Vasopressor panoply

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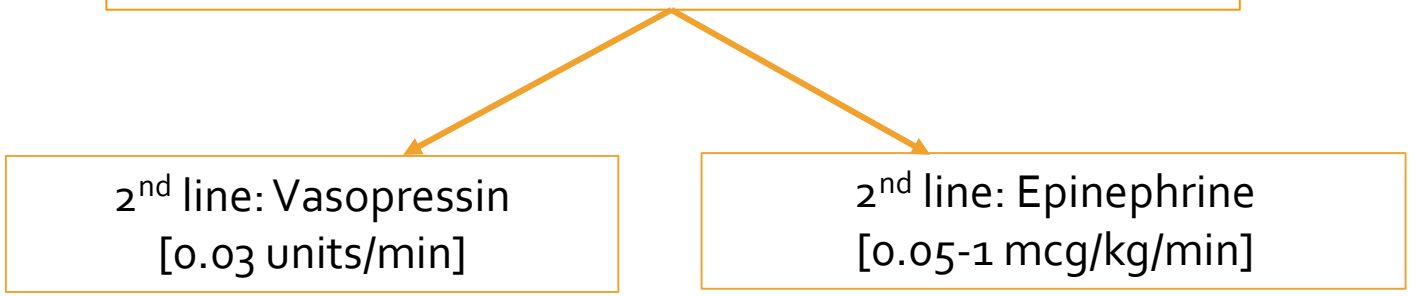
Objectives

- Sepsis vasopressor guidelines: is there room for discussion?
- Vasopressor management
- New agent: Angiotensin II

General Guidelines

- We recommend an initial target mean arterial pressure (MAP) of 65 mm Hg in patients with septic shock requiring vasopressors.
  [strong recommendation, moderate quality of evidence]

We recommend norepinephrine as the first-choice vasopressor.
[strong recommendation, moderate quality of evidence]



Surviving Sepsis Campaign: International Guidelines for the Management of Sepsis and Septic Shock: 2016. Rhodes, Evans, Alhazzani et al. 2017 Crit Care Med; 45(3)

Epinephrine or Vasopressin?

Usual default: Add vasopressin at 0.03 u/min

VAAST trial (2008): Norepinephrine vs vasopressin

- 1º outcome: 28-day all cause mortality= no difference
- Stratified by shock severity
  - Less severe (5-14 mcg NE/min)
  - More severe (>15 mcg NE/min)
- Subgroup analysis:

  Less severe septic shock receiving vasopressin had greater 28 day and 90 day survival (P=0.04, P=0.05)

Let's suppose…

- 58 yo male
- 10-15 mcg/min norepinephrine (0.1-0.15 mcg/kg/min); titration up has seen minimal change in BP/MAP
- PMH: CHF, HTN, HLD
- MAP 60, HR 90-95

- 62 yo female
- 10-15 mcg/min norepinephrine (0.1-0.15 mcg/kg/min); titration has seen increase of 3-5 mmHg in SBP
- PMH: CAD, HTN, HLD
- MAP 62, HR 55-60

Epinephrine or Vasopressin?

Consider Epinephrine if:

- Prominent vasoconstriction [may benefit from the B1, B2 agonist]
- Bradycardia [increase B1 activity]
- Cardiomyopathy from sepsis [again, benefit from B1, B2 agonist]

Vasopressor management

- Have a plan for vasopressor escalation as soon as you start
  - Do NOT max out your current vasopressor before starting the next!
  - Avoid missing your window of opportunity.
- Assess early and often. Do not hesitate to titrate!
  - Vasopressors are FAST acting with short half lives.
  - Assess every 2-5 minutes and titrate (except vasopressin).

And last, but not least…

- Dobutamine

  We suggest using dobutamine in patients who show evidence of persistent hypoperfusion despite adequate fluid loading and the use of vasopressor agents

  [weak recommendation, low quality of evidence]

- What about…dopamine?

  We suggest using dopamine as an alternative vasopressor agent to norepinephrine only in highly selected patients
  - patients with low risk of tachyarrhythmias
  - absolute or relative bradycardia

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Angiotensin II

- Continuous infusion (20 - 200 ng/kg/min)
- Alternative mechanism for increasing blood pressure
  - ↑ sympathetic activity
  - ↑ water retention
  - ↑ aldosterone release
  - ↑ arteriolar vasoconstriction
  - ↑ ADH secretion
- May provide catecholamine sparing opportunity
- FDA approved for vasodilatory shock in Dec 2017 based on ATHOS-3 trial

Take home points

- Vasopressin or epinephrine are options for 2nd line
- Have a plan for vasopressors.
- Trust your gut. If one vasopressor doesn't seem to be working, it probably isn't—switch!
- Titrate assertively.