

**SBP Case file: Cases 4-10**

[Cases 1-3 published [Acad Emerg Med](#). 2005 Dec; 12(12): 1191-4. available as an online Data Supplement at <http://www.aemj.org/cgi/content/full/j.aem.2005.06.026/DC1>]

## Case 9

**Title: Lithium toxicity**

**Target Audience: Medical students, Residents**

**Author: John Vozenilek, MD and Ernest E Wang, MD, Division of Emergency Medicine, Evanston Northwestern Healthcare**

### Case Narrative (describes what the learner will experience)

**Overview:**

55 year old man with history of Bipolar disorder on lithium. Brought to ED by paramedics who were called because he was not seen for days. Noted mental status changes and diarrhea all over the bed.

- Hypotensive and tachycardic (SBP 90s, HR 120-130)
- Mental status fair, gives hx of diarrhea (GCS ~13), nausea/vomiting, coarse tremor, +/- polyuria
- New onset renal failure, lithium level elevated
- Meds unknown unless learner specifically asks for paramedics to go back to house to look for pills
- IV fluids
- Toxicology consultation and/or renal consultation for dialysis, ICU admission

### Learning Objectives or Assessment Objectives

KEY: PC Patient Care, MK Medical Knowledge, PBL Practice Based Learning & Improvement, ICS Interpersonal & Communication skills, P Professionalism, SBP Systems Based Practice.

For expanded definitions see [www.centerforsimulation.org/dl/cc.pdf](http://www.centerforsimulation.org/dl/cc.pdf)

Simulation Objectives	MS		PGY		Core Comp		
	1	2	3	4		I Jr	Sr
Management							
Preparatory for treatment of abnormal vital signs (IV O2 Mon)			x	x	x	x	PC
Have paramedics retrieve meds from home					x	x	PC, MK,

IV fluid administration  
 Appropriate toxicology and renal consultation  
 Recognition  
 Lithium Intoxication (chronic v. acute)  
 Teamwork  
  
 Appropriate Mobilization of Staff  
 Data Gathering  
  
 LAB: CBC, electrolytes, BUN/Cr, Li level, UA, urine and blood drug screen  
 Debriefing Objectives (understands)  
 Pathophysiology of lithium toxicity  
 Signs and symptoms of lithium toxicity  
 Differentiation of acute vs. chronic poisoning  
 Role of IVF, GI decontamination, dialysis for lithium toxicity  
 Emergency Toxicology and Renal Consultation

			x	x	x	x	MK, PC
				x	x	x	PC, SBP
				x	x	x	MK
				x	x	x	ICS, P, SBP
			x	x	x	x	PC, MK, PBL, SBP
				x	x	x	MK
					x	x	MK
				x	x	x	MK
				x	x	x	MK
				x	x	x	MK, SBP

Critical actions checklist  
 IV fluids  
 Check Lithium level  
 Toxicology and/or renal consultation  
 ICU admission

**SYSTEMS-BASED PRACTICE Issues**

[Modifying factors] Addresses barriers to care (lives alone, comorbid illness and psychiatric condition)  
  
 [Diagnostic studies] Lithium level (chronic v. acute), possible concomitant ingestion  
  
 [Consultation and Disposition] Toxicology and Renal consultation. Effective disposition to ICU.

+	-	N/A

**Environment**

- A. Lab Set Up
  - Simulated ED
- B. Manikin Set Up
  - METI ECS

- IV bags, tubing, catheters
  - Induction and Paralytic agents
- C.
- Props
  - ECG: Sinus Tach, (T-wave flattening, QTc prolongation)
  - Labs

### **Actors**

- Nurse: Obedient but not helpful; confederate
- Paramedic – gives social situation, can be instructed to go to home and obtain pill bottles
- Consultants: Toxicology, Nephrology

### **Debriefing Plan**

- A. Method of debriefing group: with video, knowledge support items
- B. Debriefing Materials

INQUIRIES TO: JOHN VOZENILEK, MD, FACEP  
DIRECTOR, CENTER FOR SIMULATION TECHNOLOGY AND ACADEMIC RESEARCH  
DIVISION OF EMERGENCY MEDICINE

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DIVISION OF EMERGENCY MEDICINE

EVANSTON NORTHWESTERN HEALTHCARE  
FEINBERG SCHOOL OF MEDICINE, NORTHWESTERN UNIVERSITY  
[WWW.CENTERFORSIMULATION.ORG](http://WWW.CENTERFORSIMULATION.ORG)