SIMulatED

Royal Darwin Hospital Emergency Department

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# Scenario Run Sheet: Missed HD, hyperkalaemic VF arrest

## Scenario Overview

**Estimated Scenario Run Time:**  8-10 mins

**Estimated Guided Reflection Time:** 10-15 mins

**Target Group:** ED Registrars and Nurses

**Brief Summary:** 28yo male, recent commencement HD for ESRF via vascath (APSGN), missed HD x4 due to sorry business. Presents with malaise and sudden unconscious collapse in majors bed. Hyperkalemic cardiac arrest (witnessed VF in ED).

## Learning Objectives

**General**

Team work during cardiac arrest/Communication

**Scenario Specific**

Team approach to witnessed VF arrest, early administration of Ca gluconate while delivering ALS, consideration of other reversible causes of VF (4H/4T)

Post ROSC management including reduction of hyperkalaemia

General assessment principles of patients with chronic renal failure (fluid status, metabolic/K+, fistula + vascular access, avoidance of cephalic vein cannulation and BP on fistula arm)

## Equipment Checklist

**Equipment**

3G sim man + Monitor

IV access and blood collection

Adult Resus trolley and defibrillator / pads

Ultrasound

**Medications and Fluids**

Giving set, Normal saline

Adrenaline, amiodarone, calcium gluconate, salbutamol nebules, resonium, actrapid, 50% dextrose

RSI/sedation drugs

**Documents and Forms**

Triage Form and Obs chart

“Management of hyperkalaemia” Protocol (only if specifically asked for)

**Diagnostics Available**

ECGs – post ROSC hyperkalaemia broad complex, narrows post treatment

CXR – intubated

VBG – K/creat/lactate high, anemia

## Scenario Preparation/Later Parameters

**Initial Later**

GCS **3** RR CPR P CPR BP -/- GCS **3(T)** RR vent HR 105

Sats 92% BVM T 37.8 BSL gas SaO2 98% O2 BP 100/60 T 36.2

**Mannequin Features**

Male, clothed. VF on monitor at start of simulation

## Participants

**Staff Actors**

Registrars x2 Radiographer

Nurses x3ED ED Consultant available by phone

 ICU + Med reg / Renal consultant referral by phone

**Instructor Roles**

- Provide the team with VBG, bedside USS findings, ROSC cues

## Candidate Instructions/Triage Information

You have gone to Majors cubical 7 to attend a medical alarm. The RN tells you the patient presented with 4 missed HD, malaise and SOB, then suddenly lost unconsciousness during initial nursing observations. Please assess and treat as you would in your everyday practice.

## Patient Instructions

Remains unconscious during scenario.

**Medical History**: APSGN 3 years prior, deteriorating renal failure, HD via R subclavian vascath past 2 months while awaiting maturation of Left arm AV fistula. Taking Ramipril, amlodipine, atorvastatin

**Social** (From paramedics)

No etoh use /smoking. From Elcho Island, long-term resident at Christian Outreach

## Proposed Scenario Progression

Structured approach to ALS for witnessed VF (3 synch shocks initially)

Suspects / demonstrates hyperkalaemia (VBG) as cause of arrest, treats with Ca Gluconate

ROSC after 3rd cycle (post amiodarone provided calcium gluconate is administered)

If USS performed no pericardial effusion/tamponade seen

Commences K+ lowering therapy (Na Bic, insulin 10U and 50% dextrose 50mL IV +/- salbutamol via T tube). Broad complex on post-ROSC ECG, improves post ca gluconate

If intubated/LMA inserted, requires sedation post ROSC

Assesses state of new AV fistula site

Early consultation with ICU, medical registrar and on-call renal consultant

**Human factors:**

Teamwork, consultation

**Clinical factors:**

ALS algorithm, Management of life threatening arrhythmia due to hyperkalaemia

Post ROSC care for VF arrest (target temperature 36-37 degrees for first 48h)