**Academic Half Day – Acute Kidney Injury**

**Learner Guide**

**Learning Objectives:**
At the end of this Academic Half Day learners should be able to:
• Apply renal physiology to AKI pathophysiology
• Develop an approach for the diagnosis and management of an AKI

**Case 1**

Mr. Ron (first name Nef) is a 67-yo male with history of HTN, obesity, DM2, and prostate cancer presents to the ED with 2 days of fever, shaking chills, right lower quadrant abdominal pain, nausea, and vomiting

**Medical History: Home Medications:**DM2 (HgA1c 8.0) Metformin LisinoprilHTN Atorvastatin HCTZProstate Cancer s/p radiation 2 years ago Empaglifozin AspirinGabapentin

**Physical Exam:**
VS: T 102.0, HR 111, BP 100/62, RR 18, SpO2 97% on RA, Weight 220lbs
GEN: Ill-appearing and diaphoretic, no respiratory distress.
HEENT: Mucous membranes are tacky.
CV: Tachycardic, normal S1 and S2, no murmurs, flat neck veins
Pulmonary: Normal respiratory effort, CTAB, no wheezes, crackles or rhonchi
Abd: normal BS, soft, RLQ tenderness is present, but no rebound or guarding.
Ext: Warm, no rashes, no edema

1. **What is your differential diagnosis and how would you support this with information from the history and exam?**
2. **What labs and/or imaging studies would you order on this patient and why? Consider how each test would potentially change your management.**
3. **What is your most likely diagnosis now and how would you support this with your history, physical AND supplemental data?**
4. **What kind of renal injury does this patient have? How do you decide this? What is the pathophysiology?**
5. **What is your initial management? What does your admission med rec look like?**

**Over the next 48 hours, Mr. Ron is looking better.**

**Physical Exam: VS: 98.6F, 94, 18, 140/84, 97% RA, Weight 224lbs
GEN: no acute distress, appears comfortable
CV: RRR, no murmurs
Pulmonary: CTAB, no wheezes, crackles or rhonchi
Abd: normal BS, soft, non-tender except for right CVA tenderness (improved from admission)
 Ext: Warm, no rashes, mild LE edema**

1. **What objective information is important to monitor during this admission?**
2. **How would you treat this new diagnosis? What is the expected course of illness, and what is important to monitor for?**

**Case 2**

A 56 y/o female with a history of HTN presented to a new PCP to establish care. She has been having progressive fatigue and headaches over the preceding three weeks. One week ago she had a meniscal tear repair, during which he had a period of hypotension requiring pressors. She received cefazolin intra-operatively and took NSAIDs before and after the surgery.

Routine labs revealed a creatinine of 5.52 (last creatinine two years prior was 0.6)
Physical Exam:
98.9 F, BP 125/72, 75 BPM, 100% on RA, and RR 12
GEN: Well- appearing, walking around the room.
HEENT: unremarkable
CV: RRR, no murmurs
Pulmonary: CTAB, no wheezes, crackles or rhonchi
Abd: normal BS, soft, non-tender
MSK: Warm, no edema, no rashes



1. **What is your initial DDx for this AKI? What other labs do you want and how do those results impact your DDx?**



1. **How will you evaluate and treat this hyperkalemia?**
2. **While awaiting results, how would you manage this patient’s AKI?**

Case 4

 A 35-yo male was found down by a bar one summer night. It’s unclear when he was last seen. After naloxone and initial resuscitation, he is alert and oriented and appears to have no significant injuries. Due to discomfort with ambulation the ED placed a foley and his collection bag shows a small amount of urine that looks concentrated and a reddish tinge. On admission his BP 120/70 and HR 80. Exam is normal except for difficulty with active movement and muscle tenderness along right side.

1. **What is on your differential diagnosis based off history? What else would you like to know? Are there labs you’d like to obtain?**
2. **What is your differential now? Support this with the information you have?**
3. **What are complications you need to watch for?**
4. **What is the pathophysiology of this AKI?**
5. **How will you initially manage this patient?**