



FOAM & Education Newsletter

August 2021
Volume 11



Welcome to Rez's #FOAM Newsletter

This is a monthly newsletter brought to you by the Education Committee with the latest in the EM and FOAMed world, ranging from trials, news, and pearls. We will also share the best podcasts & blog posts recently published in FOAM.

If you have an interesting image or EKG to share, let us know!

Your 21-22 Education Committee:

Lola Reingold (chair)

Walid Malki

Colton Weisner

Jake Cihla

Yalan Vu

Will Noel

Omar Ahmed



AUGUST UPDATES:

PODCAST OF THE MONTH:

[EM Cases Quick Hits: NG in SBO](#)

BLOGPOST OF THE MONTH:

[ACEP: Terminal Extubation in the ED](#)

PROCEDURE OF THE MONTH:

[iGel Insertion & Airway Decontamination](#)

Neurogenic Shock

by Walid

Neurogenic shock occurs with injury above T6 & is a form of **distributive shock**. Occurs secondary to the **loss of sympathetic tone** leading to decreased vascular resistance.

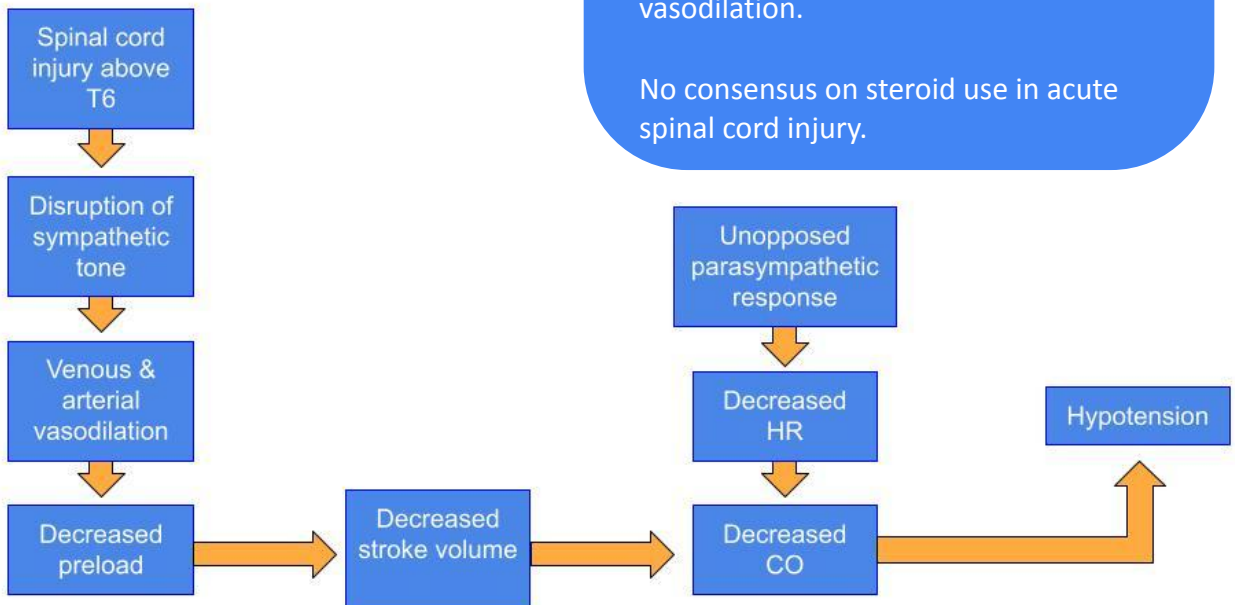
- **Above C5:** bradycardic, the heart does not respond appropriately to increased vagal tone due to lack of sympathetic innervation to the heart.
- **Below C5:** hypotension causes an appropriate reflex tachycardia.

Use pressors early with **MAP Goal >85**. Start with norepinephrine.

Early intubation is almost always required with cervical spine fracture & quadriplegia. Ventilatory support is almost always required for patients with a deficit above C4 because they will lack sufficient diaphragmatic function.

Watch out (& treat!) for hypothermia which is secondary to systemic vasodilation.

No consensus on steroid use in acute spinal cord injury.



Additional FOAM resources:

Review: <https://criticalcarenow.com/neurogenic-shock/>

Review:

<https://www.tamingthesru.com/blog/annals-of-b-pod/b-pod-cases/neurogenic-shock>

C-Spine Intubations: <https://rebelem.com/rebel-core-cast-59-0-c-spine-intubation/>

BEAM Trial

by Omar

WHAT: bougie-first vs ETT-first in difficult-airway emergency intubations

WHY: Bougies are typically used after failed intubation attempts

- 2nd intubation attempts are related to poor outcomes & increased difficulty intubating
- there is no great predictor of airway difficulty

HOW: RCT at Hennepin County – 757 ED Patients aka BEAM Trial

WHO: 381 Bougie vs 376 ETT intubations

- PGY-3 & Attendings **specifically trained & practiced in bougie-first intubation**; not general population of EM docs

BEAM Trial Results			
	First Pass Success with Bougie	First Pass Success with Stylet	P-value
Overall	98%	87%	<.001
Patients with difficult airway characteristic	96%	82%	<.001
Grade III View (only epiglottis)	95%	48%	<.001
Grade IV View (only tongue)	100%	40%	0.09

Takeaways:

When it comes to the difficult (edematous, obstructed, immobile, or otherwise poorly-visualized) airways, **bougie >> traditional ETT & stylet**

Read more: [EMCrit on Bougie-First and Positioning](#)

Read more: [Driver et al in JAMA, 2018](#)

Citation: Driver et al (2018). Effect of Use of a Bougie vs Endotracheal Tube and Stylet on First-Attempt Intubation Success Among Patients With Difficult Airways Undergoing Emergency Intubation: A Randomized Clinical Trial. JAMA, 319(21), 2179–2189. <https://doi.org/10.1001/JAMA.2018.6496>

Editorial: The BaSICS Trial - Balanced Solution vs Normal Saline Showdown
By Will

Study Design

Double Blinded RCT conducted in 75 ICUs in Brazil. Balanced solution vs NS

Intervention

Randomized to receiving Plasma-lyte or NS for duration of ICU stay

Outcomes

Primary: 90 day survival

Secondary: 19 total, including AKI, need for replacement, days on ventilator, SOFA score, hospital length of stay

Results

No change in 90 day mortality between solutions. No difference in AKI or need for renal replacement.

Significantly increased mortality in patient with TBI who received Plasma-Lyte instead of NS.

Discussion

Very well done study that had (personally) disappointing results. The results of this study show **no difference in important Patient Oriented Outcomes in the ICU**. A trend toward less mortality was seen in patients with TBI – which is consistent with previous studies between saline and balanced solution. Limitations are that the **patient population was not nearly as sick as advertised** (nearly half were “elective” surgery patients). They also gave about 1.5L of fluid within the first 24 hours which seems to be much lower than expected. Lastly, this study was between Plasma-Lyte and cannot confidently be extrapolated to include all balanced solutions but it is hypothesis generating when considering Lactated Ringer’s or Hartmann’s solution.

Bottom Line

Fluid choice is **possibly not as important as I’ve made it out to be**....This will not change my practice of giving LR to all my patients except end stage liver disease, TBI/ICP patients, and hypercalcemic patients. There are evidentiary data suggesting benefit of balanced solution and I will not budge on my opinion until more evidence of futility is reproduced.

Zampieri et al. Effect of Intravenous Fluid Treatment With a Balanced Solution vs 0.9% Saline Solution on Mortality in Critically Ill Patients: The BaSICS Randomized Clinical Trial. *JAMA*. Published online August 10, 2021. doi:10.1001/jama.2021.11684

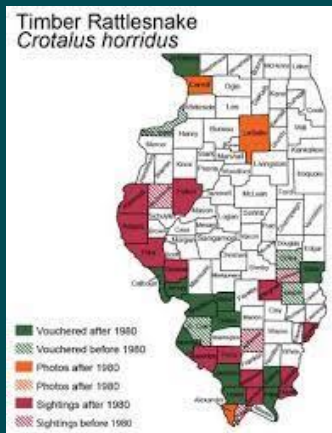
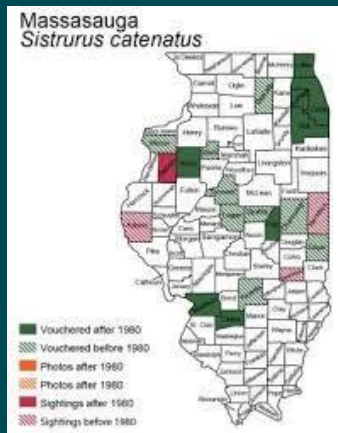
Wilderness Update: Snake Bites

by Colton

7-8000 People are bitten by venomous snakes in the US each year

- There are approximately 5 deaths per year; most are presumed to be avoidable by medical treatment
- 10-44% can result in lasting injuries and disability

There are 4 species of venomous snakes in Illinois that have been documented, primarily in the southern part of the state.



Treatment:

- Elevation, pain medication, and Anti-venom when indicated can prevent death and disability.
- **Call poison control** for assistance
- Anti-venom shortages are becoming more common

Contraindicated "treatments"

- Ice
- Steroids
- Suction
- Incision
- Tourniquets
- Antibiotics
- NSAIDs



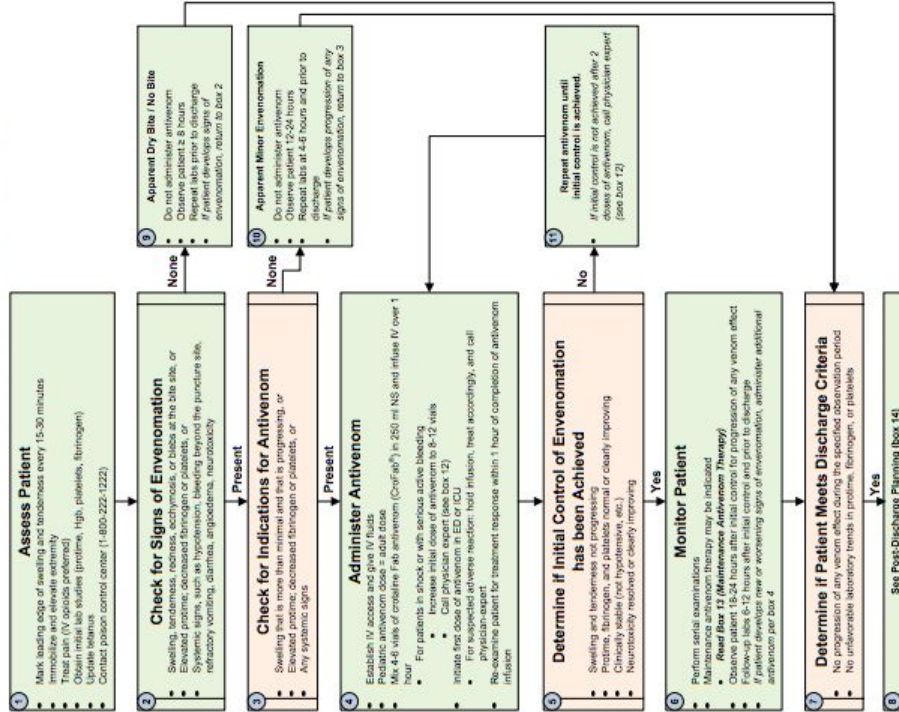
See next slide for full treatment algorithm

Wilderness Update: Snake Bites

by Colton

Emergency Department and Hospital Management of Pit Viper Snakebite

Includes: Rattlesnakes, Copperheads, and Cottonmouths (Water Moccasins)



15. Treatments to Avoid in Pit Viper Snakebite

- Cutting and/or suturing of the wound
- Ice
- NSAIDs
- Topical anesthetics
- Prophylactic antibiotics
- Routine use of blood products
- Shock therapy (electrolysis)
- Steroids (except for allergic phenomena)
- Tourniquets

16. Notes:

- All treatment recommendations in this algorithm refer to crotaline polyvalent immune Fab (ovine) (CrotFab).
- This worksheet represents general advice from a panel of US snakebite experts convened in May, 2010. No algorithm can substitute for the clinical judgment of the treating physician and deviations from this worksheet based on individual patient needs, local resources, local treatment guidelines, and patient preferences are expected. This document is not intended to replace the clinical judgment of the treating physician. For more information, please see the accompanying manuscript, available at www.biomedcentral.com.

12. When to Call a Physician-Expert

Direct consultation with a physician-expert is recommended in certain high-risk clinical situations.

- Life-threatening envenomation
 - Shock
 - Severe active bleeding
 - Respiratory distress
 - Facial or airway swelling
- Hard to control envenomation
 - Envenomation that requires more than 2 doses of antivenom for initial control
- Recurrence or delayed-onset of venom effects
 - Worsening swelling or abnormal labs (prothrombin, fibrinogen, platelets, or fibrinogen) on follow-up visits
- Allergic reactions to antivenom
 - Respiratory distress
 - Redness, hives, and itech
- Unclear clinical situations
 - Suspected compartment syndrome
 - Venous-induced hives and angioedema
- Complicated wound issues
 - If no local expert is available, a physician-expert can be reached through a certified poison center (1-800-222-1222) or the antivenom manufacturer's line (1-877-272-7194).

13. Maintenance Antivenom Therapy

- Maintenance therapy is additional antivenom given after initial control is achieved
- Maintenance therapy is 2 vials of antivenom (CrotFab) (given 6, 12, and 18 hours after initial control)
- Maintenance therapy may not be indicated in certain situations, such as
 - Adverse envenomations
 - Complicated wound issues
 - Expert is available
- Follow local protocol or contact a poison center or physician-expert for advice.

14. Post-Discharge Planning

Instruct patient to return for:

- Medical attention if swelling is not reduced by elevation
- Abnormal bleeding (gums, easy bruising, melena, etc.)
- Increased edema where to seek care if symptoms of serum sickness (fever, rash, muscle/joint pains) develop
- Bleeding precautions (no contact sports, elective surgery or dental work, etc.) for 2 weeks in patients with:
 - Rattlesnake envenomation
 - Abnormal prothrombin, fibrinogen, or platelet count at any time

Follow-up visits:

- Antivenom not given:
 - PRN only
- Antivenom given:
 - Chaperoned visits: PRN only
 - Follow-up visits: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100 days and 5-7 days), then PRN

Figure 1 Unified Treatment Algorithm for the Management of Pit Viper Snakebite in the United States.