

CARDIALE SIMULATIE 1

Simulatiefocus – aanpak van VT, intoxicatie (Defibrillatie - vaardigheid)

Verwachte uitkomst

Teamleider Voert de eerste ABCDE-beoordeling uit, geeft leiding aan het team en leidt de zorg - neemt waar nodig vaardigheden over. Stelt vast dat het kind in VT is, een shockeerbaar ritme. Start met BLS en defibrillatie en voert de juiste resuscitatie uit (defibrillatie, adrenaline/amiodaron en identificeren/behandelen van omkeerbare oorzaken). Stelt vast dat reanimatieteam/interne MUG nodig is en activeert deze.

Team/Meer ervaren kandidaat Denkt na over intoxicatie als onderliggende oorzaak en start behandeling ervan. (Als er geen kandidaat is die bekend is met dit onderwerp, wordt de aanpak in groep tijdens de nabespreking besproken).

Beoordeling

Met deze simulatie kunnen defibrillatievaardigheden verder worden geoefend en opnieuw worden beoordeeld.

This simulation has been allocated more time (35 min) than the following simulations so that you can ensure the initial defibrillation simulation has enough time for familiarization and coaching:

- Make sure the FH does the defibrillation in the simulation.
- Run through the controls for the defib used in this centre (including synch function) but emphasise need to familiarize themselves with the defibrillator in their workplace.
- All candidates to practise defibrillation but more practise can then happen in cardiac sim 3 or 5 for weaker candidates. This must be identified on the progress logs and skills assessment sheet.

Geschiedenis

Personeel op spoed

Pre-alert from the paramedics:
Josie is a 3-year-old who is being brought in unresponsive.

Personeel op de afdeling

Josie is a 3-year-old, a sibling of a long-term patient on the ward. She was in the cubicle unsupervised whilst her mum and sibling were in a physiotherapy session. She has been found unresponsive.

Bij aankomst

Zorg ervoor dat het kaartje met aanwijzingen op de oefenpop ligt voor het begin van de simulatie.

Het kind ziet er bleek, gebloemd, grijs en cyanotisch uit. Het vertoont geen tekenen van leven.

Klinisch verloop (te geven tijdens de simulatie)

Assess	Features	Action	Key treatment points
Basic Life Support phase			
A	Apnoeic (U on AVPU) Patent when assessed	Assess, airway opening manoeuvres, ensures oxygen running	Asks for help/arrest team (ED) Open airway
B	Apnoeic , no sats trace or respiratory effort	Assess – look, listen, feel (and signs of life check)	Recognises arrest and ensures 2222 call put out 5 rescue breaths via BMV
C	Lifeless (pulseless) Pale, grey, cyanosed and has cool peripheries	Starts CPR	Commences CPR in 15:2 ratio

Advanced Life Support – 1st cycle, FH arrives with arrest trolley and help			
Assess rhythm	VT once pads applied	Applies defib pads Assesses rhythm	Recognises shockable rhythm Directs defibrillation to be performed
Basic life support	Patient remains unresponsive with no respiratory effort or spontaneous movement	Ongoing CPR in 15:2 ratio Advanced airways may be considered <i>The leader should move away from performing interventions and delegate as appropriate</i>	Ensures ongoing adequate CPR and ventilation.
Delivers drugs	n/a – however should ensure IV access. This will be unsuccessful and so IO access is required in this or a subsequent cycle prior to drug delivery		
Works systematically through 4 Hs and 4 Ts			
Advanced Life Support – 2nd cycle			
Assess rhythm	VT	Assesses rhythm	Recognises shockable rhythm Directs defibrillation to be performed
Basic life support	Patient remains unresponsive with no respiratory effort or spontaneous movement	Ongoing CPR in 15:2 ratio Advanced airways may be considered	Ensures ongoing adequate CPR and ventilation.
Delivers drugs	n/a - however may request adrenaline and amiodarone in anticipation		
Works systematically through 4 Hs and 4 Ts			
Advanced Life Support – 3rd cycle			
Assess rhythm	VT	Assesses rhythm	Recognises shockable rhythm Directs defibrillation to be performed
Basic life support	Patient remains unresponsive with no respiratory effort or spontaneous movement	Ongoing CPR in 15:2 ratio Advanced airways may be considered	Ensures ongoing adequate CPR and ventilation.
Delivers drugs	Directs IV adrenaline (1.4ml of 1:10000) and amiodarone (70mg) to be administered		
Works systematically through 4 Hs and 4 Ts			
<i>Prior to completion of cycle but after administration of drugs, signs of life present themselves. Patient reaches towards face, ETCO2 increases etc prompting re-assessment.</i>			

Candidates should work their way down the list of reversible causes of arrest	
Hyperkalaemia/Hypoglycaemia etc	K 4.2mmol/l, glucose 72mg/dl (4mmol/l), Na 133mmol/l Ca 1.05mmol/l
Hypoxia	Ensures adequacy of ventilation on high flow oxygen
Hypothermia	Temp 36
Hypovolaemia	No evidence however may administer fluid bolus
Tamponade Thrombus	No history suggestive of these
Tension pneumothorax	Bilateral air entry, trachea central
Toxins	Asks for collateral history – faculty helper may state they believe the mother is on antidepressant medication

Post ROSC Reassessment

Assess	Features	Action	Key treatment points
A	Apnoe Requires ongoing airway support	Assess Consider oral airway or intubation	Recognises need for airway support (if not established)
B	Apnoe SpO₂ 100% in 100% O ₂ via ETT / airway support Good air entry bilaterally	Assess including auscultation and SpO ₂ Ventilate in 100% oxygen	Ventilate via BMV
C	Post ROSC ECG shows sinus tachycardia with widened QRS complexes HR 160/min, CRT 5, BP 75/40mm Hg. HS normal.	Requests 12 lead ECG Ensures adequate IV/IO access Requests bloods to be taken	Assess ECG May realise potential for TCA OD and request bicarbonate
D	U on AVPU, BM 72mg/dl (4mmol/l) Pupils size 6, reactive	Assess BM 72 mg/dl (4mmol/l)	Request senior/PICU review
E	Temp 36.0 , pale, no rashes, abdomen soft	Keeps patient covered	

NB	<p>History will include paramedics or ward team suggesting mum had tablets scattered about the tabletop and may be on antidepressants – amitriptyline.</p> <p>Discussion will include management of TCA overdose – sodium bicarbonate to make more alkalotic and stabilise the myocardium.</p> <p>Discussion about synchronous vs asynchronous shocks</p>
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Debriefing

Besprek aan de hand van de learning conversation de technische en niet-technische elementen van de simulatie.

Beoordeling

Dit station maakt deel uit van het continu beoordelingsproces, daarom moeten kandidaten weten of ze aan de norm voldoen.

Geef de kandidaten aan het eind de gelegenheid om vragen te stellen, deze te beantwoorden en vervolgens de belangrijkste punten samen te vatten.

Algoritme:

Ventrikeltachycardie

Props to print and laminate

Cardiaal 1 - Globaal overzicht (op oefenpop plaatsen)

Het kind is bleek, grijs en cyanotisch.

Het vertoont geen tekenen van leven.

Cardiaal 1 - Resultaten:

Veneus Bloedgas

pH	7.21
pO ₂	62mmHg/8.2kPa
pCO ₂	56mmHg/7.5kPa
HCO ₃ ⁻	22.1mmol/l
BE	-8.0mmol/l
Na	133mmol/l
<u>K</u>	4.2mmol/l
<u>Ca (geïon.)</u>	1.05mmol/l

Glycemie 72 mg/dl (4.0 mmol/l)

Faculty helper information – Cardiac 1

When candidate requests information regarding observations please give the following in “real-time” (e.g. wait for blood pressure to cycle, saturation trace to be achieved). If key treatment points are not undertaken, consider a “prompt” that would be visible in a child.

Assess	Observation	Example prompt
A	Apnoeic (U on AVPU)	“Do you need any help?”
B	Apnoeic	If doesn’t open airway and look, listen feel then prompt “I can’t see his chest moving” “She looks pale and lifeless.” “do you want us to start/continue compressions and/or breaths”
C	Lifeless (pulseless) Pale, grey, cyanosed and has cool peripheries	“do you want the monitoring on?” “do you want us to start/continue compressions and/or breaths” “do you want the crash trolley?”

Once the candidate has attached pads and established VT arrest the patient remains in arrest for three cycles, until after the third DC shock and administration of amiodarone and adrenaline.

Reassessment

Candidates should work their way down the list of reversible causes of arrest	
Hyperkalaemia/Hypoglycaemia etc	K 4.2mmol/l, Glucose 72mg/dl/4mmol/l, Na 133mmol/l Ca 1.05mmol/l
Hypoxia	Ensures adequacy of ventilation on high flow oxygen
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Hypovolaemia	No evidence however may administer fluid bolus
Tamponade Thrombus	No history suggestive of these
Tension pneumothorax	Bilateral air entry, trachea central
Toxins	Asks for collateral history – faculty helper may state the mother is on antidepressant medication

Assess	Observation	Example prompt
A	Apnoeic Requires ongoing airway support	“do you want an airway?” “Should we intubate?”
B	Apnoeic SpO₂ 100% in 100% O ₂ via ETT / airway support Good air entry bilaterally	
C	Post ROSC ECG shows sinus tachycardia with widened QRS complexes - HR 160/min, CRT 5 sec, BP 75/40 mmHg. HS normal.	“Would you like an ECG?” If “bloods” prompt “which ones”
D	U on AVPU, BM 72 mg/dl/4mmol/l Pupils size 6, reactive	“Do you want me to call a senior?”
E	Temp 36.0 , pale, no rashes, abdomen soft	