Tumor Lysis Syndrome and Rapid Goals of Care Conversation

Section 1: Case Summary

Scenario Title:	Tumor Lysis and Rapid Goals of Care
Keywords:	Tumor lysis, rapid goals of care, palliative
Brief Description of Case:	68 F presents with EHS with a decrease in LOC and hypoglycemia (2.0) in the context of new chemotherapy for her multiple myeloma.

Goals and Objectives	
Educational Goal:	1. Management of patient with decrease in LOC in the context of myeloma 2. Rapid Communication of GOC with spouse
Objectives: (Medical and CRM)	1. Approach to ALOC in patient in the ED 2. Basic airway management/plan 3. Communication skills
EPAs Assessed:	1. Core EPA #1-resuscitating and coordinating care for critically ill patients 2. Core EPA #3-providing airway management and ventilation 3. Transition to Practice EPA #6-dealing with uncertainty when managing patients with ambiguous presentations

Learners, Setting and Personnel				
Target Learners:	☒ Junior Learners	☒ Senior Learners	☐ Staff	
	☐ Physicians	☐ Nurses	☐ RTs	☐ Inter-professional
	☐ Other Learners:			
Location:	☒ Sim Lab	☐ In Situ	☐ Other:	
Recommended Number of Facilitators:	Instructors: 1			
	Confederates: 1			
	Sim Techs: 1			

Scenario Development	
Date of Development:	2/6/2021
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Section 2A: Initial Patient Information

A. Patient Chart					
Patient Name: Lisa Leslie			Age: 68	Gender: F	Weight: 63 kg
Presenting complaint: Weak and altered LOC					
Temp: 35.2 °C	HR: 66bpm	BP: 96/65	RR: 20/min	O_2Sat: 93% RA	FiO_2:
Cap glucose: 2.6 mmol/L			GCS: 9 (E2,V4,M3)		
Triage note: Brought in by EHS after being found down in her home with hypoglycemia. She is disoriented and not communicating normally. Feels weak and nauseous. Undergoing treatment for refractory multiple myeloma. This treatment began 3 days prior. Last presentation to ED 10/7 ago for epistaxis due to thrombocytopenia.					
Allergies: NKDA					
Past Medical History: Multiple Myeloma Vertebral Fracture at T3 (last year) Lithotripsy			Current Medications: Hydromorphone 1-2mg PO q4h PRN Chemotherapy - (DT-PACE regimen – dexamethasone, thalidomide, cisplatin, doxorubicin, cyclophosphamide and etoposide)		
Social History: Lives at home with husband. Two adult children.					

Section 2B: Extra Patient Information

A. Further History
Include any relevant history not included in triage note above. What information will only be given to learners if they ask? Who will provide this information (mannequin's voice, confederate, SP, etc.)? 1) Cancer status – diagnosed with multiple myeloma 3 years ago and received curative intent chemotherapy. The cancer has become refractory and she began receiving fourth-line therapies last week. She has an appointment with oncology this week to discuss disease progression. *[Paramedic]* 2) Code status – he is not sure but thinks his wife would want 'everything done.' Because they have not seen the oncologist, they don't know if the new chemotherapy is working. He is distressed about this and asks questions for clarification. He informed the paramedics at the house that he wanted 'everything done' for his wife. *[Husband]*

B. Physical Exam	
List any pertinent positive and negative findings	
General: diaphoretic and looks unwell	Neuro: generalized weakness. Nothing lateralizing. Pupils 3 mm, sluggish. Cannot co-operate with comprehensive exam.
Cardio: no chest pressure, no murmur	Head & Neck: neck supple. Dry blood around mouth.

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Resp: no SOB	MSK/skin: low back pain. Covered in petechiae and purpura
Abdo: nauseous. soft, non-tender	GU: decreased urine output

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Section 3: Technical Requirements/Room Vision

A. Patient
☒ Mannequin *(specify type and whether infant/child/adult)*
☐ Standardized Patient
☐ Task Trainer
☐ Hybrid
B. Special Equipment Required
Laryngoscope (VL or DL) ETT Bougie CVA line Arterial line
C. Required Medications
Fentanyl Ketamine Rocuronium Norepinephrine Push dose vasopressors (Epinephrine, Phenylephrine)
D. Moulage
E. Monitors at Case Onset
☒ Patient on monitor with vitals displayed ☐ Patient not yet on monitor
F. Patient Reactions and Exam
Include any relevant physical exam findings that require mannequin programming or cues from patient (e.g. – abnormal breath sounds, moaning when RUQ palpated, etc.) May be helpful to frame in ABCDE format. A: no stridor B: breathing on own C: hemodynamically stable, peripheral IV access obtained D: GCS 9 E: no trauma, no focal CNS deficit, normothermic

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Section 4: Confederates and Standardized Patients

Confederate and Standardized Patient Roles and Scripts	
Role	*Description of role expected behavior, and key moments to intervene/prompt learners. Include any script required (including conveying patient information if patient is unable)*
Paramedic	Cancer history and treatment (refractory MM, recently started fourth-line chemo). Conveys that spouse is 'in shock'.
Husband	States that he thinks that his wife wants lifesaving therapies but doesn't know for sure. He is distressed about this and asks about her prognosis. Worried that this could be an effect of the new chemotherapy. He read that **Tumour Lysis Syndrome** is a side effect to watch for.

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Section 5: Scenario Progression

Scenario States, Modifiers and Triggers				
Patient State/Vitals	Patient Status	Learner Actions, Modifiers & Triggers to Move to Next State		Facilitator Notes
1. Baseline State Rhythm: sinus HR: 110 BP: 88/52 RR: 22 O_2SAT: % 90 T: 35.2 °C GCS: 9	*Ashen, looks very ill. Responds only minimal to tactile stimulation.*	Expected Learner Actions ☐ Verbalize to the team an approach to a patient with ALOC (e.g., DIMS). -O2 -IV-provide bolus of crystalloid -Monitor -stat glucometer (still low at 2.5*) -Complete Primary Survey -order stat labs	Modifiers *Patient does not respond to bolus in terms of HR, BP.* -no response to D10 IV administration Triggers *Becoming more ill, BP lowering, no improvement in LOC.*	May consider naloxone in this patient? Have an approach to patient with decrease in LOC Delegate someone, if possible, to gather some collateral information, get SW, spouse.
2. Deterioration BP 79/50 HR 115 GCS 7	*Requiring more oxygen, RT considering BVM assists.*	Expected Learner Actions ☐Verbalize to the team the need to resuscitate this patient with the intention of intubation once more hemodynamically stable.	Modifiers *Patient accepts OPA and gentle bag valve mask assisted breaths.* -transient response to aggressive IV fluids Triggers *With improvement in BP, an intention is made to secure the airway.*	Recognition that the patient needs to be intubated for further workup (e.g., CT scan to assess for ICH). Failure to plan for this leads to patient becoming more hypoxic and need for bagging.

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3.Intubation *after intubation* BP 55/32 HR 110 SpO2 90% Easy to ventilate	*Carefully outlined RSI.*	Expected Learner Actions Outlines a safe approach to intubation with backups (e.g., bougie). Gives clear instructions to team in regards to medications for RSI. Recognition of succinylcholine to be less optimal.	Modifiers -Grade 2-3 view on DL/VL -Use of bougie optimal -Successfully intubated Triggers -*hypotensive after intubation*	Recognition that Rocuronium is more appropriate for this patient with the potential of critical hyperkalemia. Use of succinylcholine leads to VF arrest* Use of fluids, pressors after intubation for critical hypotension If hypotension not addressed quickly, patient goes into aystolic cardiac arrest.
4. Post intubation Remains very hypotensive despite push dose pressors Requiring norepinephrine infusion Labs reveal profound abnormalities	*Recognition of need to correct for profound abnormalities*	Expected Learner Actions Consideration of vasopressor medications after IV fluid boluses. **Good opportunity, once the patient has been stabilized, to summarize to the spouse and deliver the news that the patient has a critical illness(es) in the face of her cancer.** **May approach with SPIKES or equivalent pneumonic.**	Modifiers -transient response to fluids -responds to push dose vasopressors -does well with starting on norepinephrine infusion	Patient stabilizes after fluids and pressors. Allow time to review metabolic abnormalities, especially life-threatening hyperkalemia. Consideration of coverage of broad-spectrum antibiotics with the potential of concomitant septic shock as a contributor to her hypotension.

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5.Communication You are asked to meet with the spouse after the patient is more stabilized.	*Patient critically ill, likely has a life-threatening issue(s) including TLS, possible sepsis.*	Expected learner action Gather resources, including Social Work, if possible, to participate in the family meeting. Have an approach to giving bad news in a systematic and compassionate way.	Modifiers Good response to communication with some grief expressed by the spouse, disbelief. Allow space for empathy and grief Provide a plan going forward (e.g., Time limited trial of therapy, review what the patient would wish for care going forward.	Ensure that feedback is given in terms of organization of delivery of bad news, and to confirm wishes for care. May outline that in the face of cardiac arrest, the patient would likely not be a good candidate for CPR.

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Appendix A: Laboratory Results

CBC	Other
WBC 0.2 Hgb 95 Plt 55 Lytes Na 135 mmol/L K 7.1 mmol/L Cl 100 mmol/L HCO_3 16 mmol/L AG 19 Urea 7 mmol/L Cr 118 µmol/L Extended Lytes Ca 1.89 mmol/L Mg 1.0 mmol/L PO_4 2.9 mmol/L Glucose 12.1 mmol/L VBG PH 7.32 PCO_2 28 PO_2 45 HCO_3 17 Lactate 4.2	Uric Acid 410 µmol/L

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Appendix B: ECGs, X-rays, Ultrasounds and Pictures

Paste in any auxiliary files required for running the session. Don't forget to include their source so you can find them later!

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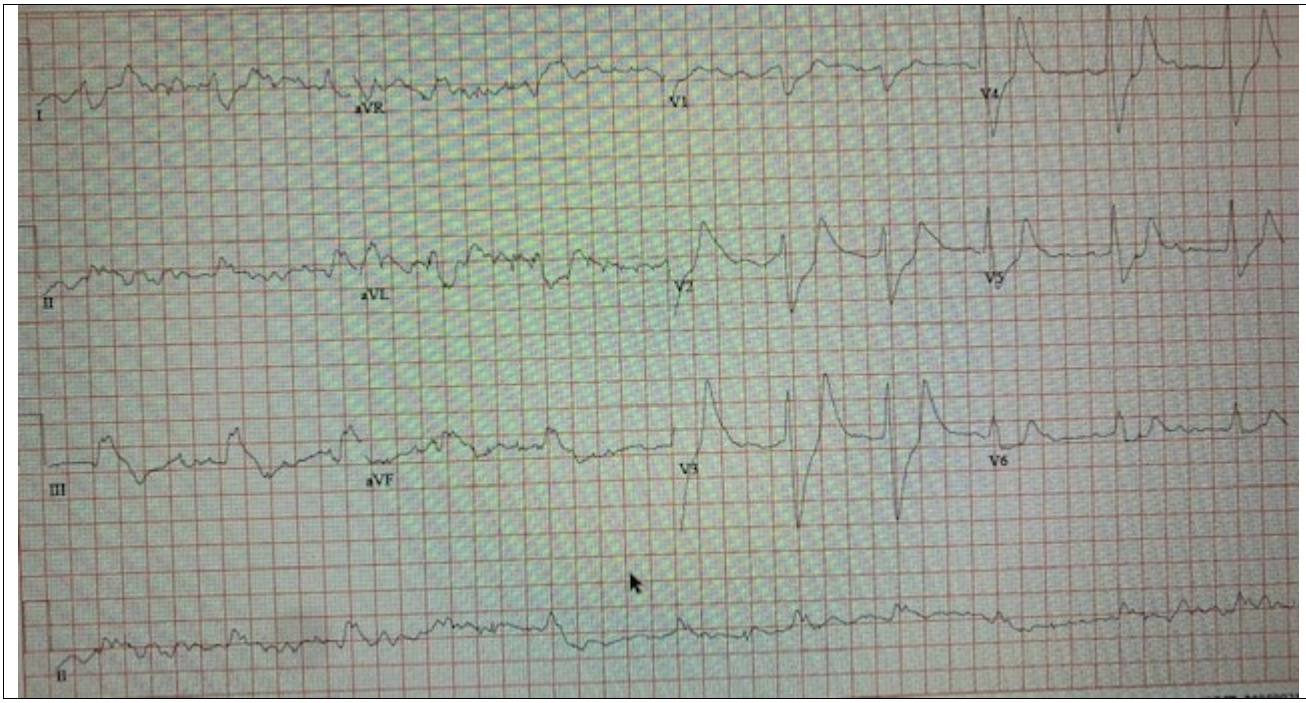

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Appendix C: Facilitator Cheat Sheet & Debriefing Tips

Include key errors to watch for and common challenges with the case. List issues expected to be part of the debriefing discussion. Supplemental information regarding any relevant pathophysiology, guidelines, or management information that may be reviewed during debriefing should be provided for facilitators to have as a reference.

Keys:

1. Workup of patient with altered LOC in cancer patients
2. Appropriate resuscitation and airway management
3. Recognize tumor lysis syndrome
4. Rapidly establish goals of care

Debriefing Questions:

- How does the patient's cancer status change things?
- How did you feel navigating the goals of care conversation? What are some frameworks to help rapidly establish goals of care?
    - https://emcrit.org/emcrit/rapid-code-status-conversations/

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