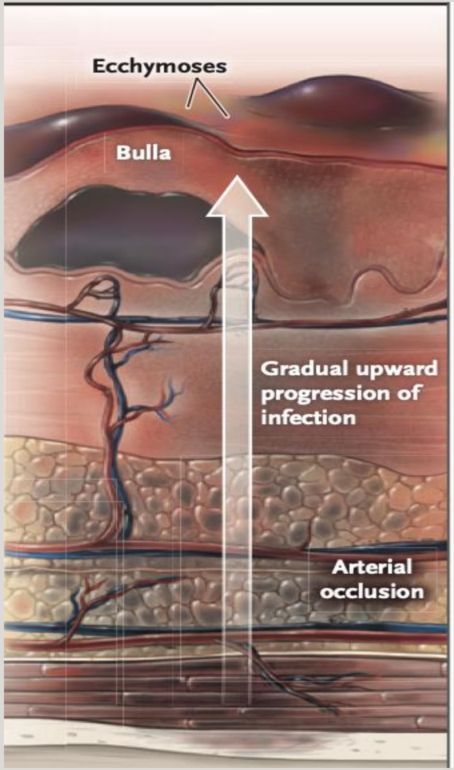
A Case of Hyponatremia in a Patient with Necrotizing Fasciitis

Frank J. Dijak, M.S., Corinna J. Yu, M.D., M.B.A.



Necrotizing Fasciitis & Hyponatremia

Necrotizing Fasciitis (NF) is a soft-tissue infection characterized by widespread tissue destruction that may extend from the epidermis to the deep musculature

Severe NF can be associated with hyponatremia, with proposed mechanisms including:

- Extracellular fluid sequestration
- Multiorgan damage causing renal dysfunction

Incidence of NF
- 0.3-15.5 cases per 100,000 persons

Average Mortality Rate of NF
- 29%
- Up to 80% without prompt diagnosis and treatment

The LRINEC Score

LRINEC Scoring System		
Test	**Value**	**Score**
CRP (mg/L)	≤150	0
	>150	4
WBC (1000 cells/μL)	<15	0
	15-25	1
	>25	2
Hb (g/dL)	>13.5	0
	11-13.5	1
	<11	2
Na (mmol/L)	≥135	0
	<135	2
Cr (mg/dL)	≤1.6	0
	>1.6	2
Glu (mg/dL)	≤180	0
	>180	1

The **L**aboratory **R**isk **I**ndicator for **NEC**rotizing Fasciitis (LRINEC) Score is a diagnostic tool for NF that includes hyponatremia

LRINEC Interpretation		
LRINEC Total	Risk of NF	Probability of NF
≤5	Low	<50%
6-7	Medium	50-75%
≥8	High	>75%

Case Presentation: Preoperative

A 35-year-old man (79 kg) with no significant PMH presented to the OR for repeat I&D of right lower extremity due to known NF

Labs were relevant for hyponatremia (Na 125 mEq/L) and acute kidney injury (Cr 5.96 mg/dL)

His LRINEC Score was 6 (medium risk)

Case Presentation: Intraoperative

Standard induction, maintenance of GETA, extubation

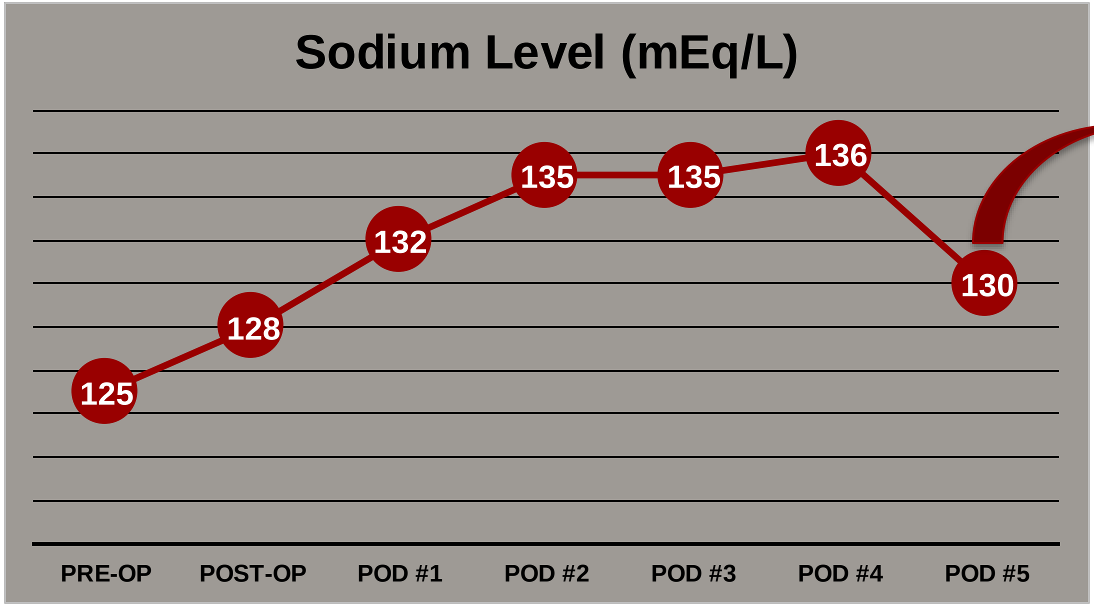
Fluid Management:

- 900 mL of 1 L of ½ NS (Na 77 mEq/L) with 1 amp sodium bicarbonate (Na 50 mEq/L) for sodium concentration of approx. 127 mEq/L

- 100 mL of 25% albumin with sodium concentration approx. 145 mEq/L

- Total sodium concentration: 128.8 mEq/L

Case Presentation: Postoperative



Patient returned to the OR for repeat I&D

LRINEC Score	6	7	8	3	4	4	6

Discussion

Causes of hyponatremia are difficult to assess in urgent/emergent operative cases without available serum/urine osmolality and urine electrolytes

Treatment for hyponatremia varies based on volume status, which can be difficult to assess in the setting of acute illness (diuretic use, sepsis, cirrhosis, heart/renal failure, third-space losses, SIADH)

Necrotizing fasciitis is part of the differential diagnosis for hyponatremia

Anesthesiologists should be aware of the LRINEC Score and exercise caution in fluid administration and sodium repletion at 4-6 mEq/L/day to prevent osmotic demyelination syndrome

Anesthesiologists should consider 25% albumin over 5% albumin to limit sodium content

References

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3. Wong CH, Khin LW, Heng KS, Tan KC, Low CO. The LRINEC score: a tool for distinguishing necrotizing fasciitis from other soft tissue infections. Crit Care Med. 2004;32:1535-1541