**Question 10 (18 marks) 9 minutes**

With respect to the 2016 Update in resuscitation guidelines of the Australian and New Zealand Committee on Resuscitation:

1. State four (4) new recommendations for Paediatric Life Support. (4 marks)

* **2 rescue breaths followed by 15 CPR (2:15)**
* **CPR rate 100-120/ min**
* **AEDs with fixed adult energies are acceptable where no alternatives exist**
* **Normocarbia should be the target of post-arrest mechanical ventilation unless specific pt condition requires an alternative**
* **TTM of 32-36°C for > 24/24**

1. State seven (7) new recommendations for Adult Life Support (each must be different to those stated in “18a”. (7 marks)

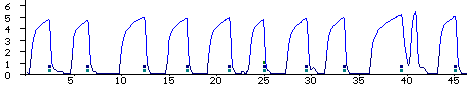
* **If 1st shock** (200J still recommended) **unsuccessful, higher energies may be used if available**
* **Maximum efforts to minimise pre-shock pause to < 5 sec**
* **Equipoise between choice of advanced airway or bag- mask delivery and LMA vs ETT**
* **Continuous capnography recommended** (to confirm ETT position, assess quality of CPR and early detection of ROSC)
* **CPR rate 100-120/ min**
* **Mechanical CPR devices are not recommended for routine use**
* **Mechanical CPR devices may have a role in certain circumstances- ambulance transfer/during PCI**
* **Cardiac ultrasound use during CPR (rapidly rule out pericardial tamponade/ guide pericardiocentesis/ assess cardiac function/ efficacy of CPR**
* **Extracorporeal CPR (ECMO) may be used while reversible causes are addressed**
* **Avoidance of hyperoxia**
* **TTM of 32-36°C for > 24/24**
* **PCI for all OOH cardiac arrests** (even in the absence of STEMI on ECG)

1. List three (3) recommended medications for use in a patient suffering from Crush syndrome and cardiac arrest. Include initial doses for each drug. (3 marks)

* **Calcium chloride 10% 5-10mL/ calcium gluconate 10% 10-20mL IV. (weight adjust for children)**
* **Glucose 50% 50mL and (simultaneously) insulin 10 units IV (weight adjust for children)**
* **Sodium bicarbonate 1mmol/kg IV**

**Question 10 (18 marks) 9 minutes**

You are about to receive handover for a 25 year old male intubated patient. **A trace from the patient is shown in the props booklet page**

60

50

40

30

20

10

0

60

1. State five (5) pieces of information that can be obtained from this trace. (5 marks)

* **Respiratory rate 14/ min**
* **Patient is spontaneously breathing**
* **Incomplete muscle relaxation** *(“curare notch”)*
* **Bronchoconstriction**
* **ETCO2 peak is about 50**
* **ETT is in correct position**
* **Adequate cardiac output**

1. List four (4) likely specific indications for intubation for this patient. (4 marks)

* **Progressive hypercarbia/ acidosis**
* **Severe hypoxaemia**
* **Respiratory muscle fatigue**
* **Confusion/ altered mental state**
* **Obtundation**
* **Pre arrest**
* **Arrest**
* **Preparation for transfer**
* **Anaphylaxis**

*NB: “failure of less invasive management” is not acceptable*

1. State four (4) aims of ventilation for this patient. (4 marks)

* **Ensure adequate oxygenation**
* **Prevent barotrauma:**
  + **Limit peak pressures/ Minimise auto-PEEP**
* **Permissive hypercarbia***- allow hypercarbia if it avoids the harmful effects of high PIPs*
* **Avoid gas trapping**
* **Lung protetctive strategy**

1. State five (5) techniques that you may employ to achieve these aims. (5 marks)

* **Adequate sedation**
* **Adequate muscle relaxation**
* **Hand ventilate** *(volume cycled ventilator only if airway pressures and tidal volumes are acceptable*
* **Assisted manual exhalation/ interrupt inspiration to allow single, long expiration**
* **Titrate RR to lowest tolerable pH** *( 6-10 / min)*
* **Titrate inspiratory time to keep peak airway pressures < 55 mmHg***(aim < 30)*
* **Low I:E** *(≥1:5 usually required)*
* **Minimise TV** *(5-8 ml/kg / avoids alveolar overdistension)*
* **Continually reassess dynamic hyperinflation** *(Inspiratory hold/ Pplat measurement)*
* **Continually reassess PEEP** *(end expiratory hold)*
* **Titrate FiO2 to meet oxygen goals**
* **Continuous B2A nebulisation**
* **Inhalational anaesthesia**
* **IV ketamine**
* **Heliox** *(reduce WOB, relieve resp distress, improve gas exchange)*