OSCE

Candidate information

A 62 year old female bent over to tie her shoe and felt her left hip pop out. She had a THR four months ago for progressive arthritis and dislocated it in a similar fashion two months ago.

She had significant pain at the time but now rates it 3/10 and calls it more of a discomfort. Her last meal was 6 hours ago and she drank water 4 hours ago.

Your registrar has asked you for help with planning her procedural sedation.

Domain	**%**
Medical expertise	40
Prioritisation and decision making	40
Communication	
Teamwork and collaboration	
Leadership and management	
Health advocacy	
Scholarship and teaching	20
Professionalism	

<u>Elderly procedural sedation</u>

Actor (RMO) information

You are a junior registrar who is uncertain with procedural sedation. You have asked your consultant to guide you with procedural sedation for a 62 year old female who has dislocated her left hip bending over. The patient is well fasted and otherwise well.

Prompts:

- Choice of agent to sedate – specify doses and risks/benefits of each
- How to manage complications of each agent:
  - If chooses ketamine, ask about management of laryngospasm/emergence
  - If chooses propofol, ask about management of low BP

Marking:

- Choice of agent and understanding of risks/benefits/doses
- Safe practice – airway assessment, equipment/staffing for sedation

	Mark
Safe choice of anaesthetic agent	2
Discusses management of complications of agents chosen	2
Discusses risks of reduction in ED vs theatre	1
Mentions risk of anaesthesia in older patient	1
Advises airway assessment	1
Specifies need to have appropriate staff/equipment	2
Teaching style, approach to questions, structure of approach	1

ALiEM Sim Case Series | Procedural Sedation — Overview

I. Pre-Sedation

Emergency Physician Colleague requests sedation for hip reduction.

The Patient
62 year old female bent over to tie her shoe today, she felt her left hip "pop out."

She is lying comfortably on the stretcher awaiting PSA and reduction.

The Scene
Patient is status post total left hip arthroplasty, dislocation 2 months ago, successively reduced at that time.

She had some pain initially, but now "more of a discomfort." She has no other complaints. Her last meal was 6 hours ago and she last drank 4 hours ago.

Required Resources
Pre-Sedation Cards
1) History: Patient Information Card
2) Physical: Vitals, Findings

1. Emergency physician:
Requests assistance for learner to provide PSA for reduction of the dislocated hip.

2. Nurse:
Requests drug selection.
If a sedative other than ketamine or propofol is selected the nurse will note that they are out of that medication.

3. Learner choses sedation agent.
Can use one of following choices (see below for **Nurse action**):
1) Propofol
2) Ketamine

Learner instructs the nurse to give either ketamine or propofol +/- an analgesic. As per institutional policy, ketamine and propofol can not be used together and all other sedatives are out of stock.

Nurse:
If **ketamine** is selected the nurse will recall a bad emergence reaction that she saw and request that another drug be used.

Nurse:
If **propofol** is selected the nurse will mention the patient's low blood pressure and request that another drug be used.

Legend

Blue = EP action	Green = Ketamine Scenario
Pink = RN action	Orange = Propofol Scenario
Yellow = Learner action	

II. Sedation

1st Complication
a) Ketamine = Laryngospasm
b) Propofol = Hypotension

Ketamine →

4a. KETAMINE SEDATION
The patient will become:
- **partially dissociated** at a dose of 60-80 mg
- **completely dissociated** at a dose of 100 mg.

Nystagmus will be noted after 60mg have been given.

The **HR and BP will slowly rise** as ketamine is given to a HR of 105 and BP of 115/85.

After 100 mg of ketamine has been given the patient will **stop breathing suddenly** and **oxygen saturation will drop to 80%** over 2 minutes.

BMV will feel "very tight" representing **laryngospasm** that will break with appropriate head positioning and administration of 100% FiO2 and 20-30s of BVM ventilation.

4a. Emergency physician:
- Will feel the hip reduce immediately **after** laryngospasm is **noted** by the learner.

- If laryngospasm not noted will point out **dropping O2 sat**

Propofol →

4b. PROPOFOL SEDATION

The patient will become:
- **Confused but combative** at a dose of 60 mg
- **Unresponsive** at a dose of 80 mg
- **Hypotensive (75/40)** at a dose of 80 mg
The **BP will drop slowly**.

The BP will correct if **pt is given:**
- **A vasopressor** (such as *phenylephrine, ephedrine, epinephrine, norepinephrine)*
- **Or an IVF bolus.**

4b. Emergency physician:
- Will feel the hip reduce immediately **after** the hypotension is addressed.

- Will point out hypotension, if it is **not noted**

III. Post Sedation

2nd Complication
a) Ketamine=Emergence Reaction
b) Propofol = Apnea

Addresses Laryngospasm →

5a. EMERGENCE REACTION
The patient will begin to rouse, scream about monsters and flail their arms.

HR will rise to 120 and BP to 135/90.

This **will resolve within 2 minutes** of IV administration of a benzodiazepine (e.g. lorazepam, midazolam)

5a. Nurse:
Nurse gets panicked that the patient is freaking out "just like last time"

Addresses Hypotension →

5b. APNEA

The patient will become apneic.

RR will trend to 0 and oxygen saturation to 80% by 2 minutes after the hip is reduced.

5b. Nurse:
Nurse notes the dropping oxygen saturation when it hits 85% if not already noted by the learner.

IV. Conclusion

Handover to RN

Disclosure of Complications

6a. PATIENT TREATED

Patient calms with benzodiazepine and vitals return to baseline

Learner should disclose PSA complications to patient

6a. Nurse:
Nurse states that she will continue to monitor the patient and asks the learner: ***What should she watch for? (Handover)***

6b. APNEA RESOLVES
After a short course of BVM support, the patient begins to breathe spontaneously and vitals return to baseline

Learner should disclose PSA complications to patient

6b. Nurse:
Nurse states that she will continue to monitor the patient and asks the learner: ***What should she watch for? (Handover)***

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I. Pre-Sedation

Emergency Physician Colleague requests sedation for hip reduction.

The Patient
62 year old female bent over to tie her shoe today she felt her left hip "pop out." She is lying comfortably on the stretcher awaiting PSA and reduction.

The Scene
Patient is status post total left hip arthroplasty, dislocation 2 months ago, successively reduced at that time. She had some pain initially, but now "more of a discomfort." She has no other complaints. Her last meal was 6 hours ago and she last drank 4 hours ago.

Required Resources:
Pre-Sedation Cards for Hx/Px (See vitals there)

1. Emergency physician:
Requests assistance that learner provide PSA for reduction of the patient's dislocated hip.

2. Nurse: Requests drug selection.
Learner instructs the nurse to give either ketamine or propofol +/- an analgesic. As per institutional policy, ketamine and propofol can not be used together and all other sedatives are out of stock.

If propofol is selected the nurse will mention the patient's low blood pressure and request that another drug be used.

Critical Steps
- Take an appropriate pre-PSA history
- Perform an appropriate pre-PSA physical exam
- Selects sedation strategy in consultation with the patient
- Obtain informed consent for PSA
- Ensure monitoring equipment is available and working
- Responds respectfully to nurse's concerns regarding the use of propofol or ketamine

Actions to Move onto the Next Stage
3. Sedation Agent Selected:
Learner instructs the nurse to give the selected sedative agent per 'institutional policy' must choose one or the other, cannot mix

II. Propofol Sedation HYPOTENSION

4b. PROPOFOL SEDATION
The **BP will drop slowly**.
60 mg of Propofol: **confused but combative**
80 mg of Propofol: **unresponsive** & **hypotensive (75/40)**

The BP will correct if **pt is given:**
- A vasopressor (such as *phenylephrine, ephedrine, epinephrine, norepinephrine)*
- Or an IVF bolus.

4b. Emergency physician:
- will feel the hip reduce immediately **after** the hypotension is addressed.
- will point out hypotension, if it is **not noted**

4b. Nurse: Supportive Role

Critical Steps
- Recognizes and treats the hypotension

Actions to Move onto the Next Stage
Treats hypotension

III. Post Sedation APNEA

5b. APNEA

The patient will become apneic.

RR will trend to 0 and oxygen saturation to 80% by 2 minutes after the hip is reduced.

5b. Emergency physician: Supportive role

5b. Nurse:
Nurse notes the dropping oxygen saturation when it hits 85% if not already noted by the learner.

Critical Steps
- Continues to monitor the patient after the procedure.
- Recognize and treat apnea with jaw thrust and BVM ventilation

Actions to Move onto the Next Stage
Addresses apnea

IV. Conclusion Handover to RN Disclosure of Complications

The patient begins to breathe spontaneously and vitals return to baseline.

6b. Emergency physician: Supportive role

6b. Nurse:
Nurse states that she will continue to monitor the patient and asks the learner:
"What I should watch for?"

Critical Steps
- Provide appropriate instructions to the nurse including what to watch for, how long the patient needs monitoring, and when the physician should be called back
- Discloses PSA complications to patient

Actions to Move onto the Next Stage
Handover anticipated late complications of PSA
Disclosure of PSA complications to patient
Communication with nurse

Legend

Blue = EP action	Green = Ketamine
Pink = RN action	Orange = Propofol Scenario
Yellow = Learner action	

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NB: Number/letter designations correspond with the boxes in the Overview (Page 3 of 8).

ALiEM Sim Case Series | Procedural Sedation — *Ketamine Scenario*

I. Pre-Sedation

Emergency Physician Colleague requests sedation for hip reduction.

The Patient
62 year old female bent over to tie her shoe today she felt her left hip "pop out." She is lying comfortably on the stretcher awaiting PSA and reduction.

The Scene
Patient is status post total left hip arthroplasty, dislocation 2 months ago, successively reduced at that time. She had some pain initially, but now "more of a discomfort." She has no other complaints. Her last meal was 6 hours ago and she last drank 4 hours ago.

Required Resources:
Pre-Sedation Cards for Hx/Px (See vitals there)

1. Emergency physician:
Requests assistance that learner provide PSA for reduction of the patient's dislocated hip.

2. Nurse: Requests drug selection.
Learner instructs the nurse to give either ketamine or propofol +/- an analgesic. As per institutional policy, ketamine and propofol can not be used together and all other sedatives are out of stock. **If ketamine is selected** the nurse will recall a bad emergence reaction that she saw and request that another drug be used.

Critical Steps
- Takes an appropriate pre-PSA history
- Performs an appropriate pre-PSA physical exam
- Selects sedation strategy in consultation with the patient
- Obtains informed consent for PSA
- Ensures monitoring equipment is available and working
- Responds respectfully to nurse's concerns regarding the use of propofol or ketamine

Actions to Move onto the Next Stage
3. Sedation Agent Selected:
Learner instructs the nurse to give the selected sedative agent per 'institutional policy' must choose one or the other, cannot mix

II. Ketamine Sedation
LARYNGOSPASM

4a. KETAMINE SEDATION

The **HR and BP will slowly rise** as ketamine is given to a **HR of 105 and BP of 115/85.**

60 mg Ketamine: Nystagmus will be noted
60-80 mg Ketamine: Patient is **partially dissociated**
100 mg Ketamine: Patient is **completely dissociated**

100 mg Ketamine: Patient **stops breathing suddenly** and **oxygen saturation will drop to 80%** over 2 minutes.

BMV will feel "very tight" representing **laryngospasm** that will break with appropriate head positioning and administration of 100% FiO2 and 20-30s of BVM ventilation.

4a. Emergency physician:
- Will feel hip reduce immediately **after** laryngospasm is **noted** by the learner
- points out **dropping O_2 sat** if laryngospasm not noted.

4a. Nurse: Supportive role

Critical Steps
- Recognizes and treats the laryngospasm

Actions to Move onto the Next Stage
Treat laryngospasm

III. Post Sedation
EMERGENCE REACTION

The patient will begin to rouse, scream about monsters and flail their arms.

HR will rise to 120 and BP to 135/90.

This will resolve within **2 minutes** of IV administration of a benzodiazepine

5a. Emergency physician: Supportive role

5a. Nurse:
Becomes panicked that the patient is freaking out "This is just like last time!"

Critical Steps
- Continues to monitor the patient after the procedure.
- Recognizes and treats emergence reaction by speaking to patient calmly and/or giving a benzodiazepine

Actions to Move onto the Next Stage
Address emergence reaction

IV. Conclusion
Handover to RN
Disclosure of Complications

The patient calms with benzodiazepine and vitals return to baseline

6a. Emergency physician: Supportive role

6a. Nurse:
Nurse states that she will continue to monitor the patient and asks the learner:
"What I should watch for?"

Critical Steps
- Provide appropriate instructions to the nurse including what to watch for, how long the patient needs monitoring, and when the physician should be called back
- Discloses PSA complications to patient

Actions to Move onto the Next Stage
Handover anticipated late complications of PSA
Disclosure of PSA complications to patient
Communication with nurse

Legend

Blue = EP action	Green = Ketamine Scenario
Pink = RN action	Orange = Propofol Scenario
Yellow = Learner action	

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