

[Test Your Knowledge: Hospitalist Nephrology Region](#)

[NephMadness 2019](#) featured the [Hospitalist Nephrology](#) region. Is there any need to hold ACEi or ARBs prior to, or immediately after, surgery? Is giving “prn” doses of IV hydralazine for systolic BPs over 170 helpful to hospitalized patients? Test your knowledge on hospitalist nephrology with the quiz* below.

1. True or False: Randomized trials of holding angiotensin converting enzymes inhibitors and angiotensin receptor blockers prior to both cardiac and noncardiac surgeries have shown that holding these agents decreases perioperative mortality.
 - A. True
 - B. False

2. A 57-year-old man with longstanding hypertension presents to the ER at the urging of his primary care physician due to a blood pressure of 190/100 mm Hg. His blood pressure was previously well-controlled with lisinopril 40 mg per day, amlodipine 10 mg per day, and carvedilol 25 mg twice per day. He ran out of his blood pressure medications 3 days ago and has been too busy to get them refilled. He denies headache, chest pain, shortness of breath, or vision changes. His exam is otherwise normal including a normal fundoscopic exam. His labs show a normal creatinine, no proteinuria, and no hematuria. What is the best first step in management of his blood pressure?
 - A. 10 mg of IV hydralazine
 - B. Start IV nicardipine drip with goal drop in SBP of 25%
 - C. Resume home antihypertensives
 - D. 1 inch of topical nitroglycerin paste

3. A 30-year-old woman presents with nausea, vomiting, dysuria, and flank pain. On exam her temperature is 103 F, blood pressure is 80/41 mm Hg, and heart rate is 120 beats per minute. She is ill-appearing and has costovertebral angle tenderness. She is ultimately diagnosed with sepsis from pyelonephritis and is admitted to the medical intensive care unit for further treatment. Based upon the SMART trial, resuscitation with Lactated Ringer’s solution instead of normal saline is most likely to result in which of the following?
 - A. Decreased risk of a major adverse kidney event
 - B. Increased risk of hyperkalemia
 - C. Increased risk of hyperchloremia
 - D. Increased number of ICU free days

4. A 57-year-old previously healthy man presents to the ER with multiple extremity fractures, rib fractures, and significant head trauma after a fall down stairs. Head imaging reveals a large subdural hematoma. He is also hypotensive with a blood pressure of 78/35 mm Hg. Which of the following would be the most appropriate IV fluid to administer at this time?
- A. Albumin
 - B. Normal saline
 - C. Plasmalyte
 - D. Lactated Ringer's solution

- Quiz prepared by [Anna Burgner](#), NephMadness Executive Team and AJKD Social Media Advisory Group Member. Follow her [@anna_burgner](#).

To view the full [Hospitalist Nephrology](#) region (FREE), please visit [AJKDBlog.org](#).

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[Answers to Your Knowledge: Hospitalist Nephrology Region](#)

1. B. False

Data are actually quite limited in this area. To date, randomized trials in this area have not shown a mortality benefit with holding or continuing these agents surrounding either cardiac or non-cardiac surgery.

References:

- (1)** van Diepen S., Norris C.M., Zheng Y., et al. Comparison of Angiotensin-Converting Enzyme Inhibitor and Angiotensin Receptor Blocker Management Strategies Before Cardiac Surgery: A Pilot Randomized Controlled Registry Trial. *J Am Heart Assoc* 2018; 7(20): e009917.
- (2)** Shiffermiller J. F., Monson B J., Vokoun C.W., et al. Prospective Randomized Evaluation of Preoperative Angiotensin-Converting Enzyme Inhibition (PREOP-ACEI). *J Hosp Med* 2018; 13(10): 661-7.
- (3)** Hollmann C., Fernandes N.L., and Biccard B.M. A systematic review of outcomes associated with withholding or continuing angiotensin-converting enzyme inhibitors and angiotensin receptor blockers before noncardiac surgery. *Anesth Analg* 2018; 127(3): 678-87.

2. C. Resume home antihypertensives

He has hypertensive urgency with a SBP >180 mm Hg and no evidence of end organ damage. In this setting, the patient does not need IV medications to rapidly lower his BP and the most appropriate treatment would be to resume his oral medications.

Reference: Whelton P.K., Carey R.M., Aronow W.S., et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *J Am Coll Cardiol* 2018; 71(19): 2199-269.

3. A. Decreased risk of a major adverse kidney event

The SMART trial found that in critically ill adults, balanced crystalloids as compared to normal saline led to a lower rate of major adverse kidney event defined as the composite of death from any cause, new renal-replacement therapy, or persistent renal dysfunction. An increased risk of hyperkalemia was not seen with the balanced crystalloids. Patients resuscitated with normal saline had a higher serum chloride than patients resuscitated with balanced crystalloids. There was no difference seen in number of ICU free days.

Reference: Semler M.W., Self W.H., Wanderer J.P., et al. Balanced crystalloids versus saline in critically ill adults. *N Engl J Med.* 2018; 378(9): 829-39.

4. B. Normal saline

Hyperosmolar therapy for elevated ICP is associated with improved survival. NS has a higher osmolarity than Lactated Ringer's solution and Plasmalyte. Normal saline was also superior to albumin in reducing mortality in patients with traumatic brain injury.

References:

(1) Asehnoune K., Lasocki S., Seguin P., et al. Association between continuous hyperosmolar therapy and survival in patients with traumatic brain injury—a multicentre prospective cohort study and systematic review. *Crit Care.* 2017; 21(1): 328.

(2) Myburgh J., Cooper D. J., Finfer S., et al. Saline or albumin for fluid resuscitation in patients with traumatic brain injury. *N Engl J Med* 2007; 357(9): 874-84.

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