**Question 19. Paediatric resuscitation**

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An intubated 2yo child in respiratory failure from severe pneumonitis is waiting transfer to the paediatric ICU. He is ventilated in a pressure control mode.

After a period of relative stability the child becomes acutely hypoxic with elevated airway pressures.

**a) List 5 potential causes for this deterioration: (5 marks)**

* ETT occlusion – secretions, kinking, cuff herniation
* ETT migration – endobronchial
* Barotrauma (pneumothorax)
* Acute complication of underlying disease – bronchospasm, mucous plugging
* Systemic pathology – anaphylaxis
* stacked breaths/dynamic hyperinflation/
* gastric distension leading to splinting of diaphragm
* ventilator tubing kinking/rain out

½ marks:

* Ventilator failure (½ mark). Possible but unlikely and dangerous to consider this high on the list
* Fighting the ventilator – not a great answer, usually doesn’t happen suddenly. I classify this as a general statement to fill a line in the answer book when you run out of more specific and likely causes

Not paid:

* Oesophageal migration of tube, elevated airway pressures don’t really fit acutely
* Insufficient paralysis/sedation – usually not sudden

**b) State your three (3) most immediate management priorities: (3 marks)**

* **Disconnect** from ventilator and attempt bag ventilation with **100% oxygen**

Mandatory answer- disconnect and ventilate with 100% O2 in my opinion are and should be one action, so 2 marks not given for 1) disconnect and 2) provide 100% O2

Airway management (one mark – airway management is most immediate):

* Confirm **position** of ETT with capnography +/- direct vision and clinical examination
* Confirm **patency** of ETT and upper airway – ie suction down tube

Full marks for answers assessing **airway** patency and confirming position of ETT in the **airway**. Of course there are many other correct management priorities which will follow, and correct answers which address breathing and circulation concerns before airway concerns will score ½ marks. Mark allocation reflects the importance of prioritization of interventions and rewards a logical ABCDE approach to a critical event)

1/2 mark answers include:

* Decompress PTX
* Treat anaphylaxis
* Call for help. Not incorrect so ½ mark, but I think it would be reasonable to respond to the acute crisis first. That’s what the question is testing.

Careful with your terminology: almost all candidates said disconnect from the ventilator and provide ‘B**M**V’ vent. How can you **m**ask ventilate an intubated patient. Would you really remove the ETT? Best to say disconnect from ventilator and manually ventilate with 100% O2 if that is what you truly mean

No marks:

* Check vent circuit – not an immediate priority
* Increase sedation and paralysis – dangerous without addressing the cause of the problem
* CXR to check for PTX. Not in the first three immediate priorities

**c) The child has a PEA arrest and you commence cardiopulmonary resuscitation. Fill in the missing information (boxes A-H) on the Infant and Children ALS flowchart below: (8 marks)**

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**A) 15**

**B) 4**

**C) 2**

**D) 10**

**E) 2nd**

**F) 5**

**G) 3**

**H) 2nd**

This section was answered well, however only 11/31 candidates received full marks! The two sections that received the most incorrect answers were the compression ratio, a number of candidates nominated 30 compressions to two breaths, and the amiodarone dose. Everyone should have got full marks for this – the ALS algorithm is the core of core knowledge.

Overall, this question was well done, and in retrospect was not a great discriminator. The pass mark was unapologetically high – this is bread and butter emergency medicine. I hope that you don’t have too many objections to the marking – I can assure you that I applied the same rules consistently across every paper. Any questions or queries, please feel free to contact me:

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