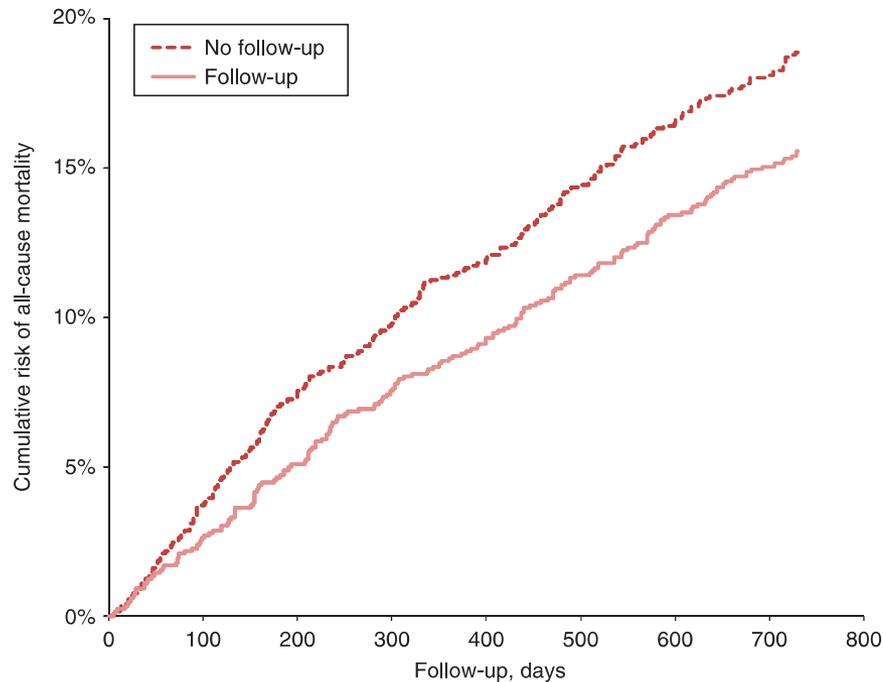


Figure 2 | Risk of all-cause mortality in survivors of severe acute kidney injury (AKI).