Simulation: Shock or Block

# Title: AF w/ WPW vs VT

# Learning Objectives:

1. Overall management of the unstable cardiac arrhythmia
2. Differentiate between SVT w/ Aberrancy and VT
3. Demonstrate understanding of WPW and VT pathophysiology
4. Display safe and effective Cardioversion management
5. Be able to differentiate between sinus tachy., SVT w/ Aberrancy, VT
6. Display understanding of the dangers of AV Nodal blockade in AF w/ WPW

## Take Home Points:

1. Age >30 has >85% specificity for VT
2. Careful when blocking the AV node

# Sim Brief - Introduction, Familiarisation, Ground Rules, Basic Assumption

# Case Stem (for participants)

36 year old male presents to ED after LOC. Some seizure-like activity reported by girlfriend. Patient and girlfriend were out drinking all night. Approx. midnight patient fell to ground and there were some reported jerking of arms/legs. Regained consciousness. Occurred once more on the way into hospital. Presents having returned to consciousness but feels tired.

# Background Info (For instructors eyes only)

* 36 yo male.
* PMHx: nil
* Soc Hx: Smoker. Social Drinker.
* Medications: nil

# Settings for SIM Man/Woman

Bruise to head

# Equipment required

* Cardiac monitor/Defib
* ECG printouts – AF w/ antidromic AVRT (WPW), sinus w/ WPW, VT as example
* VBG/ABG printouts – normal with slightly high lactate – 2 VBGs
* Imaging printouts – CXR – with oesophageal intubation. With endotracheal intubation
* O2 +/- masks/NP
* IVC equipment
* Relevant specific medications – adenosine, amiodarone
* Relevant products - colloids/crystalloids/blood

# Participants required

* ED Registrars – Team Lead, Airway, Circ/Defib
* Nursing Staff – at least airway + drugs, ideally defib. and scribe

# Scenario Outline

Brief outline in table form of step-by-step progression of SIM

Include possible alternatives and end-points

|  |  |  |
| --- | --- | --- |
| Scenario Outline(Outline of what should occur at each stage) | Participant Response (Expected or ideal response) | Outcome (what do participants do, what happens to SIM mannequin) |
| Stem given to team | Role allocation. Plan of approach.  | Team prepared and allocated prior to patient arriving |
| Patient arrives with Ambulance | Patient transferred over.Handover given to team.Begin to obtain a history | Patient responding and GCS 15/15 but feels lightheaded. |
| Assessment of patient | ABCDE approach ED Reg. reviews charts- HR thready pulse ?fast- BP 100/82- Sats 98% RA- afebrile | A: SpeakingB: Clear, no creps/wheezeC: Hypotensive. HR 250- IV access ensured- Bloods sent, ABG/VBGD: GCS 15/15 |
| Initial TreatmentPatient Stable | Notice:* ECG
* Get 12 lead
* Pads on
 | * Team should make all arrangements to prepare for cardioversion if required
* Team should go through discussion of whether it is VT or AF w/ WPW
 |
| Pt. remains stable | * Pt. should be shocked.
* Obs to deteriorate if there is delay
* If patient is given adenosine, patient goes into VF
 | * If patient is shocked then patient stabilizes to sinus rhythm with WPW
 |
| Disposition Planning | * Cardiology
* ?Amiodarone
 | * End Sim
 |

# Debriefing Objectives:

* Cover technical areas
	+ Differentiating between SVT w/ Aberrancy and VT
	+ When not to give adenosine
* Relevant Non-Technical Skills.

# Blood Gas 1

|  |  |  |
| --- | --- | --- |
| Sample (ABG/VBG) | Value | Reference Range |
| pH | 7.45 | 7.35 - 7.45 |
| pCO2 | 30 | 35 - 45 mmHg |
| pO2 | 50 | 75 - 100 mmHg (arterial) |
| HCO3- | 23 | 22 - 26 mmol/L |
| Base Excess | 0 | -2 to +2 mmol/L |
| Hb | 130 | 135 - 180 g/L |
| Na+ | 140 | 135 - 145 mEq/L |
| K+ | 4.8 | 3.5 - 5.0 mEq/L |
| iCa2+ | 0.90 | 0.90 - 1.15 mmol/L |
| Cl- | 100 | 96 - 106 mmol/L |
| Anion Gap | 24 | 22 - 26 |
| Lactate | 3 | 0.5 - 1.0 mmol/L |
| Bilirubin |  |  |
| Creatinine | 50 | 50 - 120 mmol/L |





# Non-Technical Skills

It is suggested to implement a consistent, frequent and repeated teaching of non-technical skills during SIM in order to entrain these skills.

The ANTS system is a suggested framework that can be applied for the observation of SIM.

See below for a brief screenshot of the framework, and a link to the ANTS handbook for further information.



ANTS Framework

https://www.abdn.ac.uk/iprc/documents/ANTS%20Handbook%202012.pdf