### NON-SHOCKABLE RHYTHM CARDIAC ARREST

### Learning objectives

|  |  |
| --- | --- |
| CRM | Division of roles  Closed-circuit communication |
| Topic | Patient safety  Recognition of degeneration into cardiac arrest  Execution of cardiac arrest algorithm with non-shockable rhythm and identification of reversible cause |
| Skills | high CPR fraction  POCUS image interpretation  Reversible cause therapy  EGA Interpretation  ECG interpretation |

### Introduction

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| name | Pompea Attili | Age | 35 | Weight  height | 56  1,64 |
| Arrives at the ED accompanied by ambulance for presyncope and dyspnoea.  Ambulace’s ECG sinus tachycardia with BBDx.  In ED diaphoretic, dyspnoea and tachypnoea.  remote pathological history: on EP pill therapy, recent paucisymptomatic SARS-CoV-2 infection. | | | | | |

### Setting the scene

|  |  |
| --- | --- |
| room | Shock room |
| Necessary equipment | Emergency trolley equipment,, O2 masks, tubes, ACLS drugs, laryngoscope |
| Make Up / mannequin’s Moulage | Cold sweat, |
| Additional staff | - |
| Consultants' mobile phone number | to be evaluated |

### 

### Initial simulator setup

|  |  |  |
| --- | --- | --- |
|  | Tipe | Trauma Hal uomo |
|  | Posizion | supine |
|  | Consciousness state | AVPU: A, GCS 15 |
|  | Airways | Pervie |
| eyes | | open |
| Breathing | |  |
|  | FR | 34 atti/min |
|  | Breathing tipe | tachypnea |
|  | Chest expansion | Bilateral and symmetrical |
|  | expiratory noises | none |
|  | cyanosis | none |
|  | % SpO2 | 90 in AA |
| Cardiovascolar | |  |
|  | FC | 120 bpm |
|  | Rhythm type | RS BBdx |
|  | PA | 60/40 mmHg |
| other | EO | Jugulars not visible. At thorax MV reduced but present, paraphonic tones, abdomen treatable.  At lower limbs cyanotic marbling, no oedema (complains of pain in the left calf). |

### Setup cardiac arrest

|  |  |  |
| --- | --- | --- |
|  | Consciousness state | AVPU: U |
|  | Airways | Pervie |
| Breathing | |  |
|  | FR | 0 |
|  | Breathing tipe | - |
|  | cyanosis | sì |
|  | % SpO2 |  |
| Cardiovascolare | |  |
|  | FC | 120-> 30 |
|  | Rhythm type | PEA BBDX |
|  | PA | 00/00 mmHg |

### Setup ROSC

|  |  |  |
| --- | --- | --- |
|  | Consciousness state | AVPU: U |
|  | Airways | secretions |
| eyes | | Closed |
| Breathing | |  |
|  | FR | 24 atti/min |
|  | Breathing tipe |  |
|  | Chest expansion | Bilateral and symmetrical |
|  | % SpO2 | 96 in O2 |
| Cardiovascolar | |  |
|  | FC | 90 |
|  | Rhythm type | RS |
|  | PA | 70/30 mmHg |
|  | other | EtCO2 50  ECG 12 BBDx |

Running the simulation

Code red: impaired vital functions

- Multi-parameter monitoring and ECG trace analysis

- Request EEC, EGA and peripheral venous access

- After monitoring placement patient suddenly becomes unresponsive to wide complex PEA monitor

- PEA recognition and management according to cardiac arrest algorithm with non-shockable rhythm + recognition and treatment of reversible cause

- resusitation at 3rd cycle if EP recognition and thrombolytic initiation

- ROSC management - O2/airway, hypotension, CT control.

**Further considerations and joints:**

● At bradiPEA monitor with wide complexes, manual pulse absent → must initiate CPR.

● If they do not start CPR/ if they do not perform high quality CPR → asystole

● If they do not discuss reversible causes of arrest/ if they do not recognise and treat EP → asystole

● If they use cardiac POCUS → no activity, acute right ventricle

**Step Diagnosis**

Multi-parametric patient monitoring with signs of shock/syncope/dyspnoea

After monitoring → PEA; whatever diagnostic action they decide to perform before monitoring e.g. CUS/ echocardio/ angio -TC → PEA

**Instructions to consultants**

Cardiologist: busy in haemodynamics, asks to do CT-angio when EP is suspected.

Anaesthetist: responds annoyed that he has all the resuscitation to manage and arrives as soon as he can.

ECMO team: candidate patient, they suggest getting Lucas and doing EGA, consultant is on his way to the ED to take the patient.

**Diagnostics available:**

EEC arrive after 1 hour

ECG 118 available immediately + ECG post ROSC

EGA during arrest and post ROSC