Arrhythmia Bedside Simulation Teaching

Scenario format
The session is a rolling series of brief scenarios with pauses for discussion but no formal debrief. All candidates are present around the manikin throughout. The candidates take turns to be the main participant as directed by faculty – one at a time initially and then more than one for more complex scenarios.

Learning Objectives
The session is designed to allow staff to practice a large number of ALS scenarios and skills with the equipment and set up in their own department. These are:

Use of common antiarrhythmic drugs. Synchronised DC cardioversion. External pacing. Cardiac Arrest Management.

There can be some incidental discussion of non-technical skills, but it is primarily a technical skills session.

Candidates
3-5 Doctors F2-ST3
1-2 Nurses
+/- Advanced Nurse Practitioner
+/- Medical Students

Faculty
1 Emergency physician
1 Emergency Nurse if possible
1 Person to run manikin and voice-overs

Setting
ED Resus bay. Preferably in-situ but also works in a simulation room.

Equipment
Sim Man, Sim Pad or equivalents.
Drugs: adenosine, amiodarone, atropine, digoxin, flecainide, verapamil
Defibrillator with pacing function
References: Resuscitation Council tachycardia, bradycardia and cardiac arrest chart. NICE/local Fast AF guideline.

Time
Around 90-120 minutes total depending on how much detail is gone into. Can be made shorter by reducing number of scenarios covered.

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Scenarios

Following each scenario, there will be a brief discussion (as opposed to formal debrief). Specific areas to cover are listed below. General discussion subjects include guidelines, cautions and contraindications of drugs and patient disposition.

Fast AF

56 year old presents with a 4hr hx of palpitations. Feeling slightly SOB, No chest pain or syncope. If questioned, reluctantly admits to 5 cans lager most nights. No hx of IHD or CCF. No PMH of note. Rate 120-150 variable. BP 136/76

Expected Management

Flecainide infusion. Check TFTs. Alcohol screening/ brief intervention depending on local set up. Cardiology follow up.

Discussion

Contraindications to flecaininde. Use of amiodarone

Atrial Flutter with 2:1 block

88 year old presents with SOB, cough, pyrexia and acute SOB. No hx palpitations. PMH CCF and rheumatoid arthritis. Rate 150. BP 97/65.

Expected Management

Digoxin. Treatment for sepsis, caution with fluids due to CCF.
Treatment of underlying cause.

Discussion

Recognition of flutter. Lack of clear onset therefore cardioversion risky. Risk of negatively inotropic medication such as beta blocker and calcium channel antagonist in septic patients.

SVT

24 year old with palpitations and slight tight feeling in chest for 30 minutes. Previous episodes of SVT. Under cardiologist, awaiting ablation. Not on regular medication. Rate 200. BP 115/64.

Expected management

Vagal manoeuvres. Adenosine 6,12,12mg. Verapamil.

VT

66year old presents with SOB and collapse, no LOC. Palpitations, no chest pain. Feels weak. with 2 previous MIs, previous angioplasty and stenting. Rate 170 BP103/56.

Expected management

Amiodarone

Discussion

Use of long lines in emergency setting.

Progression

BP drops to 73/33 and patient becomes semi conscious.

Expected Management

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DC cardioversion 150J synchronised shock. Faculty can give sedation as outside scope of session.

Progression

Further progression to VF arrest is possible if time allows.

Discussion

Use of sedation versus general anaesthetic**.**

Complete Heart Block

77 year old presents with syncope. Past hx of 'blackouts' , MI and NIDDM. Rate 24, BP 105/67.

Expected management

Atropine. External pacing.

Discussion

Use of external pacer – it may be the first time candidates have been 'hands on' and therefore need to explain how to set up and adjust.

Daniel Stephenson
Yorkshire and Humber EM Simulation Lead
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