

Final FRCA SAQ Critical Care

Tom Kelly
ST6 ICM/Anaesthetics
18th June 2019

Outline

- Top tips on general approach
- Chairman's report & recurring advice
- Previous question practice, examiner feedback and answers
- Structure of RCOA mark scheme
- Hot topics in critical care

Tips

- Read, plan and read the question again
- Is this **detail** or **breadth** that i'm being asked for
- Be mindful of weighting of marks = **3 marks ~ 2 minutes**
- Succinct bullet points
- You don't have to be able to define something to pass a question
- You don't have to know aetiology/risk factors to pass a question
- Use **surgical sieve** to eke out marks (ABCDE/Hx-Ex-Ix/VITAMIN)
- If in doubt, **write it down!**

Chairman's Report

- Along with past papers - September and March on the RCOA website

Table 1. *Distribution of question by sub-specialty*

	Total number of questions in 10 papers	% per paper	Average per paper
General anaesthesia	41	34.2	4.1
Intensive care	24	20	2.4
Paediatrics	13	10.8	1.3
Physiology, physics and equipment	10	8.3	1.0
Pharmacology	9	7.5	0.9
Anatomy	8	6.7	0.8
Obstetrics	8	6.7	0.8
Acute and chronic pain	7	5.8	0.7

(rcoa.ac.uk/examinations/final-frca-written)

Chairman's Report

- Recurring Advice;
 - “Failing to answer the question asked”
 - “Poor weighting of answers”
 - “Giving general and superficial answers to specific questions”
 - “Illegible handwriting”
 - “Candidates encouraged to set out answers in “bullet point” or “table” format”
 - “In preparation for this exam it might be prudent to arrange taster sessions”



Chairman's Report

- Take a look at last few papers in a group of two or three. Quick way to cover important topics and share knowledge
- Other resource for questions;
<http://www.nischoolofanaesthesia-finalfrca.org.uk/>
- We will cover previous FRCA SAQ examples in a Question, Feedback, Answer format

Sep 2018 Question

- a) What is meant by the term ventilator associated pneumonia? (3 marks)
- b) List the factors that increase the risk of the development of ventilator associated pneumonia? (10 marks)
- c) What measures may reduce the risk of development of ventilator associated pneumonia? (7 marks)

Sep 2018 Feedback

- Pass rate 38.6%
- Examiners were surprised at the lack of knowledge on this topic particularly as it has been used in a recent paper. The condition is topical, important and frequently seen so candidates really should know it in more detail than was demonstrated here. Candidates lacked knowledge of definition, and listed just lung protection strategies rather than protection against VAP. This question showed the closest correlation with overall performance.

Sep 2018 Answer

a) What is meant by the term ventilator associated pneumonia? (3 marks)

Diagnosis of VAP is based on a combination of clinical, radiological, and microbiological criteria;

Invasively ventilated **with** radiological infiltrates **and** two from three of;

Fever

Leucocytosis

Purulent secretions

Sep 2018 Answer

b) List the factors that increase the risk of the development of ventilator associated pneumonia? (10 marks)

Non-subglottic suction ETT, biofilm formation and microaspiration

Low cuff pressures

Tracheostomy

Ineffective coughing - NMBDs/No suctioning

Immunosuppression

Prolonged ventilation & reintubations

Nursing patients supine

Enteral feeding via a nasogastric tube

Males & Age >60

Pre-existing lung disease

Head Trauma

Use of antacids/PPI/H2 anatagonists

Antibiotic use

Circuit changes & aerosol treatment

Sep 2018 Answer

c) What measures may reduce the risk of development of ventilator associated pneumonia? (7 marks)

Care bundles

TT modification; Cuff pressure control - 20-30cm H₂O

Subglottic secretion drainage

TT cuff design - ultra thin

polyurethane

TT coating - silver coating

Nebulized gentamicin

Kinetic therapy

Care of airway equipment - keep closed circuit, hand hygiene & limit circuit/equipment changes

Intubation-related events - Regular sedation holds, minimise reintubations

Limit PPI/H₂ use

Feeding ?postpyloric - debatable!

?Probiotics

March 2018 Question

- a) Define delirium. (2 marks)
- b) List the key clinical features that are used to diagnose delirium in critical care. (4 marks)
- c) In a delirious critical care patient what are the most common potentially treatable causes? (9 marks)
- d) When is pharmacological treatment indicated (2 marks), and which classes of drugs can be used? (3 marks)

March 2018 Feedback

- Pass rate 46.5%
- This was a new and very topical ITU question. Overall the management of delirium was described well but a lot of answers lacked detail. There was poor knowledge of the definition and features of delirium. This probably reflects the fact that candidates have dealt with many patients with delirium whilst working on ITU, but have not read around the subject.

March 2018 Answer

a) Define delirium. (2 marks)

- Delirium is defined as a disturbance of consciousness and a change in cognition that
- Develops over a short period of time
- Hypoactive/Hyperactive/Mixed

b) List the key clinical features that are used to diagnose delirium in critical care. (4 marks)

All of the following must be present (CAM ICU assessment)

1. Acute change or fluctuating course of mental status
2. Inattention
3. Altered level of consciousness (RASS other than zero)
4. Disordered thinking

Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet

1. Acute Change or Fluctuating Course of Mental Status:

- Is there an acute change from mental status baseline? OR
- Has the patient's mental status fluctuated during the past 24 hours?

NO

CAM-ICU negative
NO DELIRIUM

YES

2. Inattention:

- "Squeeze my hand when I say the letter 'A'."
Read the following sequence of letters:
SAVEAHAART or CASABLANCA or ABADBADAAY
ERRORS: No squeeze with 'A' & Squeeze on letter other than 'A'
- If unable to complete Letters → Pictures

0 - 2
Errors

CAM-ICU negative
NO DELIRIUM

> 2 Errors

3. Altered Level of Consciousness

Current RASS level

RASS other
than zero

CAM-ICU positive
DELIRIUM Present

RASS = zero

4. Disorganized Thinking:

1. Will a stone float on water?
2. Are there fish in the sea?
3. Does one pound weigh more than two?
4. Can you use a hammer to pound a nail?

Command: "Hold up this many fingers" (Hold up 2 fingers)
"Now do the same thing with the other hand" (Do not demonstrate)
OR "Add one more finger" (If patient unable to move both arms)

> 1 Error

0 - 1
Error

CAM-ICU negative
NO DELIRIUM

March 2018 Answer

c) In a delirious critical care patient what are the most common potentially treatable causes? (9 marks)

- ◆ Failure to provide adequate pain relief
- ◆ Hypoxaemia
- ◆ Acidosis
- ◆ Sepsis/Dever
- ◆ Immobilisation
- ◆ Frustration
- ◆ Patient-ventilator desynchrony
- ◆ Metabolic and haemodynamic instability
- ◆ Cerebral illnesses (eg Alzheimer's, dementia, stroke, abscesses, seizures, tumours)
- ◆ Drug interactions
- ◆ Withdrawal of drugs
- ◆ Pre-existing alcohol/substance abuse
- ◆ Drug side effects (principally excess antimuscarinic and dopaminergic activity.)
- ◆ Anaemia
- ◆ Sleep disturbance/deprivation,
- ◆ Depression
- ◆ Smoking
- ◆ Vision/hearing impairment
- ◆ Hepatic Failure

d) When is pharmacological treatment indicated (2 marks), and which classes of drugs can be used? (3 marks)

If all preventative measures fail and no organic cause can be identified and treated, active delirium treatment should be instigated. Drug classes;

Butyrophenone antipsychotics (Haloperidol), Atypical anti-psychotics (olanzapine, quetiapine), Benzodiazepines (Debatable), Alpha 2 agonists, ?Night Sedatives (Zopiclone, Trazadone)

September 2017 Question

- a) What are the indications for renal replacement therapy (RRT) in the intensive care setting? (8 marks)

- b) List the types of RRT available in intensive care. (6 marks)

- c) Outline the principle mechanisms of solute and water removal by filtration (3 marks) and dialysis (3 marks) during RRT.

September 2017 Feedback

- Pass rate 84.9%
- This question had the highest pass rate in the paper. The topic is relevant to everyday practice in intensive care so it was reassuring to see that knowledge of it was generally excellent. However, a number of candidates still gave incomplete accounts of the differences between dialysis and filtration.

September 2017 Answer

a) What are the indications for renal replacement therapy (RRT) in the intensive care setting? (8 marks)

Renal Failure/AKI, metabolic acidosis, Sepsis, Diuretic resistant pulmonary oedema, hyperkalemia, uremic complications (pericarditis, encephalopathy, bleeding), dialyzable intoxications (eg, lithium, toxic alcohols, and salicylates)

b) List the types of RRT available in intensive care. (6 marks)

?Peritoneal dialysis (PD)

Intermittent hemodialysis (IHD)

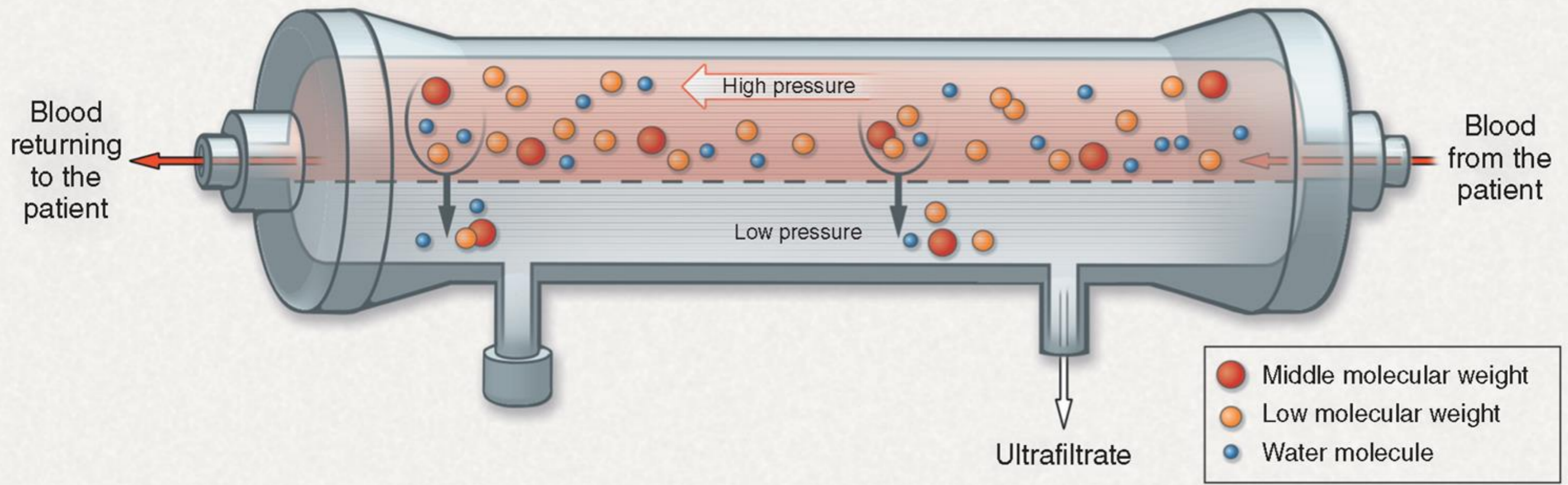
Continuous renal replacement therapies (CRRT) - CVVH/CVVHD/CVHDF

c) Outline the principle mechanisms of solute and water removal by filtration (3 marks) and dialysis (3 marks) during RRT.

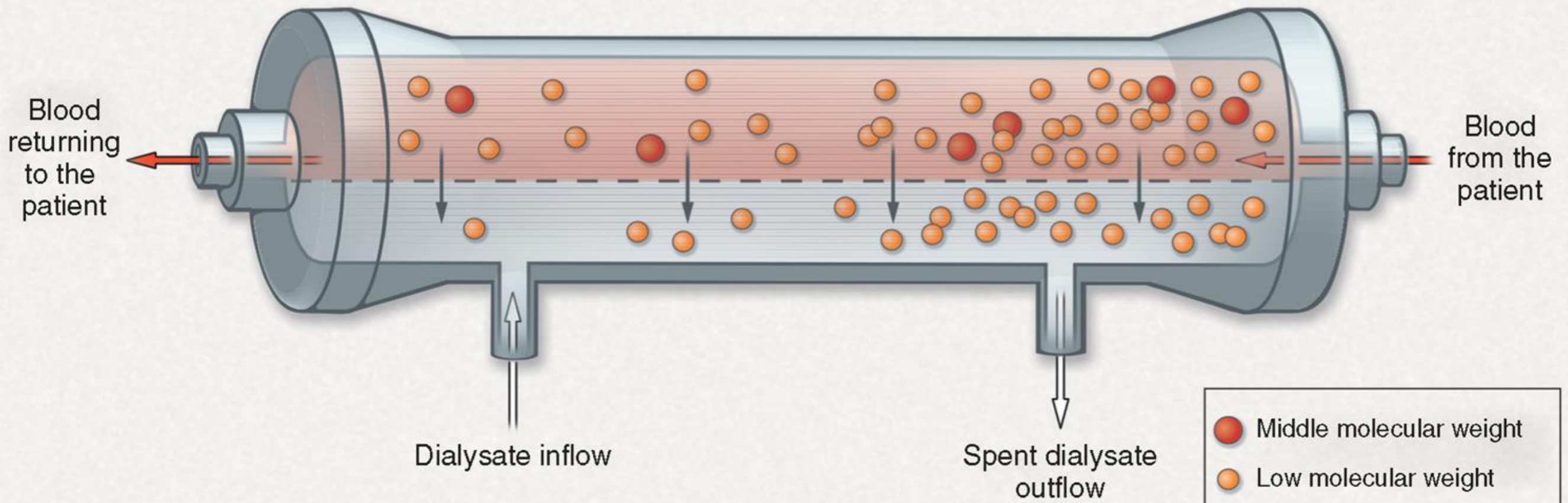
Haemofiltration a **convection** process whereby a hydrostatic pressure gradient is used to filter plasma, water, and solute across a membrane

In haemodialysis, solute clearance is achieved by **diffusion** across the membrane.

A Convection



B Diffusion



March 2017 Question

You are asked to review a 27-year-old male who is a known epileptic in convulsive status epilepticus.

- a) Define convulsive status epilepticus. (1 mark)
- b) Outline your initial management of this patient including the use of emergency antiepileptic drug therapy. (7 marks)
- c) 60 minutes after your initial management the patient continues in status epilepticus. What would be your further management? (5 marks)
- d) What are the complications associated with refractory convulsive status epilepticus? (7 marks)

March 2017 Feedback

- Pass rate 47.1%
- This question was judged to be easy and is relevant to everyday practice as anaesthetists may encounter such patients in multiple areas including ITU, neurosurgery and the emergency department. Very few candidates were aware of the up to date definition of status epilepticus. In part b some candidates failed to give details of drug management despite this being specifically asked for in the question.

March 2017 Answer

Directly from the college...

Answers	Marks for each (max)
a) <ul style="list-style-type: none">A convulsive seizure lasting longer than 5 minutes or Convulsive seizures occurring one after the other with no recovery in between	1
b) <ul style="list-style-type: none">ABC/ High flow oxygen/ I.V. accessMeasure blood glucoseClarify current AED therapyLorazepam (intravenous)Repeat Lorazepam (intravenous)If seizures continue one of the following –Phenytoin/ FosphenytoinPhenobarbitalSend blood phenytoin levels when appropriate	7

March 2017 Answer

Directly from the college...

Answers	Marks for each (max)
<p>c)</p> <ul style="list-style-type: none">• Critical Care Referral• Usually propofol & midazolam infusions• May require thiopentone infusion• EEG monitoring – Suppression of epileptic activity and Burst suppression• CT scan• Manage Airway	<p>5</p>
<p>d)</p> <ul style="list-style-type: none">• Excitotoxic CNS injury (nerve cell damage caused by excessive neurotransmitter stimulation)• Hyperthermia• Pulmonary oedema• Arrhythmias & cardiovascular collapse• Metabolic derangements• Acute kidney and liver injury• Rhabdomyolysis• Fractures• Dental / oral tumour	<p>7</p>

March 2017 Question

- a) List criteria for a diagnosis of acute respiratory distress syndrome (ARDS)? (3 marks)
- b) Which clinical indices are used to quantify oxygenation in ARDS. (3 marks)
- c) What tidal volume would you select for a patient that meets the criteria for ARDS, using the ARDSNet protocol? (2 marks)
- d) What are the ventilatory (6 marks) and non-ventilatory, (6 marks) measures that can be taken to improve oxygenation or prevent further deterioration in a patient with ARDS.

March 2017 Feedback

- Pass rate 57.3%
- ARDS is a clinical condition which is seen commonly on ITU and of which candidates should have a thorough understanding. Whilst the definition was well known, the majority of candidates did not know the clinical indices used to assess oxygenation. Part d was on the whole well answered but those candidates who lost marks tended to write about general ITU care rather than the specifics of care for patients with ARDS.

March 2017 Answer

a) List criteria for a diagnosis of acute respiratory distress syndrome (ARDS)? (3 marks)

Berlin criteria - Acute (< 1 week), bilateral opacities consistent with p oedema (CXR or CT), PF ratio < 300mmHg + min PEEP 5, not fully explained by cardiac failure or overload.

b) Which clinical indices are used to quantify oxygenation in ARDS. (3 marks)

PaO₂, FiO₂, PF ratio, sats

c) What tidal volume would you select for a patient that meets the criteria for ARDS, using the ARDSNet protocol? (2 marks)

6ml/kg PBW. Strictly 8ml/kg PBW, reducing by 1ml/kg < 2hrly until 6ml/kg PBW

d) What are the ventilatory (6 marks) and non-ventilatory, (6 marks) measures that can be taken to improve oxygenation or prevent further deterioration in a patient with ARDS

Ventilatory - Monitor plateau pressure with inspiratory pause (30mmHg), optimise PEEP, insp<exp, permissive hypercapnia, consider spontaneous breathing trial ?

○ Non ventilatory - Paralysis, Nitric oxide, proning, diuretic00

September 2016 Question

A 20-year-old patient who satisfies the criteria for brainstem death has been accepted as an organ donor.

- a) List the main adverse cardiovascular changes associated with brainstem death. (5 marks)
- b) What are the physiological goals (with values) required to ensure optimisation of this donor? (7 marks)
- c) Outline the measures and drugs that may be used to achieve these goals. (8 marks)

September 2016 Feedback

- Pass rate 68.8%
- Examiners anticipated that candidates would find this question difficult but gratifyingly most achieved enough marks to pass and demonstrated good knowledge of this important topic.

September 2016 Answer

From the college...

Answers	Marks for each (max)
<p>a)</p> <ul style="list-style-type: none">Initially hypertension, tachycardia, SVR (catecholamine storm) <p>Followed by:</p> <ul style="list-style-type: none">HypotensionHypovolaemiaMyocardial dysfunctionArrhythmiasPulmonary oedema	5
<p>b)</p> <ul style="list-style-type: none">PaO₂ > 10 kPaPaCO₂ 5-6.5 kPa or pH >7.25Mean arterial pressure 60-80 mmHgUrine output 0.5–2 ml/kg/hourCardiac index >2.2 – 2.5L/min/m²Central venous pressure 10-12mmHg (<6 if lungs for donation)SVRI 1800-2400 dynes s/cm⁵/m²Temperature 36-37.5°C (normothermia)Blood glucose 4-10 mmol/l	7

September 2016 Answer

From the college...

Answers	Marks for each (max)
<p>c)</p> <ul style="list-style-type: none">• Lowest possible FiO₂• PEEP 5-10cmH₂O. / lung protective strategy/ tidal vol <6mls/kg• Recruitment manoeuvres as required• Correct hypovolaemia with fluid boluses guided by CVP or CO• Consider vasopressin 0–2.4 units/hour for CVS support• Consider other vasoactive drugs (eg noradrenaline, adrenaline, dopamine)• Consider triiodothyronine bolus and infusion if cardiac performance is still suboptimal• Insulin infusion for normoglycaemia• Manage diabetes insipidus with vasopressin infusion or desmopressin• Methylprednisolone• Measures such as forced air warmers, fluid warmers and gas humidifiers to maintain normothermia	<p>8</p>

March 2016 Question

- a) List 3 common causes of acute pancreatitis in the United Kingdom. (3 marks)
- b) How is acute pancreatitis diagnosed? (3 marks)
- c) Describe the classification of severity of acute pancreatitis. (3 marks)
- d) What are the specific principles of managing severe acute pancreatitis in a critical care environment? (11 marks)

March 2016 Feedback

- Pass rate 53.6%
- This is a condition seen commonly in intensive care. Many candidates did not mention alcohol as a cause in part (a). Few candidates could describe the classification of severity of acute pancreatitis as asked for in part (b). Also some candidates tended to give a generic answer to part (d) describing the management of sepsis, rather than the specific management of acute pancreatitis as asked. This resulted in them losing marks in this section.

March 2016 Answer

a) List 3 common causes of acute pancreatitis in the United Kingdom. (3 marks)

- GETSMASHED. Gall stone, ETOH, ERCP

b) How is acute pancreatitis diagnosed? (3 marks)

History, examination, blood tests - amylase and lipase (typically 3x the normal limit)

c) Describe the classification of severity of acute pancreatitis. (3 marks)

Imrie and Ranson criteria. Combination of blood test results and clinical measurements. Score of $>$ or $=$ 3 suggests increased likelihood of being severe. Not full proof ! Only valid after 48 hrs. APACHE scoring has also been used.

March 2016 Answer

d) What are the specific principles of managing severe acute pancreatitis in a critical care environment? (11 marks)

- Organ support
- Nutritional support
- Treating complications
- Adequate analgesia
- Fluid and electrolyte replacement/fluid balance
- Inotropic support
- Ventilatory support

March 2016 Question

- A 20-year-old man is brought to the emergency department having been pulled from a river where he got into difficulties whilst swimming.
- a) Describe the relevant history (5 marks) and investigations (8 marks) for this patient who has suffered near-drowning.
- b) He has a Glasgow Coma Score of 13 but is found to have an arterial oxygen partial pressure of 6kPa (45mmHg) breathing 4L of oxygen via a variable performance mask. Outline your initial management of this patient. (7 marks)

March 2016 Feedback

- Pass rate 57.9%
- Candidates who scored well in part (a) of this question presented well organized answers. Examiners marking this question felt that candidates who scored poorly in part (b) did so because they tended to focus solely on airway management and did not mention other important measures in the resuscitation such as rewarming and fluid management. This part of the question asked for initial management, not just airway management.

March 2016 Answer

a) Describe the relevant history (5 marks) and investigations (8 marks) for this patient who has suffered near-drowning.

History - Submersion, Time in water, water type?, trauma. other medical history and allergies, recent events, ? taken anything DSH

Investigations - Sats, BP, ECG, Temperature, Blood gas CXR, C spine ?

b) He has a Glasgow Coma Score of 13 but is found to have an arterial oxygen partial pressure of 6kPa (45mmHg) breathing 4L of oxygen via a variable performance mask. Outline your initial management of this patient. (7 marks)

Resus bay if not already and call for assistance, Airway - assess, Increased oxygen 15 l non rebreath, establish full monitoring (re assess need for escalation and intubation), Breathing - Auscultate chest and consider CXR if not already performed, look for signs of trauma, Cardiovascular - BP, gain IV access, send bloods - FBC, U+E, renal function, clotting (Risk of MOF), provide IV fluids (warm), D Repeat GCS and look for localising signs/focal neurology DEFG BSL given GCS low. Expose patient to look for other injuries. Measure temperature and consider active/passive rewarming. Continuous cardiac monitoring.

March 2016 Question

A 45-year-old man has a major haemorrhage following significant trauma and is admitted to your emergency department. He does not have a head injury.

- a) Give one definition of major haemorrhage. (1 mark)
- b) What are the principles of management of major haemorrhage in this patient? (11 marks)
- c) What complications might follow a massive blood transfusion? (8 marks)

March 2016 Feedback

- Pass rate 85.3%
- This is an important topic and was generally well answered. It is reassuring that candidates have sound knowledge of the management of major haemorrhage, and of the complications of massive transfusion.

March 2016 Answer

From the college...

Answers	Marks for each (max)
<p>a) Candidates must give one of these definitions to get the mark</p> <ul style="list-style-type: none">• Loss of > one blood volume within 24 hours (approx 70ml/kg, >5L in 70 kg adult)• 50% of total blood volume lost in less than 3 hours• Bleeding in excess of 150 ml/minute• Bleeding leading to a systolic blood pressure of <90mmHg and pulse of >110bpm	1
<p>b)</p> <ul style="list-style-type: none">• Ensure appropriate team members are contacted (not just "call for help")• Activation of major haemorrhage protocol• Identification of source of bleeding• Control/prevention of further blood loss• High flow oxygen/airway control• Establish IV or IO access• Baseline bloods• Frequent measurement of Hb & coagulation using point-of-care tests – TEG / ROTEM / Haemocue / arterial blood gases to direct transfusion (must mention POC tests)• Frequent measurement and correction of electrolytes abnormalities• Transfusion of blood and coagulation products to restore organ perfusion• Strict compliance with patient identification procedures, product handling & traceability• Measures to maintain/achieve normothermia• Consider imaging and/or damage control surgery• Consider the use of anti-fibrinolytics eg tranexamic acid	11

March 2016 Answer

From the college...

Answers	Marks for each (max)
<p>c)</p> <ul style="list-style-type: none">• Coagulopathy• Acid base abnormalities• Hypothermia• Circulatory overload• Electrolyte abnormalities - hypocalcaemia, hyperkalaemia/hypokalaemia hypomagnesaemia, citrate toxicity (give 3 to get the mark)• Transfusion related lung injury (TRALI)• Immediate haemolytic transfusion reactions and non-haemolytic febrile reactions• Allergic reactions• Transfusion related infections• Transfusion related graft-vs-host disease• Immunomodulation	8

March 2015 Question

- a) Define critical illness weakness (CIW, 1 mark) and list the types that may occur. (3 marks) b) List the risk factors for the development of weakness on the ICU. (6 marks)
- c) What are the clinical features of CIW? (4 marks)
- d) How may nerve conduction studies determine the type of CIW? (4 marks)
- e) What are the options for the management of CIW? (2 marks)

March 2015 Feedback

- Pass Rate 30.4%, 46.6% of candidates received a poor fail
- This question was anticipated to be difficult for the candidates and the pass and poor fail rates reflect this expectation. The subject matter is topical and an important consideration in the management of critically ill patients. Many candidates had no idea that the definition excluded pre-existing pathology, and that the weakness was symmetrical with cranial nerves sparing. Few candidates had knowledge of the use of nerve conduction studies and even fewer mentioned the MRC scale of scoring muscle power. The importance of preparing detailed notes on mandatory units of training when revising for the Final FRCA is exemplified by this question.

March 2015 Answer

a) Define critical illness weakness (CIW, 1 mark) and list the types that may occur. (3 marks)

ICU-acquired weakness (ICUAW) is clinically detected weakness in critically ill patients in whom there is no plausible aetiology other than critical illness

Patients with ICUAW are then classified into those with critical illness polyneuropathy (CIP), critical illness myopathy (CIM), or critical illness neuromyopathy (CINM). Those with CIM are further subclassified (histologically) into cachectic myopathy, thick filament myopathy, and necrotizing myopathy.

b) List the risk factors for the development of weakness on the ICU. (6 marks)

Sepsis, MOF, prolonged mech vent/bed rest, hyperglycaemia, steroids, neuromuscular blockers, Age, hypoalbuminaemia. List is pretty extensive!

March 2015 Answer

c) What are the clinical features of CIW? (4 marks)

Onset is after acute presentation

Clinical context includes acute, severe illness, requiring either prolonged vent, or sepsis and multigrain support

Not due to sedation or neuromuscular blocker

Normal cognition/flaccid paralysis/symmetrical. CN sparing

MRC sum score < 48/60

e) What are the options for the management of CIW? (2 marks)

Reducing risk, by minimising sedation, neuromuscular blockers and steroids

March 2015 Question

A 54 year-old patient is admitted to the Emergency Department following a traumatic brain injury. A CT scan reveals only cerebral oedema.

- a) What is secondary brain injury and when is it likely to occur? (2 marks)
- b) Outline the main physiological and cellular changes associated with secondary brain injury. (7 marks)
- c) How can secondary brain injury be minimised in this patient? (11 marks)

March 2015 Feedback

- Pass Rate 8.3%, 59.2% of candidates received a poor fail
- The pass and poor fail rates for this question are disturbing, and this question had only moderate discriminatory power as the candidate cohort performed so poorly. Management of head injury not requiring neurosurgery is common to most intensive care units. Many candidates were unable to define secondary injury or give an appropriate time frame. Most were unaware of the pathophysiological cellular mechanisms and focused solely on the Monroe-Kelly doctrine. Treatment options were too narrow in scope although the information given was usually sensible. Examiners were left with the overall impression that many candidates have little theoretical knowledge or practical experience of care of the brain injured patient.

March 2015 Answer

a) What is secondary brain injury and when is it likely to occur? (2 marks)

Insults that occur during the post injury phase after the primary brain injury. Secondary brain injury may occur during initial resuscitation, transport of patient, during anaesthesia and surgery and in the ICU. Likely to begin immediately after primary insult.

b) Outline the main physiological and cellular changes associated with secondary brain injury. (7 marks)

Hypoxia, Hypotension, hypocapnia, hypercapnia, hyperthermia, hypoglycaemia, hyperglycaemia, hyponatraemia, hypernatraemia, decreased CPP, loss of auto regulation, metabolic dysfunction - neuronal ischaemia and neuronal death

Excitotoxic cell damage (e.g glutamate and aspartate), calcium and sodium flux via voltage gated channels and inflammation leading to apoptosis and necrotic cell death

March 2015 Answer

c) How can secondary brain injury be minimised in this patient?
(11 marks)

Head up 30-45 degrees, monitor and support BP, monitor sats and co2 ?ventilatory support (esp co2), tape/head neutral ongoing, ETCO2 and blood gas monitoring, ng and catheter, sedation (thiopental) and paralysis, CSA monitoring, BSL monitor ? insulin, avoid hyperthermia, treat seizures, ICP monitor, ? osmotic therapy monitor for infection, CVS stable induction of anaesthesia ? Repeat interval scan to check for hydrocephalus, haematoma. Neurosurgical intervention?

March 2014 Question

- a) What are the indications for (20%) and possible contraindications to (25%) elective percutaneous tracheostomy (PCT)?

- b) List the potential early (40%) and late (15%) patient complications of PCT.

March 2014 Feedback

- Pass Rate 79.4%
- This question is highly relevant to modern critical care practice, and the involvement of trainees in PCT procedures is reflected by the very high pass rate. Most marks were lost in the section on complications but in general this question was well answered. It was obvious which candidates had observed or performed a significant numbers of PCTs and which had not.

March 2014 Answer

a) What are the indications for (20%) and possible contraindications to (25%) elective percutaneous tracheostomy (PCT)?

Indications: Slow resp wean (>10 days), Bulbar palsy/aspiration risk, high spinal cord injury (post fixation) secretion load, airway obstruction

Possible contraindications: patient/family refusal, emergency, paediatric (<16), neck mass midline, coagulopathic/ platelet dysfunction, infected neck, suspected or known difficult intubation, poor rest function $FiO_2 > 0.6$, PEEP > 10, difficult anatomy, tracheomalacia, unstable or c spine immobilised

March 2014 Answer

b) List the potential early (40%) and late (15%) patient complications of PCT.

Early complications: Tube dysfunction, malposition, local structure damage, air related, death

Late complications: Infection, migration and displaced, ulceration (fistula), mechanical (obst and dysphagia), Trachea - (bleeding, stenosis, sinus, tracheomalacia, psychological

March 2013 Question

You are asked to assess a 24-year-old male who has been admitted to the Emergency Department with 30% burns from a house fire.

- a) What would lead you to suspect significant inhalational injury? (40%)
- b) Which investigations would you use to assess the severity of the inhalational injury and what are the likely findings? (30%)
- c) List the indications for early tracheal intubation to secure the airway. (20%)
- d) How do burns injuries influence the use of suxamethonium? (10%)

March 2013 Feedback

- 64.2% pass rate.
- Section a) required details of the history (burn received in enclosed space / delayed escape), general observations, features of upper and lower airway injury and harm from noxious gases.

March 2013 Answer

a) What would lead you to suspect significant inhalational injury? (40%)

Burn received, trapped, singed nasal hairs, soot in sputum, voice change, coughing

b) Which investigations would you use to assess the severity of the inhalational injury and what are the likely findings? (30%)

Blood gas – paO_2 low, co ? High, lactate if cyanide. Bronchoscopy – inflammation upper airways, blistering, ulceration, bronchorrhea CXR – ARDS changes may occur, but not always

c) List the indications for early tracheal intubation to secure the airway. (20%)

Significant history of potential inhalational injury, voice change, comatose, shock, transfer

d) How do burns injuries influence the use of suxamethonium?(10%)

Damaged muscle below burn areas lead to up regulation of Ach receptors 24 – 48 hrs after burn. Risk of hyperkalaemia and arrhythmia.

Hot Topics

- Anaphylaxis - NAP 6
- Delirium - ICS Guidelines/CAM ICU
- ARDS - ICS Guidelines July 2018
- Devastating Brain Injury - ICS Statement Jan 2018
- Asthma - BTS Guidelines 2016
- **Sepsis-3** Definition - No questions since 2012
- Scoring Systems/Criteria;
 - NYHA, Golman, Lee's, Child Pugh, World Federation Neurosurgeons, SOFA, APACHE II, RASS, CAM-ICU, ARDS

Hot Topics

- BJA education

June 2016 - June 2018

(SSD 23rd June 2018)

- Steroid use in critical care
- Prognostication of patients after cardiopulmonary resuscitation*
- Transfer of the critically ill adult patient
- Principles of resource allocation in ICU
- Endocrine problems in the critically ill*
- Paediatric airway infections*
- Postoperative pulmonary complications*
- Starvation, carbohydrate loading, and outcome after major surgery*
- Critical care management of pulmonary hypertension*
- **Acute respiratory distress syndrome**
- Legal highs
- Antibiotic stewardship
- **Renal replacement therapy**
- Bronchoscopy in critical care
- HF oxygen therapy*
- Analgesia in critical care*
- Rheumatological conditions in critical care
- NIV in perioperative period*
- Referral and transfer of the critically ill child
- **Ventilator associated pneumonia**
- Dexmedetomidine: its use in intensive care medicine and anaesthesia

Conclusion

- Take it easy, keep reading & don't get bogged down from now until the exam
- Final FRCA is about breadth of knowledge
- Succinct bullet points & timing important - $\frac{1}{3}$ Rule
- If in doubt, write it down!
- Remember think a little lateral - surgical sieve can help!
- Look at past papers/recurring questions/poorly answered

Good Luck!