

1. 35yo brittle asthmatic with several previous ICU admissions; dialysis dependent for the last 18 months, due for dialysis today. Unwell for a couple of days, pulse 140, BP 90/50, GCS 10. You decide she needs to be intubated.
  - a. What features in this history would you consider when choosing drugs for RSI and why? (4)
  - b. Which hypnotic would you use and why? (2)
  - c. You have suxamethonium, rocuronium and vecuronium. Which would you use and why? (2)
  - d. Assuming you have optimised equipment and staff, which 4 actions are essential before RSI? (4)
  - e. She is successfully intubated and ventilated. After 5 minutes she becomes impossible to ventilate. Give 2 possible complications and how you would manage them. (4)
  
2. Picture of a child with large purpuric areas on leg. This 5 year old is well but has this rash and his ankles are sore but not swollen. You think he has HSP.
  - a. Give 4 other causes of a purpuric rash in a child (4).
  - b. Give 4 laboratory tests you might carry out in this child and why.
  - c. Describe 4 complications of HSP that would require hospital admission.
  - d. Assuming all other tests are normal, you decide to discharge this child. Give 4 parts (including advice) of your discharge plan.
  
3. 65yo lady with known COPD who ran out of her meds 3 days ago. ABGs with acidosis and hypercapnic respiratory failure.
  - a. What 2 substances in blood apart from oxyhaemoglobin affect pulse oximetry readings.
  - b. Give 2 reasons why there might be no trace on a pulse oximeter.
  - c. Give 2 immediate treatments.

- d. Describe 3 physiological benefits of BiPAP.
  - e. Describe the BiPAP settings you would use in this patient.
4. A 22 yo male is brought by EMS with a stab wound to his abdomen. He says it is self-inflicted but the crew say he was picked up in an area well known for gang violence. The patient refuses to contact the police.
- a. What is the GMC advice in this situation (give details) and what would you do?
  - b. Give three situations and examples of these where you could breach patient confidentiality.
  - c. List 4 considerations when disclosing information regarding a patient who lacks capacity.
  - d. The duty of confidentiality persists after death. Give 4 situations when you would breach confidentiality after patient death.
  - e. The police arrive asking about patients with stab wounds. What do you tell them?
5. A 5 year old is brought by her mother. She fell in the garden cutting her lower lip. Picture shows 1cm laceration of lower lip abutting but not crossing vermilion border.
- a. What 2 specific factors would you clarify in the history?
  - b. Give 4 specific points of the clinical examination.
  - c. Give 2 options for wound management.
  - d. Give 2 reasons for referral to plastics.
6. A 12 year old boy presents with a 2 week history of lethargy and breathlessness. He has multiple bruises with no history of trauma. Hb 6, WCC 3, platelets 40.
- a. Give 4 likely findings on cardiovascular exam.
  - b. Comment on the blood results and likely diagnosis.
  - c. Give 3 other complications with which this child might present apart from bleeding, lethargy and breathlessness.
  - d. You discuss transfusion with the paediatric team. Give 4 non-immunologic complications of transfusion.

7. You receive a call from the staff nursery saying a 2 year old has bitten through the cable of the DVD player. He has been thrown across the room and the curtains have caught fire causing him to sustain burns to the whole of his front and back.
  - a. Give six items of equipment you would prepare.
  - b. Picture of an electrical burn to the centre of the tongue. What is this? What risks are associated with it? What action might this prompt you to take?
  - c. Apart from U&E, FBC and radiology, give 4 tests you would carry out in the ED and why?
  - d. Calculate the child's fluid requirements for the next 24 hours using the Parkland formula. He weighs 12kg.
  
8. A 29 year old who has had previous IVF resulting in 3 miscarriages, 1 ectopic and a live birth 2 years ago presents 11 days after egg harvesting and 5 days after embryo implantation. She is complaining of abdominal pain and breathlessness and is tachycardic, hypotensive with SaO<sub>2</sub> of 94% on air.
  - a. What is the diagnosis?
  - b. Give 3 differentials.
  - c. Examination and Xray demonstrates ascites and bilateral pleural effusions. Give 3 treatments you would initiate in the ED.
  - d. Describe 2 complications of the diagnosis in (a).
  
9. Your SHO has seen a 5 day old baby who is shocked and cyanotic with hepatomegaly. ABGs show pH 6.98, hypoxia and hypercapnia. Your SHO thinks this may be duct-dependent heart disease.
  - a. Is your SHO right and why (3marks)?
  - b. Give 2 investigations you would do in the ED to confirm the diagnosis of duct-dependent disease.
  - c. Give 1 immediate treatment and 2 immediate complications of this.
  
10. A 25 year old woman returned one week ago from a year travelling. She is generally unwell and notices a yellow tinge to her skin. Bloods include AST and ALT >1000 and alk phos 150.
  - a. Comment on the LFTs. What kind of jaundice is she likely to have?
  - b. What 4 points are important in the history?
  - c. Give 4 reasons for any patient to be at risk for hepatitis B.

d. Give 4 complications of hepatitis B.

11. A 5 year old unimmunised boy presents fitting with a temperature of 39.6.

- a. What is your first-line anticonvulsant and dose.
- b. What is a definitive anticonvulsant for use in the ED and dose.
- c. Give 3 ED investigations for pyrexia in this child.
- d. Picture of Koplik's spots. What are these and what is the diagnosis.
- e. Give 2 further points of managing this child given this diagnosis.

12. 21 year old with cerebral palsy and a VP shunt is brought by ambulance after a fit.

- a. Give 4 features of shunt blockage excluding seizure.
- b. Give 2 investigations in the ED to confirm your diagnosis of shunt blockage.
- c. What are 3 options for first-line drugs if she is still fitting.
- d. Give 3 other potential complications of a VP shunt.

13. A 30 year old male took 60 of his partner's sustained-release carbamazepine tablets as the police arrived to arrest him.

- a. Give 4 cardiac and 4 neurological features of carbamazepine toxicity.
- b. At what level or dose would you expect these to develop.
- c. The patient has been given activated charcoal at triage. Give 2 toxic substances not adsorbed by activate charcoal.
- d. If the patient is asymptomatic for how long should he be monitored and where.
- e. Give 2 techniques to enhance the elimination of carbamazepine if there is evidence of toxicity.

14. A 75 year old male presents 3 days after TURP with clot retention.

- a. Give 2 other complications of TURP which may present.
- b. What fluid should be used for bladder irrigation?
- c. The patient is on dabigatran for AF. What is the mechanism of action of dabigatran and what test should be used to quantify its effects?

- d. If dabigatran has last been taken in the past 2 hours, give 2 oral treatments and why they work.
- e. If a patient on dabigatran has life-threatening haemorrhage, what drug should be given.

15. A 19 year old male is brought from a nightclub where he has taken ecstasy. His temperature is 39.8, Na 128, WCC 15, clotting deranged.

- a. Describe the pathophysiology of pyrexia vs heat illness vs drug-induced hyperthermia.
- b. Describe 3 other ED investigations and why.
- c. Give 3 aspects of ED management.
- d. Describe 2 potential complications of his treatment.

16. 66 year old man attends with 3 days of weakness and lethargy. He recently received 2 weeks of IV gentamicin for a UTI. Creatinine 200 (baseline 50).

- a. Define acute kidney injury.
- b. What 3 other tests would you do in the ED.
- c. You think he has acute tubular necrosis. What would you expect to find on urinalysis (4 marks)?
- d. Give 4 nephrotoxic drugs, not including gentamicin.

17. A 50 year old man attends with central chest pain radiating to his back. His observations and ECG are normal. He is treated for hypertension.

- a. Give the 4 most likely differentials.
- b. Describe 2 investigations that would help you distinguish between these.
- c. Taking 2 of your differentials, give 3 clinical findings that would stratify the risk of them.

18. A 60 year old woman presents with 3 months of abdominal pain and lethargy. Her physical examination is normal. U&E/LFT normal except raised alk phos and Ca 3.1.

- a. Give the 3 most likely causes of this presentation.
- b. Give 3 investigations related to these.
- c. Give 2 ED treatments.

19. A young man presents with sore throat and difficulty swallowing (managing own saliva). Picture of tonsillar swelling and uvula deviation. You think he has a quinsy.

- a. Give 2 differentials.
- b. Give 4 aspects of ED management.
- c. Describe 2 complications of quinsy.
- d. What 2 pathogens are most likely to cause quinsy.

20. A 60 year old diabetic presents with a swollen painful knee. Your SHO thinks he has septic arthritis.

- a. Give 4 factors apart from diabetes that predispose to septic arthritis.
- b. You decide to aspirate the knee. Give 3 features on joint aspirate that would support the diagnosis of septic arthritis (give reference ranges when appropriate).
- c. Give 2 organisms that can cause septic arthritis and groups at risk for these.