Rap #44
Post: Peripheral pressors tips

Author: Salim Rezaie   Reviewed by: Alex Taylor

I scored the above BEEM rating because:

- Concise, easy to remember, clinically relevant pearls for peripheral pressor use which is frequently implemented in the emergency department setting
- Considered a “must know” skill for emergency physicians
- Will likely change practice for those who are less familiar with or comfortable using peripheral pressors

The educational pearls include:

#1: Use veins in the antecubital fossa or more proximal (=larger diameter)

#2: Use an ultralong catheter

#3: Limit the time of infusion to <4 hrs

#4: Use a dilute concentration in as small a volume as possible

#5: Have an IV observation protocol

#6: Have an extravasation protocol

Edited by Jake Binder, Andrew Hasebrook, Ryan Johnsen, Megan Elsenheimer, Dan Hogan, Alex Taylor, Jacy O’Keefe and Joe Walter
I chose the above EBM rating because:

- Case based pearls to avoid evidence based complications of peripheral pressors
- Pearls were developed based on both reviews/trials and practices that the author has implemented in his clinical practice with good outcomes
- Peer reviewed pearls

Post: [Endovascular +/- tPA in stroke](#)

**Author: Anand Swaminathan   Reviewed by: Jacy O'Keefe**

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I scored the above BEEM rating because:

- Further research is needed regarding patients who require transfer to a hospital that is capable of endovascular therapy (this study only included patients at comprehensive stroke centers not the drip and ship)
- Lower boundary of the 95% CI was just above the noninferiority threshold, so the results do not rule out some benefit
- There are multiple other studies currently in process (SWIFT DIRECT, DIRECT-SAFE, MR CLEAN NO IV), which will help physicians confidently change their practice

**The educational pearls include:**

- Use of systemic thrombolytics must be questioned as they increase risk of bleeding, allergic reactions, and death
- Cost (approx $6,500)
- Tenecteplase vs Alteplase? (tenecteplase with better results?)

*Edited by Jake Binder, Andrew Hasebrook, Ryan Johnsen, Megan Elsenheimer, Dan Hogan, Alex Taylor, Jacy O'Keefe and Joe Walter*
I chose the above EBM rating because:
- Multicenter, randomized, non blinded prospective study
- Only included comprehensive stroke centers in China (external validity?)
- Outcomes at 90 days were obtained via in person interview or phone interviews

Post: **MDI + Spacer vs Nebulizer**

**Author: Christopher Gates, et al  Reviewed by: Megan Elsenheimer**

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I scored the above BEEM rating because:
- Using breathing treatments to improve shortness of breath is something EPs do on a daily basis. In the new COVID era, we are using less nebs and more inhalers. This systematic review demonstrates that there may not be a significant difference in outcome if a spacer is used, suggesting that even in a post-COVID era we should consider using MDIs first.

**The educational pearls include:**
- The method of delivery of B2 agonist did not show a significant difference in hospital admission rates in adults or kids.
- The length of ED stay was significantly shorter when the spacer was used (33 minutes less) for kids. The length of ED stay for adults was similar for the two delivery methods.

**Caveat:** These studies excluded people with life threatening asthma

I chose the above EBM rating because:
- This systematic cochrane review of randomized trials in adults and children with asthma where spacer vs nebulizer administration of a B2 agonist were compared. Two authors independently applied the study inclusion criteria, extrapolated the data, and assessed the risk of bias.

*Edited by Jake Binder, Andrew Hasebrook, Ryan Johnsen, Megan Elsenheimer, Dan Hogan, Alex Taylor, Jacy O’Keefe and Joe Walter*
Ultimately, data from 39 trials was included. The study overall is very EBM based and the analysis included assessment of bias, but since it included data from many studies we cannot say that the individual studies involved are necessarily exclusively unbiased.

Post: **Implicit Bias**

**Author:** Medell Briggs, Jess Mason  
**Reviewed by:** Ashley TeKippe

I scored the above BEEM rating because:

-Although this is more a topic of discussion with supported studies, the topic of implicit bias is one that impacts every provider and healthcare professionals daily throughout their entire career. Current events have brought the topic of implicit bias to the surface (this is technically not new, but nevertheless extremely important) and is a must for all providers to look at, understand, and acknowledge to better serve our patients and colleagues on every shift. This is a must know topic in order to recognize bias is present in everyone.

**The educational pearls include:**

- Everyone has implicit (biases we are not aware of) and explicit (biases we are aware of) biases.

- Stressors during shift often bring out bias as we look for shortcuts to increase our speed in the department. This is not intentional, but a product of our environment.

- Leading groups that are targets of implicit bias are people of color, obese patients, middle-eastern natives, and women.

- 3 keys to helping with implicit bias:

  1) Recognize implicit bias
  2) Talk about these biases

*Edited by Jake Binder, Andrew Hasebrook, Ryan Johnsen, Megan Elsenheimer, Dan Hogan, Alex Taylor, Jacy O’Keefe and Joe Walter*
3) Fix and destroy the system based biases

I chose the above EBM rating because:

-This is a podcast defining and discussing implicit bias, however Dr Brigg’s discussion points are supported by multiple EBM articles attached to the podcast. She does not include some discussions of her own personal encounters with bias and how her team evaluates trends in her current hospital setting as well, but the key educational pearls are well supported in the literature.

Post: Fluids in ESRD with sepsis

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Author: Shyam Murali   Reviewed by: Jake Binder

I scored the above BEEM rating because:

Personally, I find this to be a difficult subject that we encounter on such a frequent basis. I was under the impression that there was not much data to this subject and that a lot of the decisions are made on a provider basis based on "clinical judgment." These were two well-done studies with strict inclusion and exclusion criteria that attempt to answer an important question of safety with fluid administration in patients prone to volume overload.

The educational pearls include:

Important to recognize that in ESRD patients on HD, infection is the second most common cause of mortality after cardiovascular disease. And that because of increased systemic inflammation and increased capillary permeability, septic patients are at significant risk for fluid imbalances, and may be hypervolemic, yet intravascularly depleted.

Both studies seem to provide adequate evidence that initial fluid resuscitation of 30 cc/kg may be safe, and not harmful, in patients with ESRD on HD in patients with severe sepsis or septic shock. However, its is crucial to recognize that many aspects were left out in these retrospective

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studies: Whether or not the patient is anuric vs oliguric, the decision made by the provider of why a patient received < 30 cc/kg bolus, etc. Overall, further future prospective data is needed to determine whether fluid bolus administration causes or not.

In the first study: In subgroup analysis looking at patients with ESRD on HD, when comparing those who received > or < 30 cc/kg fluid bolus, there was a general trend for increased intubation rate in first 24 hours (16.67% vs 6.35%), Increased ICU admissions (70% vs 65%), increased vasopressor use (62.5% vs 51.25%), longer length of mech. Vent use (6 days vs 4) and in-hospital mortality (41.67% vs 38.75%) when received > or equal to 30 cc/kg bolus. However, none of these values were technically statistically significant.

In the second study primarily looking at if there is a greater risk of respiratory failure requiring intubation when resuscitated with guideline-recommended sepsis bolus in patient with CHF/cirrhosis/ESRD: There was no difference in intubation rates in the first 72-hours in fluid restricted vs control, hospital mortality, ICU-free days, and ventilator days.

I chose the above EBM rating because:

This case reviewed two articles that were well-structured and address many different outcomes relevant to patient-care. Despite these being useful studies, it is still important to consider limitations such as:

Small sample size in the first study used for subgroup analysis (104 total patients with ESRD on HD) and the fact that the sample was primarily Caucasian patients so information may not be applicable to other institutions. Also, as retrospective studies, we do not know why providers chose to give more or less fluids/volume to specific patients, and there was no mention of which patients anuric vs oliguric which can affect decision on fluid administration. Last, the second study, only included 27% of patients with ESRD on HD, and most had CHF and within that category, most with EF >40% so may be a population more fit to tolerate fluid challenge.

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