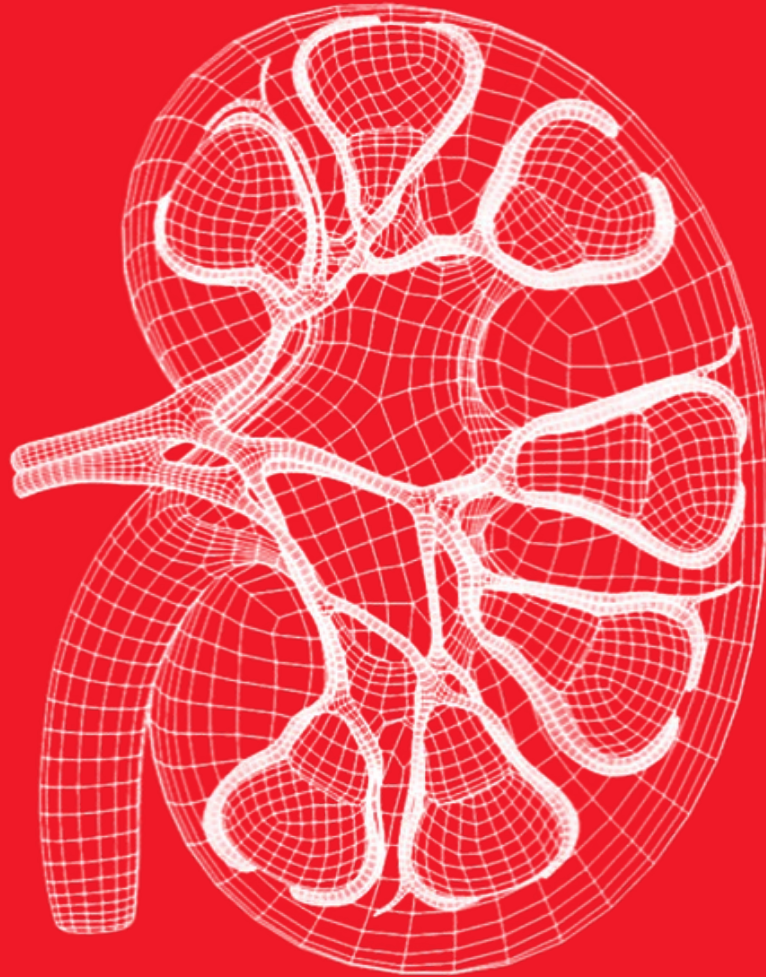


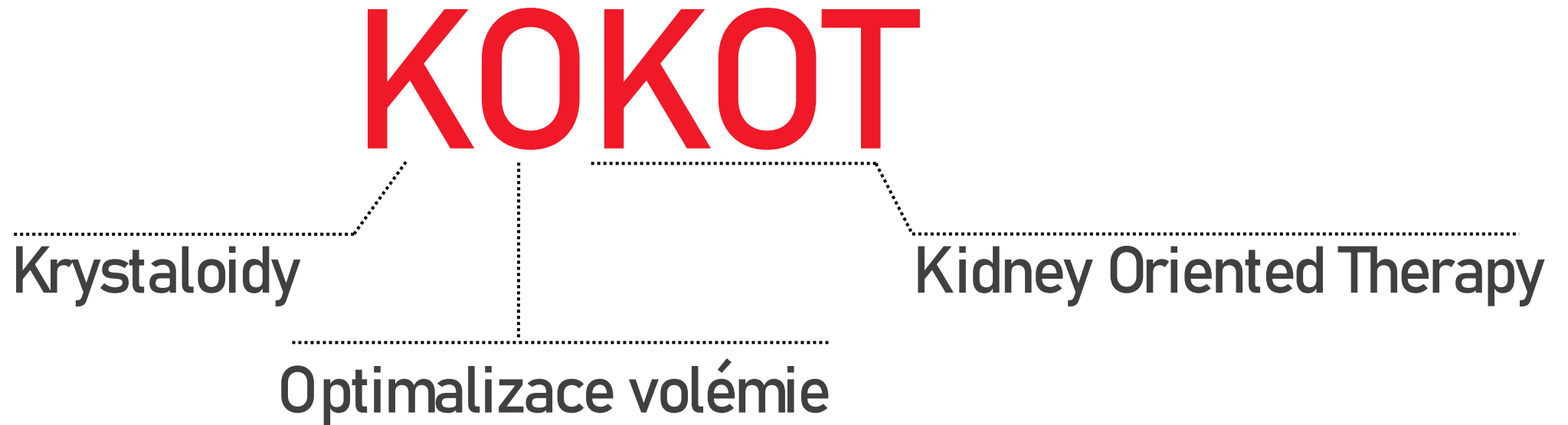
AKI



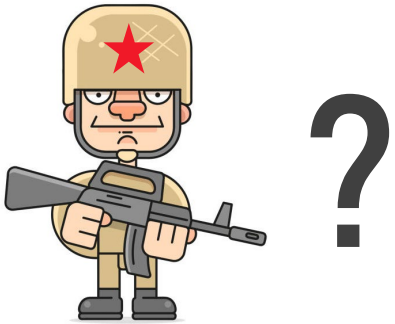
Martin Harazim

IGEKJIP⁺

Take home message



krystaloidy



krystaloidy



normal saline

- ↑ mortality
- ↑ acidosis
- ↑ coagulopathy
- ↓ renal function
- ↓ cardiac function

Kellum, J. A., Song, M., & Venkataraman, R. (2004). Effects of hyperchloremic acidosis on arterial pressure and circulating inflammatory molecules in experimental sepsis. *Chest*,

Orbegozo, Diego, et al. "Effects of different crystalloid solutions on hemodynamics, peripheral perfusion, and the microcirculation in experimental abdominal sepsis." *Anesthesiology* 125.4 (2016): 744-754.

krystaloidy

SPLIT



2015

No difference
in mortality

SMART



2018

No difference
in mortality

4,7% x 5,6% (p<0.1)
In composite outcome

SALT-ED



2018

No difference
in mortality

14,3% x 15,4% (p=0.04)
In composite outcome

BASICS



2021

No difference
in mortality

PLUS



2022

No difference
in mortality

krystaloidy

SPLIT



2015

Median fluid
volume

2L

SMART



2018

Median fluid
volume

1L / 3d

SALT-ED



2018

Median fluid
volume

1L

BASICS



2021

Median fluid
volume

4L / 3d

PLUS



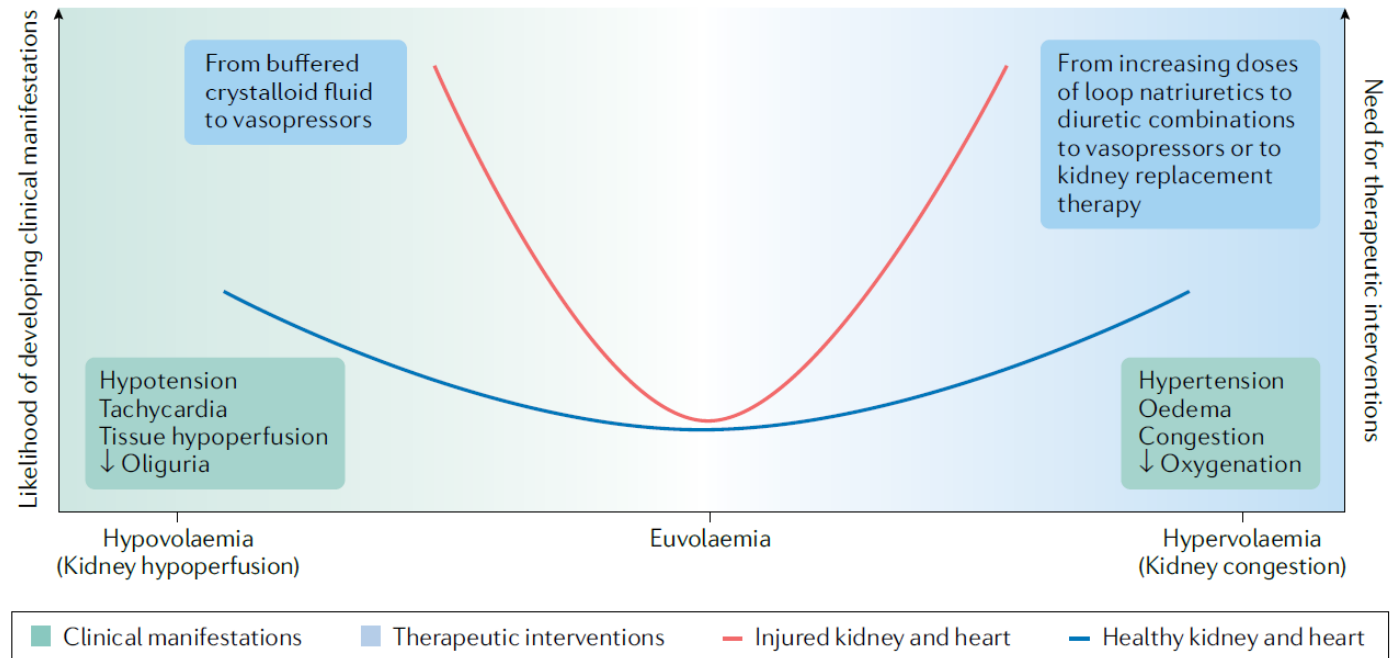
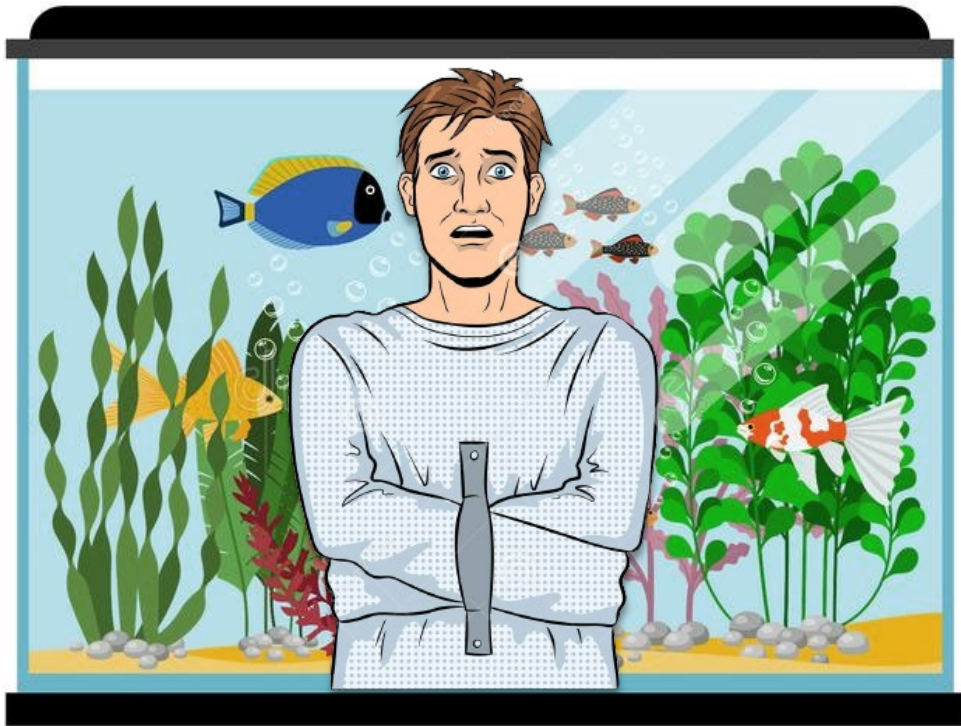
2022

Median fluid
volume

4L / 6d

IGEKJIP+

Optimalizace volémie



Optimalizace volémie

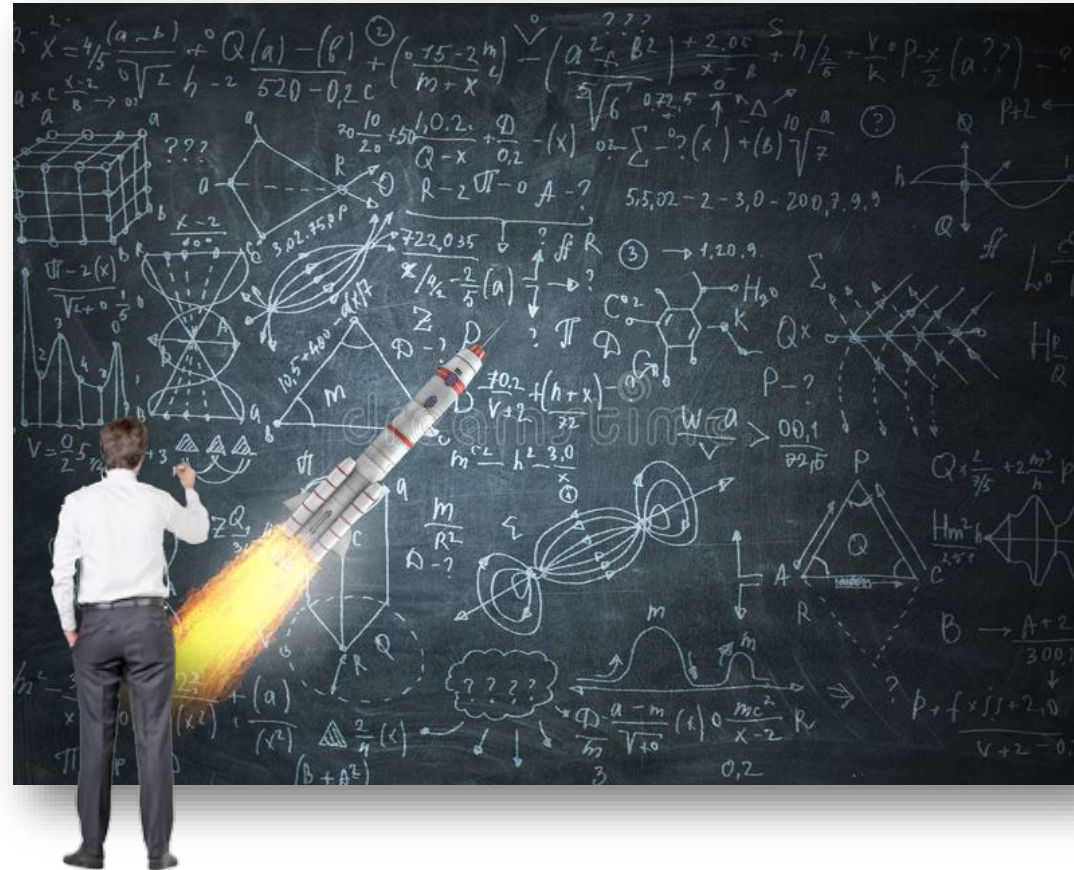


↑ preload



↑ preload
↑ afterload
↑ kontraktilita

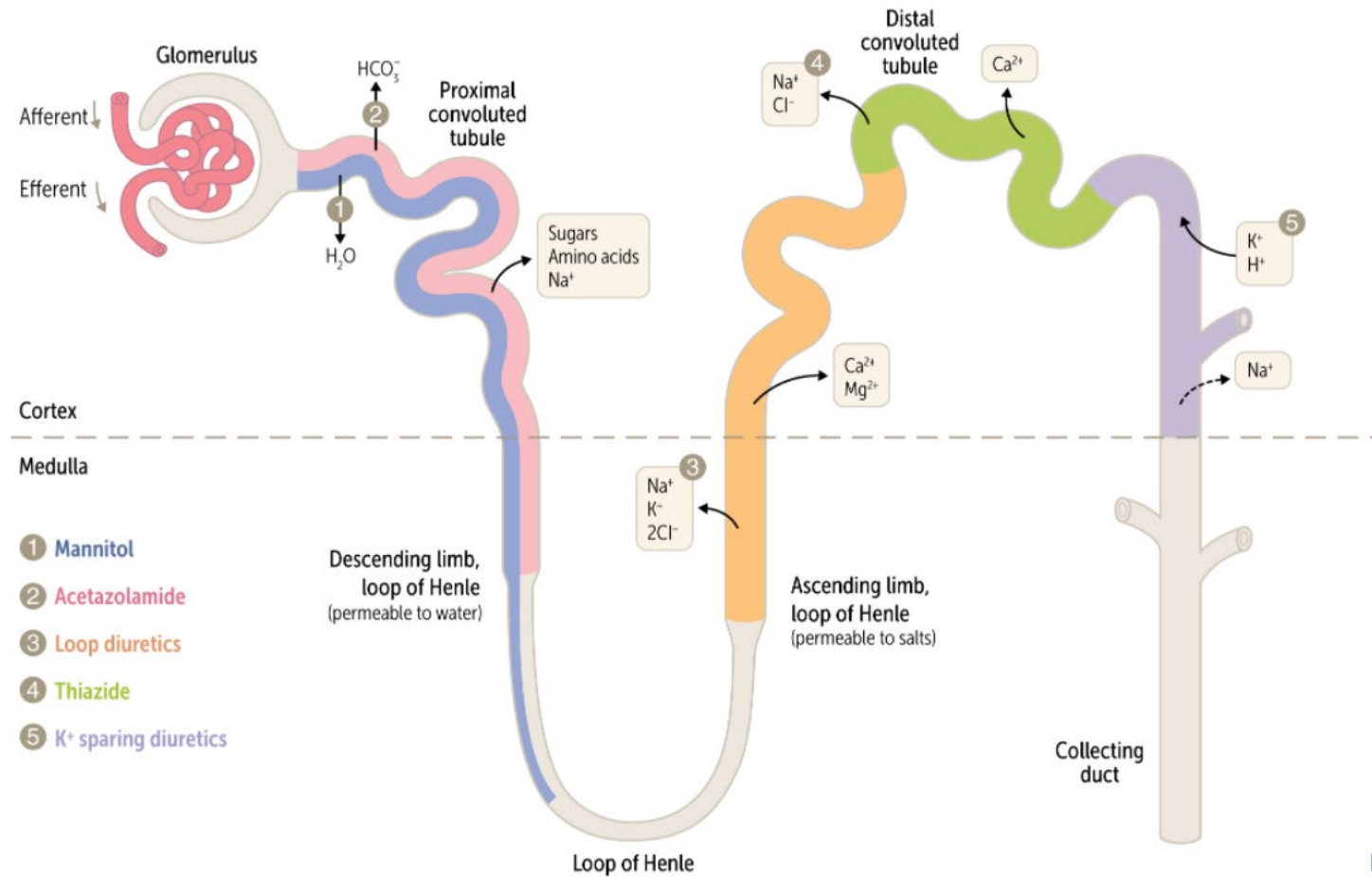
Optimalizace volémie



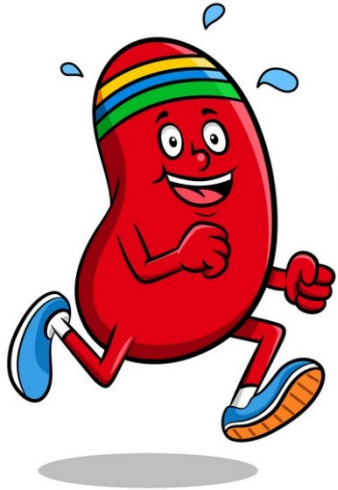
Optimalizace volémie



Optimalizace volémie



Optimalizace volémie



Furosemide stress test

- Furosemide naive: 1 mg/kg IV bolus
- Not naive: 1.5 mg/kg IV bolus

Diuréza > 200ml/2h

Diuréza < 200ml/2h

Prerenal oliguria

Intrinsic renal failure

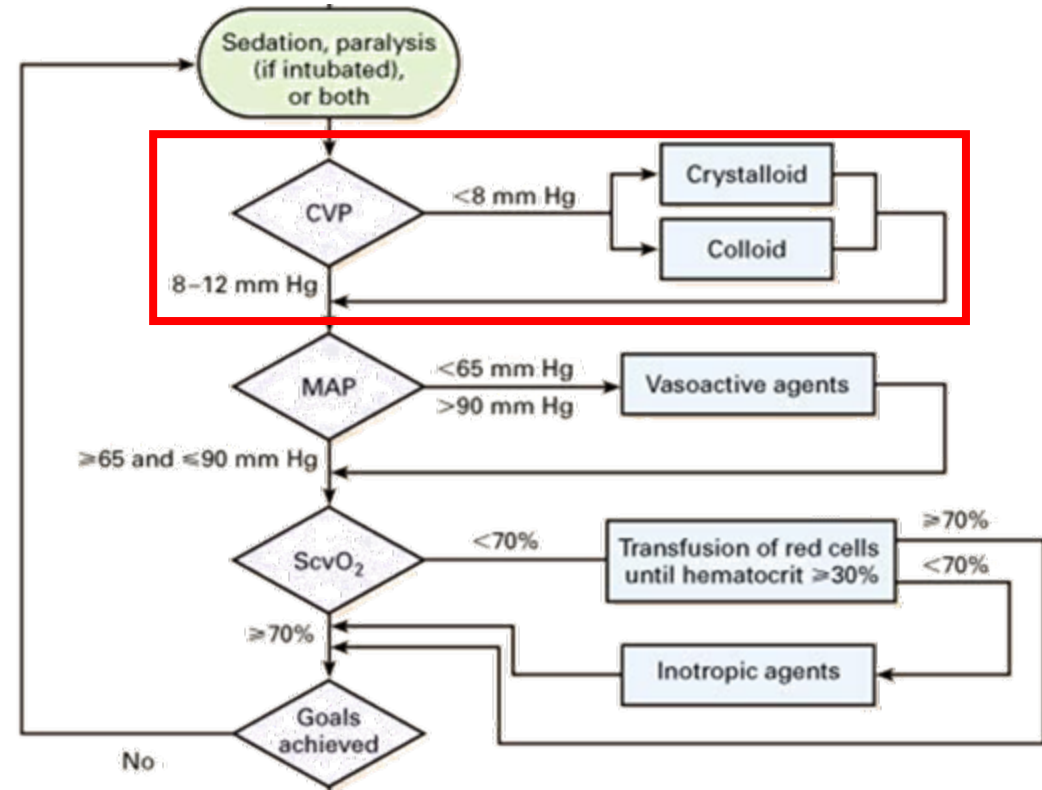
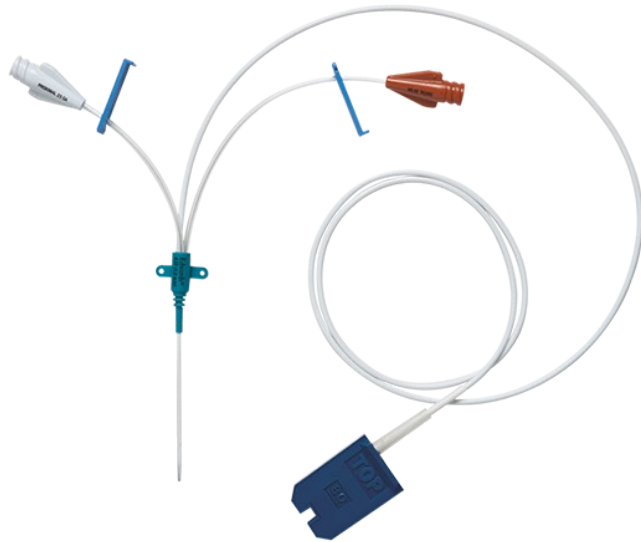
- Prostor pro další hemodynamickou manipulaci
- Diuréza je vhodný marker pro orgánovou perfuzi

- Není prostor pro další hemodynamickou manipulaci
- Diuréza není vhodný marker pro orgánovou perfuzi

Kidney oriented therapy



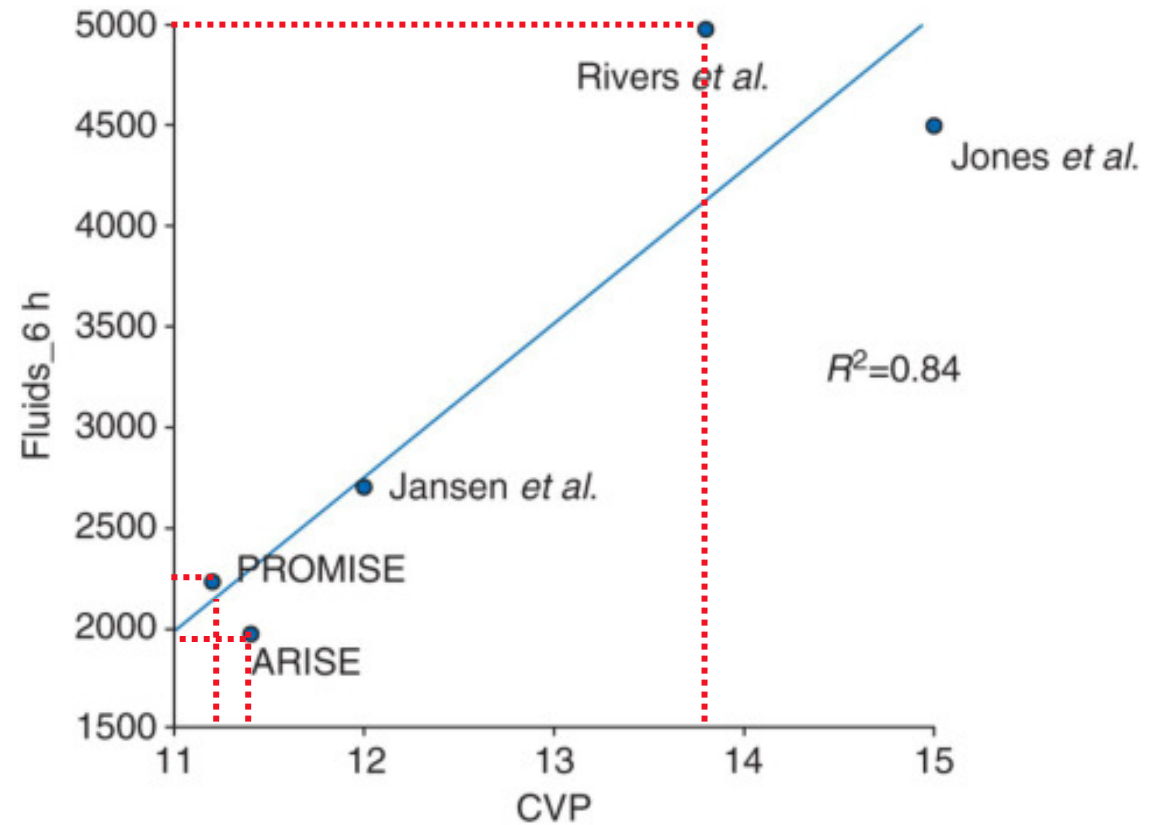
 Rivers EGDT *Lilly*



Kidney oriented therapy



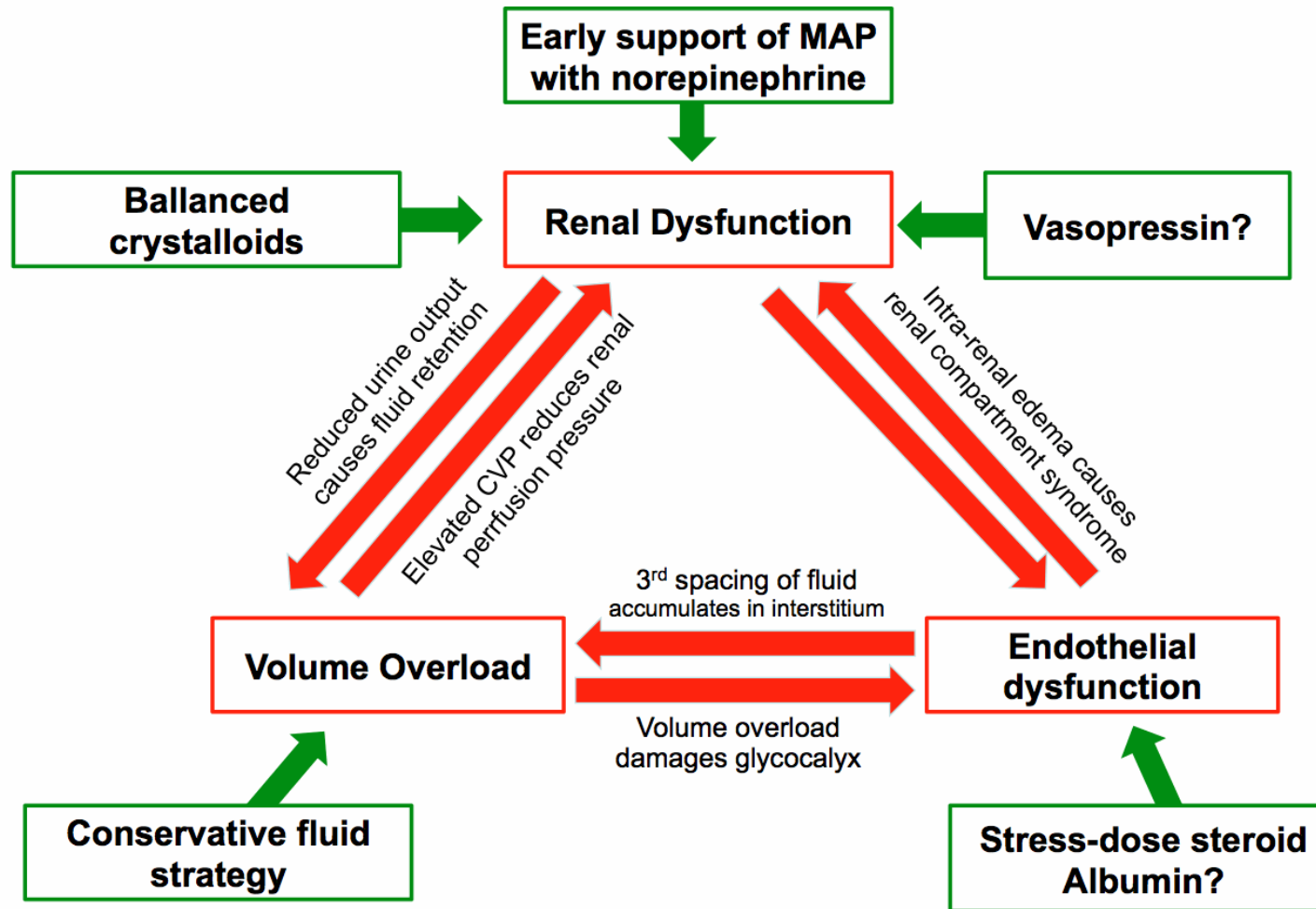
 Rivers EGDT *Lilly*



Kidney oriented therapy

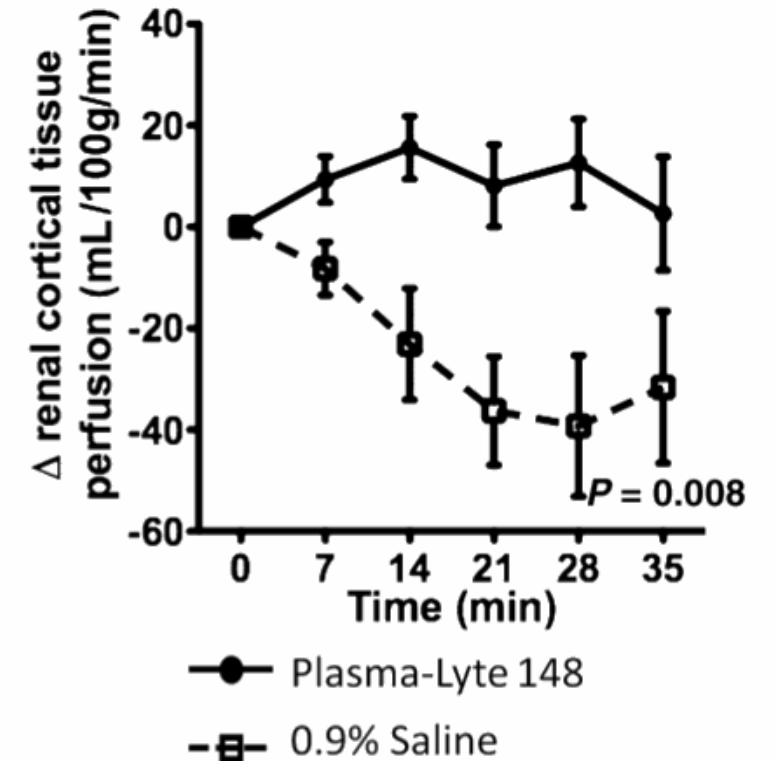


Kidney oriented therapy



Kidney oriented therapy

Renal Dysfunction

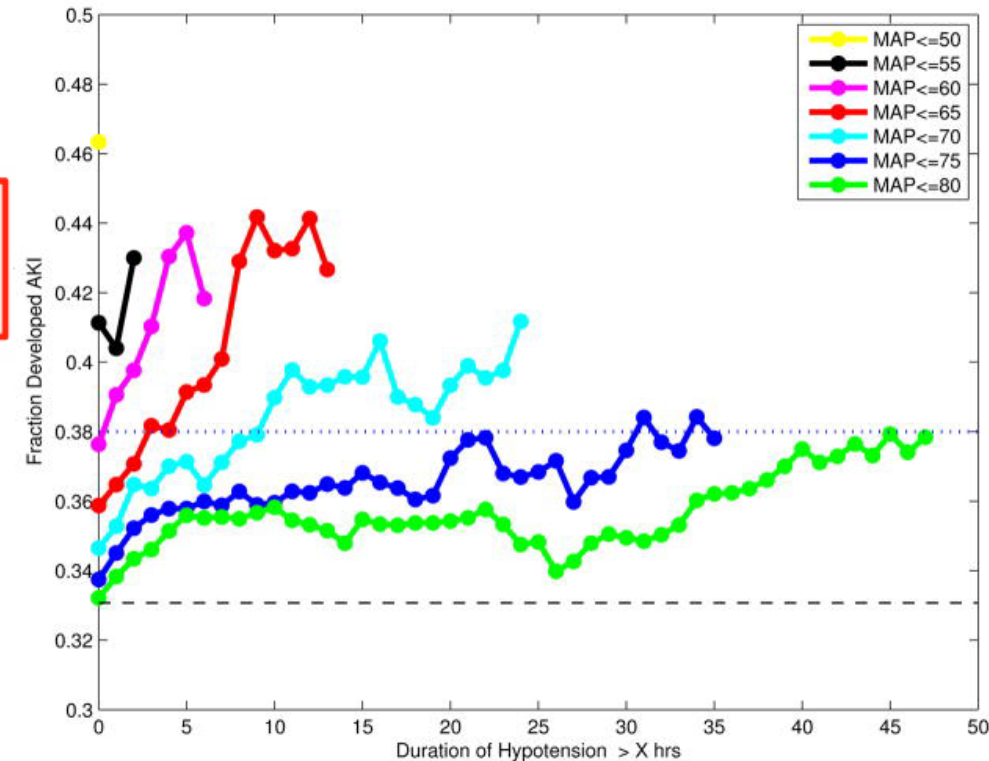
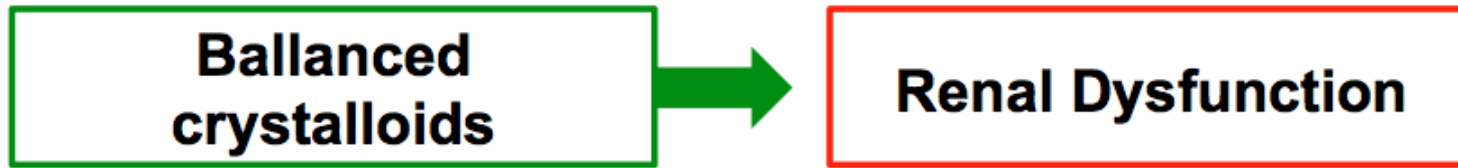


Kellum et al.. "Hyperchloremic acidosis increases circulating inflammatory molecules in experimental sepsis." Chest 130.4 (2006)

Bellomo, Rinaldo, et al. "Association between a chloride-liberal vs chloride-restrictive intravenous fluid administration strategy and kidney injury in critically ill adults." Jama 308.15 (2012)

Young, Paul J., and Michael Joannidis. "Crystalloid fluid therapy: is the balance tipping towards balanced solutions?." Intensive Care Medicine 40.12 (2014)

Kidney oriented therapy

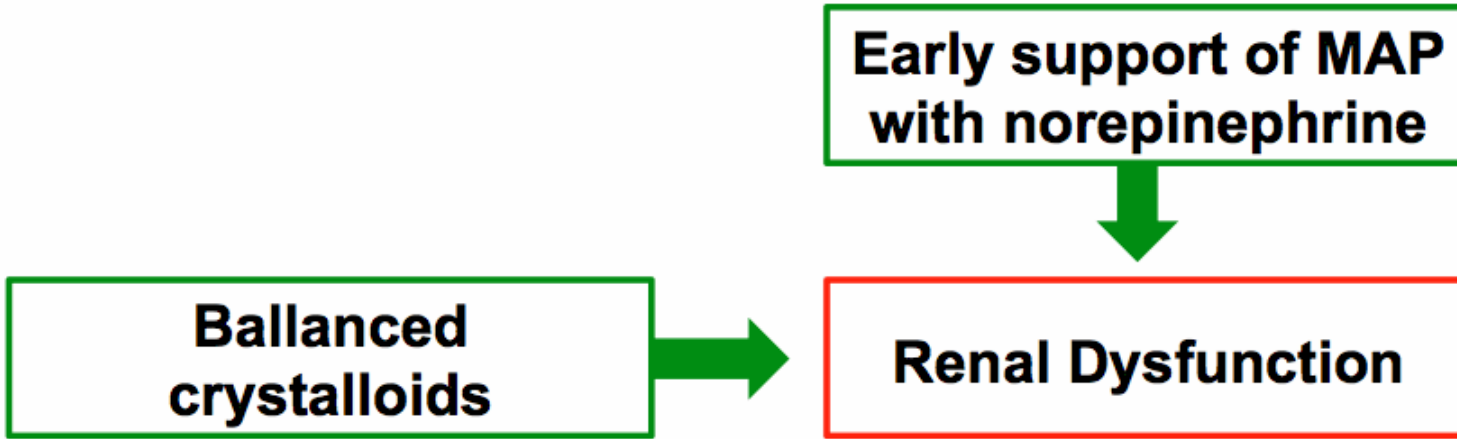


Lehman, Li-wei, et al. "Hypotension as a risk factor for acute kidney injury in ICU patients." 2010 Computing in Cardiology. IEEE, 2010.

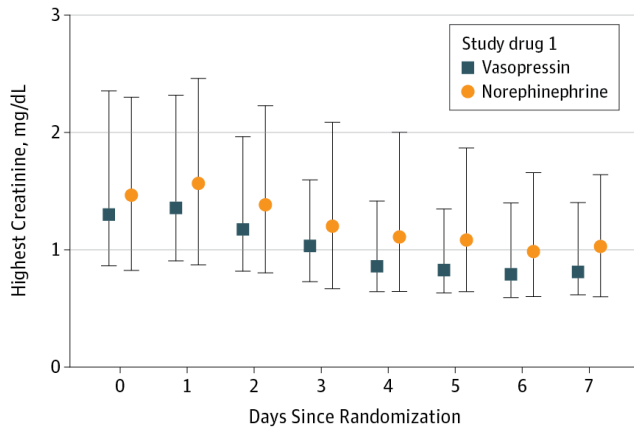
Marik, Paul E. "Early management of severe sepsis: concepts and controversies." Chest 145.6 (2014): 1407-1418.

Bellomo, Rinaldo, Li Wan, and Clive May. "Vasoactive drugs and acute kidney injury." Critical care medicine 36.4 (2008): S179-S186.

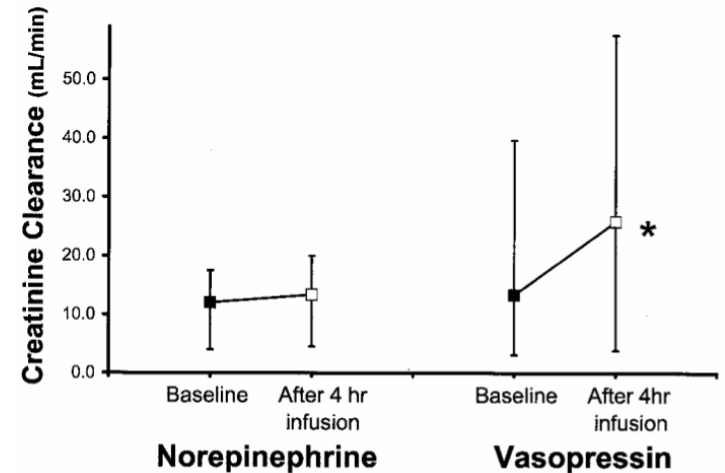
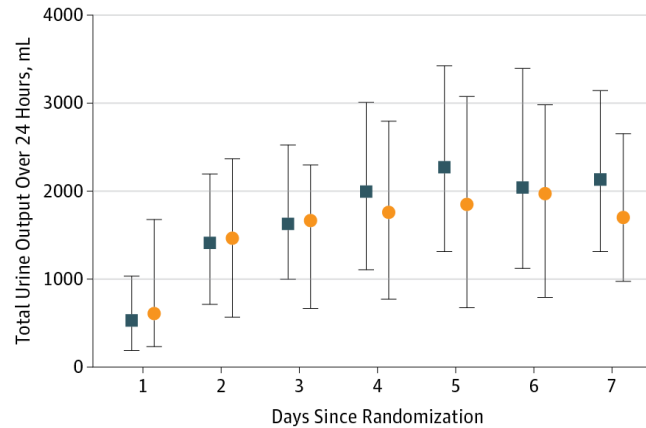
Kidney oriented therapy



A Serum creatinine



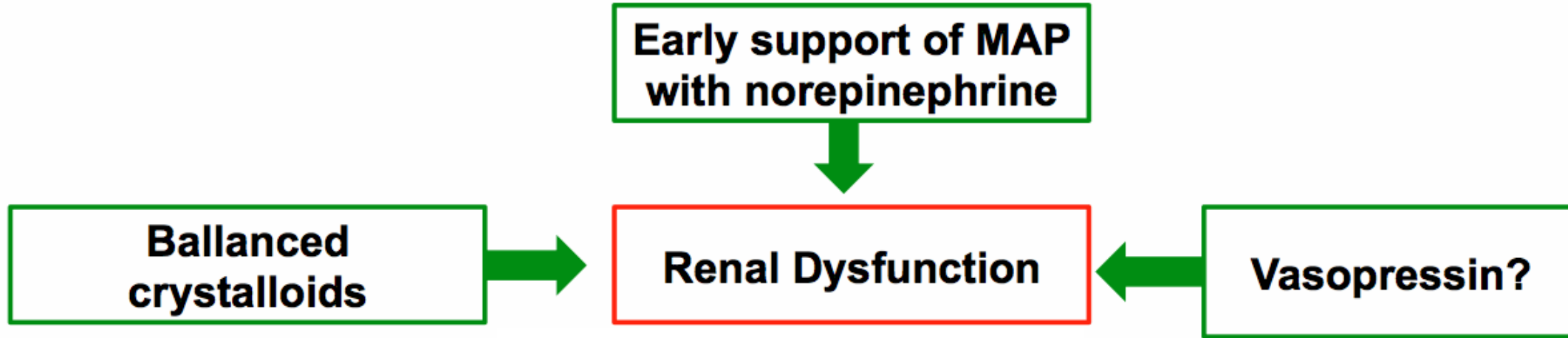
B Urine output



Patel, Bhavesh M., et al. "Beneficial effects of short-term vasopressin infusion during severe septic shock." *The Journal of the American Society of Anesthesiologists* 96.3 (2002).

Gordon, Anthony C., et al. VANISH randomized clinical trial." *Jama* 316.5 (2016): 509-518.

Kidney oriented therapy



- **Antibiotika:**

- Vancomycin
- Aminoglycosides, Colistin, Amphotericin

- **Antivirals**

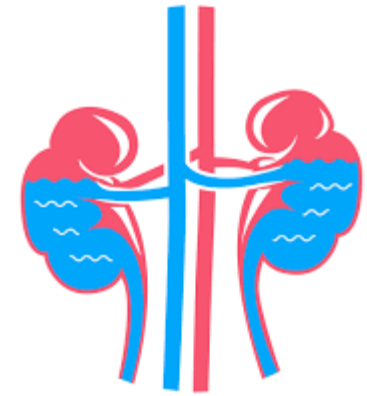
- Acyclovir, ganciclovir, valacyclovir, valganciclovir, foscarnet.

- **ACE-inhibitors, Angiotensin receptor blockers (ARBs).**

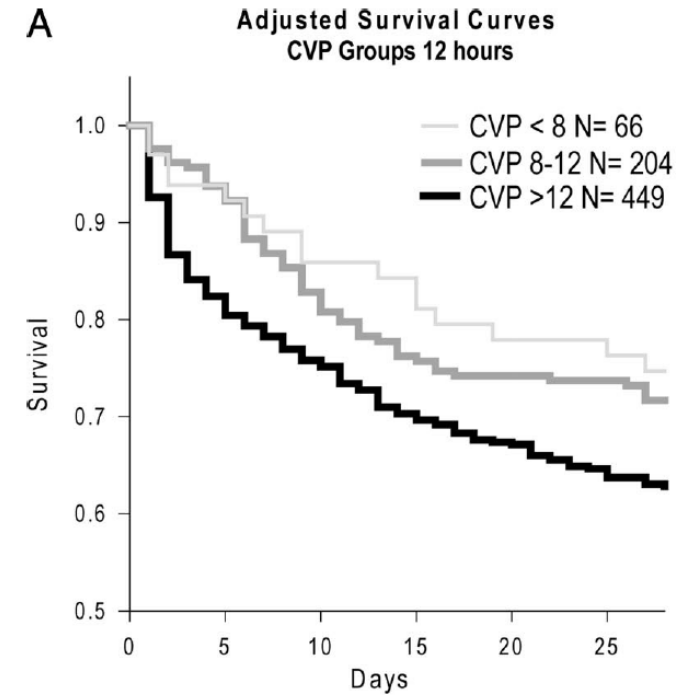
- **NSAIDs**

- Calcineurin inhibitors (cyclosporine, tacrolimus, sirolimus).
- Chemotherapeutics (carboplatin, cisplatin, methotrexate).
- Intravenous immunoglobulin (IVIg).
- Bisphosphonates
- Antiepileptics (topiramate, zonisamide).
- Sodium chloride (0.9% or 3% in large quantity).

Kidney oriented therapy

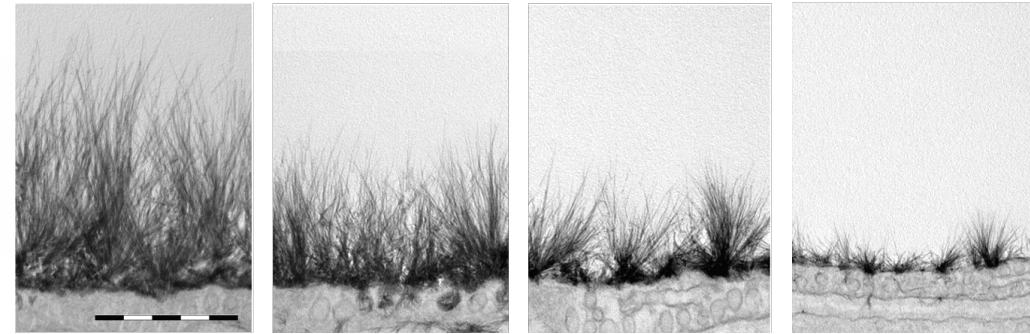


Volume Overload



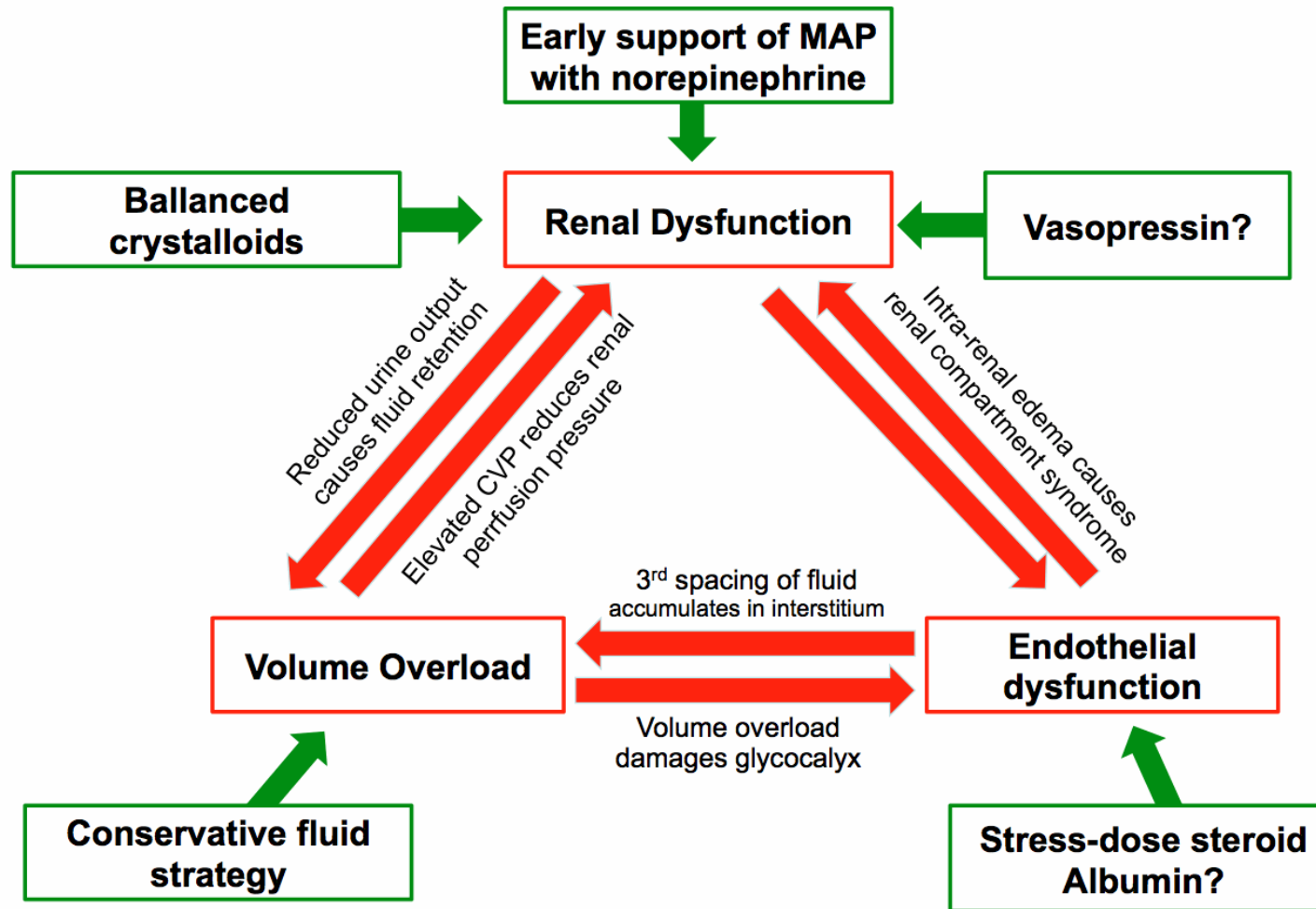
Kidney oriented therapy

**Endothelial
dysfunction**

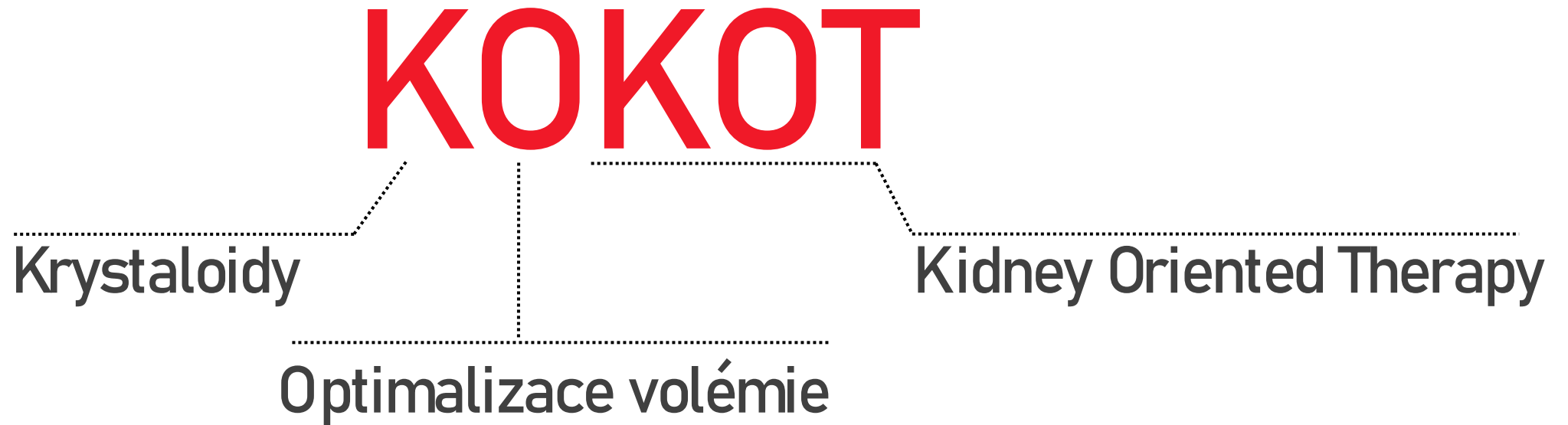


Alphonsus, C. S., and R. N. Rodseth. "The endothelial glycocalyx: a review of the vascular barrier." *Anaesthesia* 69.7 (2014): 777-784.
Caironi, Pietro, et al. "Albumin replacement in patients with severe sepsis or septic shock." *New England Journal of Medicine* 370.15 (2014): 1412-1421.
Funk, Duane, et al. "Low-dose corticosteroid treatment in septic shock: a propensity-matching study." *Critical care medicine* 42.11 (2014): 2333-2341.
Kolářová, Hana, et al. "Modulation of endothelial glycocalyx structure under inflammatory conditions." *Mediators of inflammation* 2014 (2014).
ADRENAL trial, APROCCHS

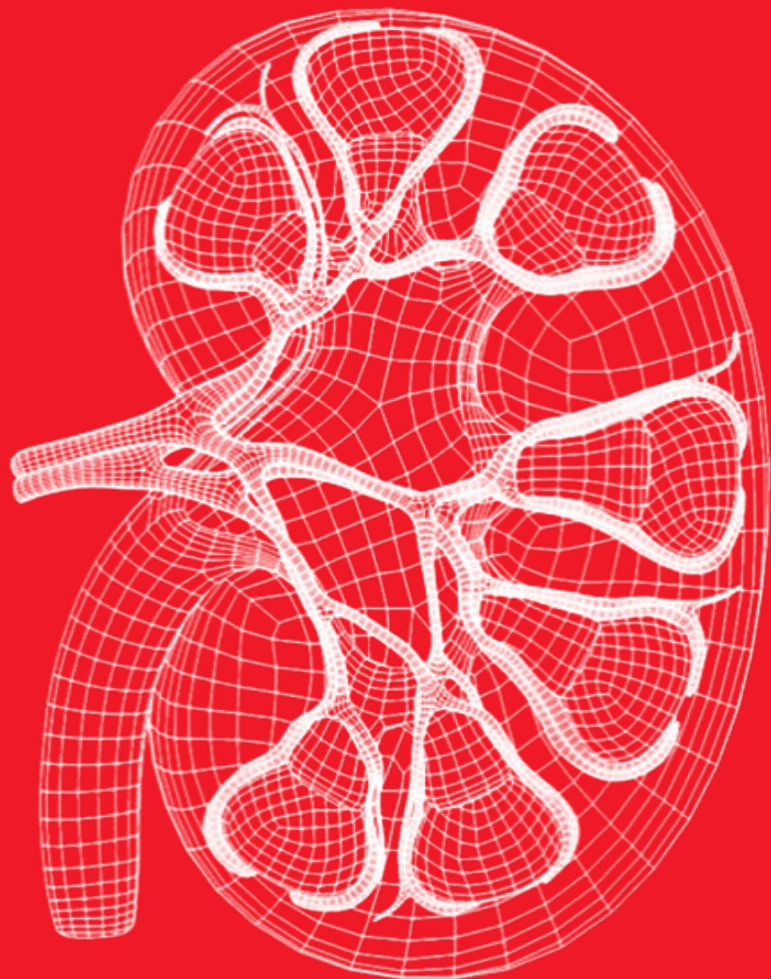
Kidney oriented therapy



Take home message



Díky!



Martin Harazim

IGEKJIP⁺