jumptrading SIMULATION & EDUCATION CENTER

AN OSF HEALTHCARE AND UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE AT PEORIA COLLABORATION

PART TWO – SESSION MATERIALS

Session Title: Unstable Atrial Fibrillation

Please indicate the type of session by checking the appropriate box:

- ☒ Case Scenario
- ☐ Skills (Procedure) Station
- ☐ Small Group Discussion
- ☐ Computer-Based Learning
- ☐ Simulation Enhanced Didactic

Original Session Date:

Version: 1.1

Revision Date:

Curriculum Title: Emergency Medicine Resident Simulations

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Dept/Institution:Dept of Emergency Medicine

Author 2:Click here to enter text.

Dept/Institution: Click here to enter text.

2.1 SESSION SNAPSHOT

Intended Learner Group(s):

EM1 residents
EM Nurses

Scenario Objectives:

A. Primary
   1. Interprets ECG as AF with RVR
   2. Recognizes hemodynamic instability
   3. Performs synchronized cardioversion

B. Secondary
   1. Explains the difference between synchronized and unsynchronized cardioversion
   2. Describes etiologies of atrial fibrillation
   3. List indications and contraindications to cardioversion

Session Description:

This is a clinical scenario in which an awake and alert patient presents with atrial fibrillation and RVR, that becomes hemodynamically unstable, requiring synchronized cardioversion to stabilize.

Teams will be comprised of 2-3 EM1 residents and 1-2 ED nurses

2.2 SESSION EQUIPMENT

Please indicate all equipment required for this educational session. This includes any medical or educational supplies or equipment.

MANIKIN - Adult	**MANIKIN - Peds**
☒Laerdal SimMan	☐MegaCode Kid
☐SimMan Essential	☐SimJunior
☒SimMan 3G	☐SimBaby
☐SimMom	☐SimNewB
☐MegaCode Kelly	

JUMP EQUIPMENT (check all that apply)	
☐Pediatric Crash Cart	☒Adult Patient Bed
☒Adult Crash Cart	☐Isolette
☒Lifepack 20	☐Giraffe Bed/Infant Warmer
☐Gurney/Stretcher	☐Pediatric Crib

Note: *The above lists include equipment available from Jump. If any other items are needed for this session, please list them here and note the source:*

ITEM	**SOURCE**
	Click here to enter text.
Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.
Click here to enter text.	Click here to enter text.

2.3 SESSION ENVIRONMENT

SIMULATION VENUES	
☐ Anatomical Skills Lab	☒Virtual ICU
☐ Innovation Lab	☐Virtual OR/Trauma Bay
☐Regional Transport Center	☐Virtual Patient Unit
☐Studio Apartment	☐Virtual Reality (Surgical Skills) Lab
☐Skills Lab	☐Workstation & Med Room
DEBRIEFING VENUES	
☐Briefing Theater	☒Debriefing Room
CONFERENCE CENTER	
☐Auditorium	☐Lecture Hall
☐Board Room	☐Pre-Function Space
☐Conference Room	

☐ **In-Situ (list clinical space):** Click here to enter text.
☐ **Off-Site (please describe):** Click here to enter text.

Room and Materials Setup
Describe in text form or insert diagram or photo here. Please note any resources to be provided from outside of Jump.

Room setup is as ED Milestone.

2x2 Supply Cart on wall opposite bed. Crash cart outside of room. Suction setup on wall.

2.4 SCENARIO SETUP

Documents Included

☒Scenario Setup Form
☒Standardized Participant Guide(s) 1. Patient
☐Other: Click here to enter text.
☐**N/A** – this session does not include case scenarios

SCENARIO SETUP FORM
TITLE: Unstable Atrial Fibrillation MANIKIN: Laerdal SimMan EST DURATION: 8-10 minutes

Patient Information: 76-year old male
CC: Chest Pain **PMHx:** Paroxysmal AF, HTN **Allergies:** NKDA
Weight: 90kg
Clinical Setting: Tertiary Care Center (e.g. SFMC)

STATE NAME	VITAL SIGNS	EXAM/ADDL MANIKIN INFO	ACTIONS DESIRED
Presenting State	*Temp:* 37.5 *HR:* 140 *BP:* 110/60 *RR:* 14 *SPO2:* 98%	Cardiac Rhythm: Atrial Fib **ECG3A**	IV, monitor, ECG Recognize unstable AF
TRANSITIONS: **1.** After second sync cardioversion go to Stabilized **2.** If unsync cardioversion go to VF arrest **3.** Go to Unstable AF after history obtained			
Unstable AF	*HR:* 180 *BP:* 80/40 *RR:* 16 *SPO2:* 96%	Cardiac Rhythm: Atrial Fib “Heaviness in my chest”, “I feel sweaty”	Synchronized cardioversion
TRANSITIONS: **1.** After second sync cardioversion go to Stabilized **2.** If unsync cardioversion go to VF arrest **3.** If diltiazem (Cardizem) given Go to Severely Decompensated			
Severely Decompensated	*HR:* 144 *BP:* 60/30 *RR:* 20 *SPO2:* 92%	Cardiac Rhythm: Atrial Fib	Synchronized cardioversion
TRANSITIONS: **1.** If sync cardioversion go to Stabilized **2.** If unsync cardioversion go to VF arrest			
V Fib Arrest	*Temp:* 37.0 *HR:* 65 *BP:* 190/80 *RR:* 6 *SPO2:* 92%	Cardiac Rhythm: Vent Fibrillation	Defibrillation
TRANSITIONS: If defibrillated go to Stabilized			

SCENARIO SETUP FORM

TITLE: Unstable Atrial Fibrillation MANIKIN: Laerdal SimMan EST DURATION: 8-10 minutes

Stabilized	*HR:* 40 *BP:* 200/100 *RR:* 6 *SPO2:* 90%	**ECG3B**	Admit telemetry

Moulage: IV in place **Multimedia:** ECG3A, CXR3, ECG3B **Embedded**

Roles: Patient

STANDARDIZED PARTICIPANT GUIDE

SCENARIO TITLE: Unstable Atrial Fibrillation
NAME: Harold Smith
ROLE: Patient

BACKGROUND INFO:
CC: Chest pain

HPI: Went to meet a friend for breakfast at Starbucks. Had a triple shot latte, and about 20 minutes later started feeling his heart race. This was accompanied by some central chest pressure and mild SOB.

PMH: HTN, PAF

Meds: Toprol XL 100mg QD (but forgot to take today)
Coumadin 5mg QD
ALL: NKDA
FHx: None
SHx: Neg x 3

ROS: As per HPI. No recent illnesses. He is now starting to feel lightheaded as well.

ACTIONS WITHIN THE CASE:
Provide the history freely per above.
Physical Exam (Sim findings in bold):

VS: Per **monitor 37.5 135 AF 100/60 20 96%**

Gen: Mild distress.
HEENT: PERRL 3mm. No pallor. TM, MM, pharynx nl.
Neck: No bruits. No thyromegaly
CV: **Irregularly irregular tachycardia. Pulses present.**
Lungs: **Rales bilaterally**
Abd: Normoactive BS. Soft
Skin: **Dry no rashes or ecchymoses**
Extremities: **No edema.**
Rectal: Normal tone, nontender, hemoccult neg.
Neuro: **Eyes open.** GCS 15. Normal.

2.5 LEARNERS' SESSION HANDOUTS

Portal files:
Stimuli – for observer group
Articles distributed:

2.6 SESSION ASSESSMENT

	COMPLETE	PROMPTED	NOT DONE		CORE COMP
Initial Assessment				Introduces self to patient	IP
				Places pt on monitor	PC
				Orders EKG	PC
				Establishes IV access	PC
				Elicits AMPLE history	PC IP
				Lung exam: Rales bilaterally	PC
				CV exam: Identifies irreg rhythm, checks pulses	PC
				Identifies pt as hemodynamically unstable	PC, MK
Treatment				Synchronized cardioversion	SBP,MK
				Resets defibrillator to sync mode after first attempt	SBP,MK
				Re-examines patient after cardioversion	PC
Work-Up				CIEs, CBC, CMP, PT	PC
				Orders repeat ECG after cardioversion	PC
				CXR	PC
Disposition				Discusses with patient's cardiologist	SBP,ICS
				Explains disposition to patient	ICS

2.7 SESSION SPECIFIC REFERENCES/SOURCES

Scenario conditions initially

1. Patient provides history of 2 hours of increasing chest pressure/SOB after having breakfast with a friend at Starbuck's. Pt also didn't take his meds this morning.
2. Patient's initial exam:
    - Tachycardia, irregularly irregular
    - S4 gallop
3. Patients physiology
    - Atrial fibrillation with RVR
    - Hemodynamically unstable
    - Underlying cardiac ischemia

Scenario branch points

1. Pt will present hemodynamically unstable with rapid AF
2. If synchronized cardioversion is used he will stabilize.
3. If he is not treated he will continue to decompensate, ultimately into VT then VF
4. If unsynchronized cardioversion is used, he will develop VF.

Instructors Notes

A Pt has rapid AF with hemodynamic and cardiac compromise.

B Actors:

1. Patient: Provides HPI freely.

C Stimuli –

1. H&P
2. ECG – Afib with RVR
3. CIEs (normal)
4. ECG – NSR
5. CXR (normal)
6. CBC/CMP (normal)

C. Scenario programming

1. Optimal management path (see evaluation checklist)
2. Potential errors path(s)
    - Not ordering ECG to evaluate for AMI
    - Unsynchronized cardioversion
    - Failure to recognize hemodynamic instability
3. Program debugging
    a. Use fluid infusions/losses to manipulate BP

Questions to facilitate the debriefing

1. What are underlying causes/precipitating factors of AF?
2. What are the risks associated with untreated AF?

3. What findings/symptoms suggest an unstable cardiac rhythm?
4. What is the difference between synchronized and unsynchronized cardioversion?
5. Under what conditions can cardioversion of new AF be done in the ED?
    a. Less than 48 hours duration
    b. No underlying LV dysfunction
    c. No mitral valve disease
    d. No history of embolism

Resources and References

Page RL. Clinical Practice: Newly Diagnosed Atrial Fibrillation *NEJM* 2004;351:2408-16.