Chair's Report - Final Examination 2021.2

General Comments

This report summarises the areas examined in the 2021.2 Final Examination and is designed to be a useful tool for upcoming exam candidates, Supervisors of Training and other senior colleagues who assist trainees with exam preparation.

Candidates should be aware that whilst the exam is not held at the absolute end of their training, the **standard expected across all aspects of the exam** is that of someone ready to commence independent specialist practice; functionally it is an **exit exam.**

As **all aspects of the curriculum** are examinable, trainees are advised their best chance of success is to sit the exam when their clinical experience matches their theoretical knowledge. All sections of the exam are referenced to the curriculum so candidates are advised to be familiar with all aspects of the curriculum.

The assessment is inclusive of all four sections of the examination: multiple-choice question paper, short answer question paper, medical viva examination and anaesthetic viva examination. In order to cover the breadth of the curriculum, content is spread over all sections. In each examination sitting, it is variable what content is covered in each section of the final examination. For this reason, all sections are usually undertaken in the same examination sitting.

For candidates presenting for the 2021.2 examination, due to Covid-19 restrictions, the medical viva component was cancelled.

The mark allocation for the examination for this examination is shown below:

Section	FANZCA	Vivas only
MCQ	20	
SAQ	20	
Medical vivas		
Anaesthesia vivas	48	48
TOTAL	88 (100%)	48

The pass rates for candidates presenting for the Final Fellowship in August/October 2021 are presented below:

Category		MCQ	SAQ	Medical Clinical	Anaes VIVA	Overall
ANZCA Trainees	No. Sat	177	177		158	
	No. Passed	124	112		138	
	Pass rate	70.1%	63.4%		87%	
SIMG	No. Sat				16	
	No. Passed				6	
	Pass rate				37.5%	
TOTAL	**No. Sat**				**174**	**194**
	No. Passed				**144**	**138**
	Pass rate				**82.7%**	**71.1%**

Medical Viva Examination

In 2021, the medical viva component of the Final Examination has been redesigned to test the ability of a candidate to identify and assess the severity and stability of a specified medical condition without the involvement of a volunteer patient.

The format of the medical viva component now consists of two vivas of fifteen minutes duration with an additional two minutes reading time for the stem. At least one viva will be focused on the cardiovascular or respiratory system. Other systems that could be examined may include, renal, gastroenterological, neurological, rheumatological or multisystem disorders.

The stem for the viva will include the patient's age, gender, upcoming surgery and the relevant system or disease process. A full list of medications and the opening viva question will also be included in the stem.

The medical viva is set in the context of the preadmission clinic and includes aspects of perioperative management. Candidates are expected to demonstrate an understanding of medical conditions and their impact on anaesthesia and surgery. Routine anaesthetic assessment (e.g. airway assessment) is not included in the medical viva.

Criteria for assessment include

- the ability to elicit a focused, relevant history with information provided by the examiner for the specified medical condition particularly with regards to severity of the disease.

- the ability to demonstrate an understanding and interpretation of the expected physical signs in the context of the specified medical condition.

- the ability to integrate this information to form a diagnosis, assess the functional status of the patient and to grade the severity of the disease process..

- the interpretation and integration of several investigations to stratify disease severity

in the context of the scenario.

- an understanding of the relevant medications and their management as well as optimisation in the perioperative period.

In summary, in order to prepare for the medical vivas, candidates are encouraged to continue assessing and examining patients, particularly in the preadmission clinics. They should continue to ensure they have sufficient knowledge around a range of medical conditions and practise interpreting a range of investigations.

Multiple-Choice Question Examination - pass rate 70%

The Final Examination Subcommittee decided in late 2019 to release the stems of the multiple-choice questions for each sitting commencing from 2020.1. It is hoped that these stems will assist candidates in their preparation for this section of the examination. Examiners are well aware of the many 'black banks' which are accessed by candidates as part of their exam preparation. It is apparent that in recent years not all candidates have access to several of these banks, with some banks only being shared amongst local candidate groups. Publishing MCQ stems in the examination report will go some way to minimising the inequitable access to question banks.

Each question is of the 'one best answer' type. No marks are deducted for incorrect answers. Most MCQ have five answer options. In the 2020.1 paper MCQs with four answer options were introduced.

<u>2021.2 MCQ stems</u>

A woman experiences a post-partum haemorrhage associated with uterine atony that is unresponsive to oxytocin and ergometrine. The recommended intramuscular dose of carboprost (15-methyl prostaglandin F2 alpha) to be administered is

A 74-year old man in the post-anaesthesia care unit complains of chest pain. An electrocardiogram (ECG) is performed. The occluded coronary artery is the

Techniques to improve the speed of onset and spread of a peribulbar block include all of the following EXCEPT

An adult with renal failure on regular haemodialysis has an ASA (American Society of Anesthesiologists) physical status classification of at least

The breast does NOT receive sensory innervation from the

A derived value from an arterial blood gas sample is

A patient presents with a serum sodium of 110 mmol/L. A feature NOT consistent with a diagnosis of syndrome of inappropriate antiduretic hormone (SIADH) is

Identified risk factors for opioid-induced ventilatory impairment DO NOT include

Risks associated with robot-assisted laparoscopic prostatectomy surgery in comparison with open prostatectomy include all of the following EXCEPT

The most likely complication from ultrasound guided left internal jugular central venous line insertion is

Benzatropine ameliorates the side effects of drugs that antagonise

Regarding healthcare research, the PICO framework describes

The drug of choice for the treatment of duct dependent congenital heart disease is

A patient has blunt chest trauma. A thoracotomy is indicated if the immediate blood drainage after closed thoracostomy is greater than

A factor that is NOT used to calculate the Child-Pugh score is

The relatively slower onset of action of bupivacaine with adrenaline in brachial plexus anaesthesia compared to other local anaesthetics relates to

You administer a dose of intravenous indocyanine green to facilitate videoangiography during cerebral aneurysm surgery. The changes in pulse oximetry (SpO_2) and cerebral oxygen tissue saturation ($SctO_2$) you expect to see on your monitors are

The CRASH-2 trial showed tranexamic acid administration to trauma victims results in a reduction in

An awake patient in the post-anaesthesia care unit complains of breathlessness. The FiO_2 is 0.4 via a facemask. An arterial blood gas taken at the time shows PaO_2 135 mmHg, $PaCO_2$ 48 mmHg, and SpO_2 100% The alveolar-arterial gradient (in mmHg) is approximately

A 69-year-old woman has a recent onset of dyspnoea and undergoes a right heart catheterisation, with results displayed below. Her pulmonary capillary wedge pressure is 10 mmHg. The most likely diagnosis is

A ten-year-old boy (weight 30 kg) has a displaced distal forearm fracture that requires manipulation and application of plaster. The volume of 0.5% lidocaine (lignocaine) that should be used for intravenous regional anaesthesia (Bier block) is

A five-year-old child weighing 25 kg is to be strictly nil by mouth overnight following a laparotomy. The most appropriate fluid prescription is

Of the following, the lifestyle modification that is least effective in reducing essential hypertension is

Sensory innervation of the cornea is by the

A 25-year-old male has continued post operative bleeding after an extraction of an impacted third molar tooth under a general anaesthetic. The patient mentions that his father bruises quite easily. His coagulation screen reveals: (Coagulation tests provided). The most likely diagnosis is

The condition in which volatile anaesthesia is least appropriate is

International guidelines state that patients presenting for major surgery have inadequate or low iron stores if their serum ferritin level is less than

Globe perforation during eye block is more common in myopic eyes because the

A drug which is likely to slow the heart rate in a patient with a heart transplant is

A patient requiring an elective major joint replacement has had a recent stroke. The minimum recommended duration between the stroke and surgery is

High-risk transthoracic echocardiogram findings associated with aortic dissection include all of the following EXCEPT

You are involved in the care of a two-year-old child who ingested a button battery within the last 4 hours. You should consider giving

Stellate ganglion block is NOT contraindicated in patients with

A four-year-old boy with a history of waddling gait, larger than normal calves and frequent falls receives a spontaneously breathing volatile-based anaesthetic with sevoflurane. One hour into the case he develops peaked T waves and then the end-tidal CO_2 begins to rise. The most appropriate immediate treatment is to

A pregnant woman requires a caesarean section delivery within 30 minutes for fetal distress. Her body mass index (BMI) is 26 kg/m2. She has multiple sclerosis with lesions in her brain and spinal cord and receives monthly injections of the disease-modifying drug ofatumumab. The most appropriate plan for her delivery is

You are examining the precordium of a patient in the preadmission clinic and hear a fourth heart sound at the apex. This finding is consistent with

A patient with an acute subarachnoid haemorrhage arrives in the emergency department. Her Glasgow Coma Scale is 10 and she has no motor deficit. A CT brain shows diffuse subarachnoid haemorrhage with no localised areas of blood > 1mm thick, and no intracerebral nor intraventricular blood. Her World Federation of Neurosurgical Societies (WFNS) grade of subarachnoid haemorrhage is

Non-anaesthetist practitioners wishing to provide procedural sedation should have training in sedation and/or anaesthesia for a minimum of

In a patient with tetraplegia who develops autonomic dysreflexia, the expected haemodynamic response is

The cardiac axis of this electrocardiogram is

The most reliable clinical indicator of opioid-induced ventilatory impairment (OIVI) is decreased

A patient presents for endovascular clot retrieval after experiencing a right hemisensory loss and right homonymous hemianopia. The vessel most likely occluded is the left

The function of the bottle labelled 'D' in the diagram below is to protect against the consequences of

A trainee becomes aware that a patient they have just anaesthetised for emergency surgery is breastfeeding and seeks your advice regarding recommencement of breast feeding. You advise that breast feeding is contraindicated because during the admission today the patient received

A patient undergoing robotic prostatectomy with volume-controlled ventilation has the following ventilatory measurements: (Ventilator parameters given) The static compliance is

When performing cannulation of the median cubital vein the structure that is LEAST likely to be inadvertently punctured or damaged is the

A 25-year-old ASA (American Society of Anesthesiologists) physical staus classification 1 patient develops seizures five minutes after receiving a brachial plexus block with ropivacaine. Of the following, the most suitable initial intravenous treatment is

Complications of hyperbaric oxygen therapy include all of the following EXCEPT

Analysis of variance (ANOVA) is a statistical test to determine

The oral morphine equivalent of tapentadol 50 mg (immediate release) is

Allergic cross-reactivity between penicillins and cephalosporins is mediated by the

A 25-year-old man suffers a burn involving 30% of his total body surface area. A cardiovascular physiological change expected within the first twenty-four hours is

Of the following, the incidence of venous air embolism is considered highest for (list of surgical procedures given)

Intraoperative cell salvage is contraindicated in

A 76 year old woman who is spontaneously breathing through a tracheostomy tube with an inner cannula becomes acutely breathless. Despite application of high flow oxygen, her respiratory rate is 40 breaths per minute and her SpO2 is 82%. The next most appropriate step in her airway management is to

The anion which contributes the most to the anion gap is

Of the following drugs, the least likely to cause pulmonary vasodilation when used at low doses in patients with chronic pulmonary hypertension is

A 25-year-old woman is administered two doses of aprepitant for postoperative nausea and vomiting after a sleeve gastrectomy. She normally takes the oral contraceptive pill. You should advise her to use alternative contraception for the next

A patient who usually takes oral morphine 50 mg bd develops a bowel obstruction and experiences withdrawal symptoms. They may be described as having

The image below on the left shows a normal central venous pressure (CVP) trace. The CVP trace in the image below on the right is most consistent with

A 26-year-old man is brought into the Emergency Department four hours after an accidental chemical exposure during crop spraying. His clinical signs include bradycardia, vomiting, diarrhoea, coughing, miosis and weakness. A drug which is NOT recommended during his resuscitation and treatment is

A new volatile agent is developed. The property it shares with sevoflurane that will enable it to be used in a sevoflurane vapouriser and deliver an accurate concentration is its

When performing a brachial plexus block at the level of the axilla, the structure indicated by the arrow is the

The diffusing capacity of the lungs for carbon monoxide (DLCO) is likely to be decreased with

The use of erythropoietin before major surgery results in

Predictors of successful awake extubation after volatile anaesthesia in infants include

The maximum warm ischaemia time acceptable for procuring the kidney following donation after circulatory death (DCD) is

The risk of postoperative respiratory failure in myasthenia gravis is increased by the administration of

A patient with known type 3 von Willebrand disease presents with persistent epistaxis. First-line medical therapy should include

ANZCA fasting guidelines classify all of the following as clear fluids EXCEPT

A patient has return of spontaneous circulation (ROSC) but remains unresponsive after cardiac arrest. ANZCOR Guidelines recommend all the following measures EXCEPT

Your patient has been administered 50 mL of oral 5–aminolevulinic acid hydrochloride (Gliolan) three hours prior to her scheduled craniotomy for resection of a glioblastoma. Care should be taken perioperatively to avoid the adverse effect of

The most common cause of mortality in children with diabetic ketoacidosis is

An electrocardiogram (ECG) abnormality which is NOT usually associated with severe anorexia nervosa is

You have been asked to provide general anaesthesia for a complex thoracic endovascular aortic aneurysm repair. After the placement of a lumbar drain the recommended safe time before the administration of intravenous heparin is

The image below shows results from non inferiority trials. The trial labelled 'M' is best described as

Painless post-operative visual loss with preserved pupillary reflexes is most likely due to

A 50-year-old man is admitted with a stroke and undergoes cerebral angiography. The artery marked with an arrow on the angiogram below is the

The oculocardiac reflex results in

A patient with a history of restless leg syndrome is agitated in the post-anaesthesia care unit. After excluding other causes, the best treatment of the agitation in this patient is

With regard to the risk of postoperative surgical-site infection, 8 mg dexamethasone administered intraoperatively has

Intraoperative lung protective ventilation strategies include all of the following EXCEPT

A 65 year old woman is dyspnoeic after a total hip replacement. A lung ultrasound is performed in the post-anaesthesia care unit, with a still image shown below. The likely cause of the dyspnoea is

Local anaesthetic-induced myotoxicity is most likely to be associated with

The abnormality shown in this image is LEAST likely to be caused by an injury to the

Postdural puncture headache in obstetric anaesthesia is associated with a greater likelihood of all of the following EXCEPT

The most common type of perioperative stroke is

Hepcidin production is inhibited in response to

The most common cause of cor pulmonale is

A risk factor which increases the likelihood of developing local anaesthetic systemic toxicity is

The medical laser LEAST likely to cause eye injury is

The main advantage of using noradrenaline (norepinephrine) over phenylephrine for the prevention of hypotension as a result of spinal anaesthesia for elective caesarean section is

Of the following, the LEAST likely cause of high anion gap metabolic acidosis is

The most common complication of extracorporeal membrane oxygenation (ECMO) in adults is

The power board on the back of the anaesthesia machine has caught fire during an elective case. This should be extinguished with

The most common presenting rhythm associated with maternal cardiac arrest is

The number of segments in the lower lobe of the left lung is

Cardiovascular effects of hyperthyroidism include

The coagulopathy that can result from intrahepatic cholestasis of pregnancy is due to

A man who had successful treatment of a germ cell tumour ten years ago presents for laparoscopic appendectomy. Your intraoperative management should consider

The muscle or muscle group with the greatest resistance to the action of non-depolarising neuromuscular blocking agents is the

A patient presents for a trans-urethral resection of the prostate (TURP). He had a single drug-eluting coronary stent for angina pectoris inserted six months ago and is taking clopidogrel and aspirin. The most appropriate preoperative management of his medications is to

A ten year old child (weight 30 kg) presents to the emergency department in status epilepticus. He has received one dose of 15 mg midazolam buccally prior to his arrival. According to Advanced Paediatric Life Supprt, Australia (APLS) guidelines the next drug treatment should be intravenous

A peripheral intravenous cannula is being inserted in the forearm of a man having a hemicolectomy. The skin asepsis preparation NOT suitable for this procedure is

In pulmonary function testing the presence of airflow limitation is defined by a post-bronchodilator FEV1/FVC ratio less than

A 30-year-old man with morbid obesity (body mass index [BMI] 55 kg/m2) presents for middle ear surgery. The most appropriate bolus dose of propofol for induction should be based on

A 30 year old athlete undergoing a knee arthroscopy under general anaesthesia becomes tachycardic intraoperatively. A 12-lead electrocardiogram (ECG) is obtained. The most likely diagnosis is

A 45-year-old man has the following results on his blood biochemistry testing: (Liver Function Tests shown). The most likely diagnosis is

The Vortex Approach to airway management does all of the following EXCEPT

A structure that is NOT clamped during a Pringle manoeuvre is the

A forest plot is a commonly used tool in meta-analysis. It presents

Of the following, the procedure that is most commonly associated with chronic pain after surgery is

Performing a superficial cervical plexus block will block all of the following nerves EXCEPT the

Suxamethonium causes a sustained contraction of the extraocular muscles for up to

Findings associated with massive pericardial tamponade include

A 59-year-old lady presents for elective coronary artery graft surgery. She has a pulmonary artery catheter inserted with the waveforms displayed below. Her cardiac output is 4.5 L/min.

Her mean pulmonary artery pressure is 33 mmHg. The most likely explanation for the waveforms seen is that she has

A patient with a history of paroxysmal atrial fibrillation and chronic obstructive airways disease develops a wheeze intraoperatively which resolves with administration of salbutamol via the endotracheal tube. Soon after, he develops rapid atrial fibrillation with a ventricular rate of 120 beats per minute, a BP of 90/60 and an ETCO2 of 40mmHg. His regular medications are inhaled salbutamol, inhaled salmeterol and digoxin 125mcg daily. The next most suitable treatment is

A man with atrial fibrillation has no valvular heart disease. According to joint American Heart Association (AHA), American College of Cardiology (ACC) and Heart Rhythm Society (HRS) guidelines, oral anticoagulants are definitely recommended if his CHA2DS2-VASc score is greater than or equal to

The advantage of the Mapleson E circuit in paediatric anaesthesia is due to its

A 50 year old man has the following pulmonary function test result: (Results displayed) The diagnosis is most consistent with

When performing a paediatric pain assessment, the five elements assessed to obtain the FLACC score are

Local anaesthetic blockade of the sciatic nerve results in loss of function of all of the following EXCEPT

Methylene blue may be used in the treatment of all of the following conditions EXCEPT

A respiratory effect of high flow nasal oxygen therapy is

A bleeding patient has ROTEM results including (results displayed) . The most appropriate treatment is

Cryoprecipitate contains all of the following EXCEPT

The size 5 i-gel® supraglottic airway is recommended for patients who weigh over

A normal 75 kg term parturient may be expected to have a total blood volume of

The nerve labelled by the arrow in the diagram below is the

The intrinsic muscles of the larynx do NOT include

Of the following, the deficit that DOES NOT result from damage to the common peroneal nerve is

A patient has numbness and weakness in her hand postoperatively. You are trying to distinguish between an ulnar nerve lesion and a C8-T1 radiculopathy. You can diagnose a C8-T1 radiculopathy if she has weakness

The domains described in the Edmonton Frail Scale do NOT include

In a patient with anaemia of chronic disease, of the following the most likely to be elevated is

The apical four–chamber view of a transthoracic echocardiogram below shows

The equipment shown in the picture below is a

The estimated proportion of human induced climate change attributable to nitrous oxide is

Short Answer Question Examination – pass rate: 63.4%

The Short Answer Question (SAQ) examination is designed to challenge and test the candidate's ability to apply their knowledge to clinical or workplace situations in a systematic and prioritised way.

This report is primarily written to assist future candidates in their preparation for the SAQ paper and therefore places emphasis on some of the recurrent themes and errors seen in

answers that do not attract sufficient marks to meet the minimum standard criteria to achieve a pass mark.

Candidates are reminded to read the questions carefully during the reading time allocated at the beginning of the examination and again when they commence answering each question. Marks are only awarded for answering the question that has been asked. Time can be wasted by writing information that is not required and will not contribute to the overall mark awarded.

Answers that contain correct information are marked down when the answer is poorly structured, especially when information is poorly prioritised.

Answers containing information that is incorrect will be marked down not withstanding they may contain adequate correct information. It is therefore crucial to consider carefully what is written in response to a question.

There remains a tendency for some candidates to use non-specific or non-defined terms without further explanation or context. When used in this way these terms do not attract marks and can on occasion result in marking down of an answer. Some examples of these terms are 'cardio-stable anaesthesia', 'good pain relief', 'effective analgesia', 'multimodal analgesia', 'gentle induction', 'post-op ICU'.

The failure by some candidates to act on key words in the question is problematic. To emphasise the importance of these words and to clarify their meanings, the following is a list of key words with their generally accepted meanings.

COMPARE	Look for similarities
CONTRAST	Set in opposition
DEFINE	Give the precise meaning of
DESCRIBE	Give a detailed account of
DISCUSS	Write about a topic in detail, considering different issues or ideas
EVALUATE	Make an appraisal of the worth of something
EXPLAIN	Make plain, interpret, account for
ILLUSTRATE	Make clear by concrete examples (or use a diagram to clarify)
INTERPRET	Explain what something means
JUSTIFY	Show adequate grounds for decisions
LIST	Catalogue by groups or classes with minimal explanation
OUTLINE	Give the main features or general principles
RELATE	Show how things are connected to and affect each other

Candidates will note that some questions have more than one part to them and a (%) will be seen written next to each part. The purpose of this (%) is to indicate a time allocation that the examiners suggest candidates apply to each part of the question. It does not necessarily reflect mark allocation for those parts. The whole answer to the question is assessed when awarding the final mark for the question.

Candidates are encouraged to read through previous examination reports and practice answering past questions under examination conditions.

Illegible handwriting remains an issue for some candidates. Candidates are urged to use a black or dark blue pen rather than light blue. This results in improved images following scanning and online transmission to the examiners.

Finally, there is an increasing tendency for candidates to use abbreviations which cannot be deciphered by the examiners. Candidates are encouraged to use only recognised abbreviations or use abbreviations after having written the phrase or word out in longhand in a previous sentence.

Question 1

Define the terms 'train-of-four' (TOF) and 'double burst stimulation' (DBS) with respect to a peripheral nerve stimulator (PNS). (30%)

Evaluate the use of a quantitative peripheral nerve stimulator when using neuromuscular blocking agents in anaesthetic practice. (70%)

Pass rate **64.9%**

Understanding how a PNS works and how it is used in the clinical setting is necessary for safe anaesthetic practice.

Candidates were required to correctly define the terms TOF and DBS and then evaluate the use of a quantitative PNS - ideally referencing its value during the periods of induction, maintenance, and emergence from anaesthesia. An answer that included clinical examples demonstrating the importance of this mode of neuromuscular monitoring scored well.

Answers that did not meet the criteria to pass included those where definitions of TOF and DBS were too vague, those addressing qualitative rather than quantitative peripheral nerve stimulation and those focusing only on reversal of neuromuscular blockade prior to emergence from anaesthesia.

Question 2

A patient is admitted to hospital following a diagnosis of intrauterine fetal death (IUFD) at 35 weeks gestation. Discuss your considerations for the anaesthetic management of her labour and delivery.

Pass rate **59.1%**

An unfortunately not uncommon scenario facing those who work in maternity care. It is a distressing time for the patient, family, and the staff involved.

There were some high scoring answers to this question demonstrating candidates had been involved in the management of patients with a diagnosis of IUFD and were able to comprehensively discuss all the relevant issues.

An answer was required to consider the welfare issues and the multidisciplinary approach to patient management and most candidates did demonstrate they understood the importance of this.

Consideration of the causes and timing of the fetal demise and the possibility of sepsis and coagulopathy was also required. These important issues were sometimes missed, and this led to an incomplete discussion of analgesic and anaesthetic options for delivery.

Question 3

You have just intubated a patient who has respiratory failure due to severe bacterial pneumonia. They remain hypoxaemic with an SpO2 of 82%.

Describe your immediate actions and justify your strategies to improve oxygenation whilst awaiting the patient’s retrieval to a tertiary centre.

Pass rate **83.6%**

This question was answered well with candidates demonstrating they had a structured approach to the problem outlined and most being able to justify their differing strategies to improve oxygenation.

Question 4

Describe the clinical presentation of venous carbon dioxide embolism during laparoscopic surgery and outline your management.

Pass rate **64.3%**

Many candidates demonstrated adequate application of their knowledge of this uncommon clinical emergency although found it difficult to score highly.

However, a significant number of answers contained statements which showed there is some confusion between the presentation of venous carbon dioxide embolism during laparoscopy and venous air embolism, and how they are managed.

Question 5

Justify your strategies for managing severely elevated intracranial pressure.

Pass rate **86.5%**

There was an excellent pass rate for this question where candidates were required to justify their management strategies, relating them to the three determinants of intracranial pressure - namely the volumes of the intracranial contents: brain, blood, and cerebrospinal fluid.

Answers that fell short of the pass mark and answers that might otherwise have attracted higher marks were those failing to demonstrate good understanding of Munro-Kelly doctrine, those lacking justification of strategies used, and those containing irrelevant information not directly related to the question.

Question 6

Discuss the perioperative strategies you would use to mitigate the risks of prolonged surgery in the prone position.

Pass rate **55.6%**

Prolonged surgery in the prone position presents many challenges for the theatre team and risks for the patient.

Candidates were expected to include the following issues in their answer:

- prolonged surgery itself is associated with increased morbidity
- the altered CVS and RS physiology in the prone position
- the risk of peripheral nerve damage
- the risk of postoperative visual loss

As well as discussing intraoperative strategies to reduce risk, the role of preoperative risk assessment and postoperative follow up required discussion.

Answers that failed to demonstrate understanding of the above issues or failed to include the preoperative and postoperative components of their perioperative strategies didn't attract sufficient marks to pass the question.

Question 7

An adult is brought to your district hospital after a house fire. They have sustained burns to 75% of their total body surface area (TBSA).

Discuss your management prior to their transfer to a Burns Unit.

Pass rate **59.6%**

This question was designed to evaluate a candidate's approach to the early management of a victim of major burns with the added risk of smoke inhalation and/or airway burns. The majority of candidates were able to do this.

The following were the minimum components required in the discussion:

- an ABCDE approach
- ensuring a secure airway - early intubation
- application of a fluid resuscitation formula
- avoidance of hypothermia
- liaison and advice from the Burns Unit

Question 8

Discuss how a diagnosis of Addison's disease would influence your perioperative management of a patient who requires an urgent laparotomy for bowel obstruction.

Pass rate **49.1%**

This question presented the challenge of a common surgical emergency in a patient with an uncommon chronic medical condition.

Candidates were required to demonstrate an understanding of Addison's disease, in particular the hypotension and specific blood result abnormalities that are seen in these patients. Specific dose ranges of the IV replacement steroid treatment necessary for a patient unable to absorb their usual oral medication were required. The examiners also felt that given this is a rare primary adrenal disorder an endocrinologist should be consulted, ideally the patient's own endocrine team.

The question proved difficult, with many candidates not demonstrating they understood the disease nor the significance of the surgical condition on the patient's perioperative steroid replacement therapy. There was also some confusion between primary adrenal insufficiency and other conditions including hypothalamic-pituitary disorders, chronic steroid therapy, Cushing's syndrome, and Conn's syndrome.

Of note there have been recent guidelines produced by the Association of Anaesthetists and better candidates referenced these guidelines in their answers whilst giving detailed logical clinical management plans.

Question 9

Describe the elements of informed consent for anaesthesia. (50%)

Discuss the informed consent process in the context of the following clinical situations: (50%)
a). A 20-year-old primigravida in late first stage of labour requests epidural analgesia.
b). A 15-year-old is scheduled for posterior spinal instrumentation for severe idiopathic scoliosis.

Pass rate **63.2%**

This question was generally handled well by candidates.

The first part of the question was uniformly well done with candidates being familiar with ANZCA PS 26 Statement on informed consent for anaesthesia or sedation.

The second part of the question was handled less well. Here discussions of the consent process in the context of two clinical situations were required.

In the first scenario some candidates failed to do this, instead presenting generic answers about labour epidural analgesia not related to the specific clinical situation.
Unsuccessful candidates commonly only listed risks (which was not sufficient), discussed issues regarding informed consent without stating how they would actually obtain informed

consent in a labouring patient, and frequently disregarded the issue of documentation of consent in labour.

The second scenario seemed to present most difficulty for candidates, possibly due to the lack of exposure to scoliosis surgery. However, theoretical knowledge of scoliosis surgery, experience of adult spinal surgery in the prone position, anaesthetic consent for high-risk surgery in the outpatient clinic setting, and experience in consenting teenagers were all applicable to this scenario.

Question 10

A 60-year-old patient is scheduled for stenting of a tracheobronchial mass. Outline your perioperative management.

Pass rate **59.1%**

It is recognised that candidates are unlikely to have had first-hand experience of this procedure. An application of theoretical knowledge and a sensible safe approach to the problem was required. This was achieved by many candidates.

Candidates who didn't reach the required standard were those who weren't able to demonstrate they understood what the procedure entails, or how they would anaesthetise a patient safely while providing access for a surgeon to place a stent using a bronchoscope. Sensible, safe, systematic, and resourceful options for oxygenation and airway management was required. Ensuring appropriate skill mix, location and equipment was also essential.

Question 11

A 14-year-old with severe autism is rescheduled for dental surgery. The operation was previously abandoned due to their poor cooperation with the team.

Justify your perioperative management plan.

Pass rate **70.2%**

This is a reasonably common scenario and the majority of candidates demonstrated they would be able to manage the situation, with appropriate planning for the whole perioperative period.

Answers that didn't attract sufficient marks were often those that failed to consider a part of the perioperative period, with plans for emergence, analgesia, postoperative care, or a strategy for discharge from hospital omitted. Of note there were some answers that did not consider finding out the details of the patient's recent experiences before planning their care.

Question 12

Describe the nerve supply to the breast. (30%)

Describe an appropriate regional technique to provide perioperative analgesia for a patient undergoing a total mastectomy and justify your choice. (70%)

Pass rate **73.7%**

Applied anatomy questions feature regularly in the SAQ examination and candidates can score well if they apply their anatomical knowledge to the clinical setting and the question asked.

This question asks candidates to describe an appropriate regional technique and justify their choice. A significant number of candidates *named* a suitable technique but failed to *describe* the technique.

Describing an appropriate regional technique required inclusion of the relevant clinical anatomy. The likely adequacy of coverage for the proposed surgery was also required to be included in an answer. Justification of choice should have included this as well as the likely requirement for further local anaesthetic infiltration or systemic analgesia to supplement the block.
A concerning feature of some answers was the incorrect assumption of the safety of regional blocks in this setting in the presence of anticoagulation.

Question 13

A 55-year-old patient with atrial fibrillation (AF) requires general anaesthesia in the cardiac catheter laboratory for electrophysiological (EP) study and catheter ablation.

Discuss the principles of remote location anaesthesia relevant to this case.

Pass rate **53.8%**

This question asked candidates to discuss the principles of remote location anaesthesia relevant to the scenario presented.

In their answer candidates were required to include:

- general remote location issues
- radiation exposure
- discussion with the cardiologist - requirements/potential problems
- a sensible anaesthetic plan

There was a tendency for many candidates to write about generic remote location issues without linking them to this specific case, namely AF ablation in the cardiac catheter laboratory under general anaesthesia. These answers fell short of the required minimum standard. Of note radiation exposure was often not mentioned in answers.

Question 14

Discuss the principles of damage control resuscitation in severe trauma.

Pass rate **73.1%**

Discussion of the following points and the reasoning for their inclusion in resuscitation protocols for severe trauma would constitute a good answer:

- maintenance of normothermia
- avoidance of excessive crystalloid administration
- permissive hypotension
- early massive transfusion protocol and coagulation products
- early surgery and airway control
- administration of antifibrinolytic - tranexamic acid
- performance of tests to guide management including point of care (ROTEM/TEG/blood gas) and formal tests of coagulation and platelet counts.

The majority of candidates demonstrated an understanding of the principles of damage control resuscitation with better answers including the reasoning behind the physiological targets or goals.

There were some generic answers about the management of trauma that did not specifically address the question. These answers attracted lower marks.

Question 15

Outline the clinical features, differential diagnoses, and management of serotonin syndrome in the perioperative period.

Pass rate **70.2%**

This was a straightforward question and most candidates demonstrated satisfactory understanding of serotonin syndrome and its management.

Most candidates recognised it presents following a drug interaction in the perioperative period, and that it is a disorder characterised by neuromuscular excitation, autonomic hyperactivity and altered mental status.

Differential diagnoses include neuroleptic malignant syndrome, anticholinergic syndrome, malignant hyperthermia, and emergence delirium.

Management is supportive, with attempts to normalise vital signs, hydration, oxygenation, and temperature. Specific treatment with cyproheptadine (a serotonin antagonist) may be required as well as vasoactive agents to manage cardiovascular autonomic issues.

Some candidates correctly identified symptoms and signs of serotonin syndrome but then omitted to outline in their answer how they would manage those specific problems.

Anaesthesia Vivas - pass rate 82.7%

ANAESTHESIA VIVA REPORT 2021.2

The anaesthesia viva examination is the component of the exam where several areas of specialist level practice can be tested in eight complex and evolving scenarios. Several key areas are tested:

1. Application of safe clinical practice,
2. Demonstration of sound clinical judgment
3. Plan and prioritise clinical actions
4. Demonstrate an ability to adapt to changing clinical scenarios, and
5. Be able to justify your clinical decisions.
6. Demonstrate situational awareness and the ability to work in and lead team environments

As a final exit examination, candidates are expected to demonstrate consultant-level thinking and communication.

Vivas were constructed and vetted within the Court of Examiners over an extended period. This allows the determination of a consensus as to what constitutes a minimum level of competence needed to pass each viva. This is consistent with what we would expect of an independent specialist anaesthetist.

It is paramount that candidates demonstrate safe clinical practice. Some clinical situations in the viva scenarios are designed to test a candidate's ability to make appropriate decisions in a safe manner. Decisions deemed unsafe practice prevent a candidate from passing the viva.

This also applies to what is considered to be core knowledge expected of a specialist anaesthetist, e.g. ACLS algorithms. Candidates are expected to perform at an exceptional level in such core areas.

Communication during the viva is another fundamental skill - not just communicating your clinical decisions during the viva, but also moving through the viva at a pace which will allow the candidate to maximise the full coverage of all areas of the viva.

Whilst it is not critical to have completed the whole of the available viva in order to pass, a candidate who is very slow to move forward will have limited time available to achieve marks.

Better performing candidates will give clear structured answers. Their answers will be organised, even in the face of a complex problem, demonstrating their ability to prioritise the main issues involved. They will also demonstrate consultant-level decision making, which is based on sound clinical and evidentiary principles.

Below are the stems for all sixteen vivas. As well as providing the introductory stems, the key areas covered to pass each viva have also been included.
This information can be used by candidates in their exam preparation as an example of the skills required to successfully pass the viva examination.
The Court noted a number of recurring themes in candidates who performed suboptimally in these vivas. They included:

1. Failure to address clinical information highlighted in the viva stem
2. Overdosage of induction agents based on the clinical scenario
3. Poor management of raised intracranial pressure and bleeding in neurosurgical settings
4. Failure to appropriately manage unfasted patients in evolving clinical scenarios
5. Poor planning in describing management of patients with multiple competing medical problems

The viva front pages, a brief synopsis of the areas covered and the relevant pass marks are included below.

VIVA 1 PASS RATE: 69.9%

You review a 67-year-old man in the Preadmission Clinic (PAC) for a left hemihepatectomy via a roof- top incision for metastatic colon cancer.

He underwent a right hemicolectomy four months ago for primary cancer resection. The procedure was complicated by an extended stay in hospital due to suboptimal pain management.

Past medical history:
- Hypertension
- Lower limb peripheral neuropathy secondary to chemotherapy
- Ex-smoker with 30 pack-year history

Medications & allergies
- perindopril 5 mg daily
- amitriptyline 25 mg nocte

Nil known allergies

Observations in PAC
BP - 160/85 mmHg
HR- 75 bpm
SpO_2 - 98% on room air
weight - 65 kg
height - 180 cm
BMI – 20 kg/m^2

Liver function test results:

Bilirubin	50	(3-17 umol/L)
AST	40	(5-35 IU/L)
ALT	38	(5-35 IU/L)
ALP	560	(30- 300 IU/L)
GGT	110	(11-51 IU/L)
Albumin	35	(35- 50 g/L)
INR	1.1	(0.8- 1.2)

All other blood results are normal.

Outline your concerns regarding the patient's fitness for surgery.

Topics:
1. Assessment and evaluation including assessing altered liver function tests and functional assessment
2. Intraoperative management of bleeding and portal pressure
3. Postoperative neuropathy and neuralgia management

VIVA 2 PASS RATE: 86.0%

You are on call at the Children's Hospital. At 1730 hours you are asked to review a 7-year-old girl with Down syndrome in the Emergency Department (ED) who sustained a supracondylar fracture of the left humerus whilst playing on a trampoline at a birthday party. She is booked on the emergency list for closed reduction and percutaneous pinning of the fracture.

On your arrival in ED you are informed that the girl has received intranasal fentanyl 50 mcg following one unsuccessful attempt to gain IV access.

The dose of fentanyl was based on a weight of 31 kg which had been documented in the girl's case notes at a recent outpatient clinic appointment.

How will you approach your anaesthetic assessment of this girl?

Topics:
1. Preoperative assessment and discussion re fasting
2. Induction management with an uncooperative parent
3. Management of intraoperative hypoxia from Right Upper Lobe collapse

VIVA 3 PASS RATE: 73.1%

You attend the subacute Coronary Care Unit to review a 52-year-old man with a six week history of increasing dyspnoea who has been scheduled for revision aortic valve replacement +/- mitral annuloplasty tomorrow.

His past history includes a bioprosthetic aortic valve replacement eight years ago.

On admission his echocardiogram showed severe aortic regurgitation and moderate mitral regurgitation, with an estimated left ventricular ejection fraction of 35% and a moderately dilated left ventricle.

His only regular medication prior to this admission was aspirin 100 mg daily, but during this admission he has been commenced on:

- furosemide (frusemide) 80 mg bd orally
- perindopril 6 mg mane orally
- dobutamine infusion 2.5 mcg/kg/min intravenously.

When you attend the ward you find him walking around with his IV pole.

He weighs 80 kg.

Outline how you would determine if this patient is optimised for his surgery.

Topics:

1. Medical assessment and management of induction focused on haemodynamics and implication of redo sternotomy
2. Management of postoperative increased drain output on transfer
3. Return to theatre with low Haemaglobin and acute Left Ventricular Failure

VIVA 4 PASS RATE: 83.9%

A 32-year-old woman attends the obstetric anaesthetic assessment clinic, having been referred by the obstetric registrar.

She is 24 weeks into her first pregnancy, and has a history of multiple sclerosis. She uses a walking stick. Her other medical history includes anxiety.

There are no other relevant obstetric, medical or anaesthetic issues. She had an uneventful general anaesthetic for an appendicectomy at this hospital last year for which you have the anaesthetic record. There were no airway issues.

She takes escitalopram and has monthly ocrelizumab infusions, which have been withheld in pregnancy. She has no allergies.

She wishes to discuss analgesia in labour and anaesthesia should a caesarean or other operative intervention be required.

What further information do you require to address the patient's concerns?

Topics:

1. Prelabour plan for analgesia and anaesthesia
2. Obstructed labour with epidural in. Progress to instrumental delivery and LUSCS with patchy block
3. Assess leg weakness postoperatively – foot drop

VIVA 5 PASS RATE: 76.3%

Your next patient on the emergency list is a 24-year-old man scheduled for a laparoscopic appendicectomy. His only past medical history is that of occasional self-limiting palpitations on exertion. He has been sick for three days with severe abdominal pain, nausea and vomiting.

He weighs 70 kg.

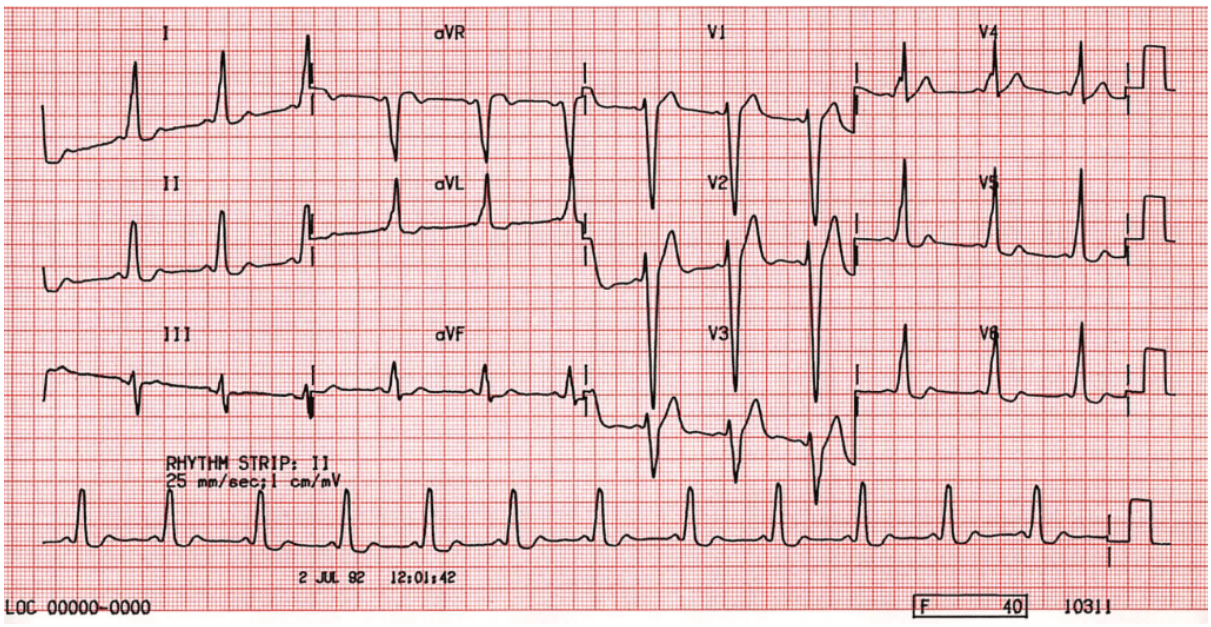
His vital signs are:

- temperature 38.5° C
- heart rate 106 bpm
- blood pressure 100/71 mmHg

The surgeon suspects a perforated appendix.

He has an electrocardiogram (ECG) in his notes.

Please describe this ECG:



Topics:

1. Preoperative and intraoperative management of Wolff Parkinson White Syndrome.
2. Manage broad complex tachyarrhythmia in recovery including cardioversion
3. Low saturation secondary to cardioversion from aspiration

VIVA 6 PASS RATE: 72.0%

You are assessing a patient on the neurosurgical ward who is booked on your list tomorrow for coiling of cerebral aneurysms in the hospital's interventional radiology suite.

The 56-year-old woman presented earlier in the day with a two day history of severe headache, vomiting and malaise that was unresponsive to paracetamol. There has been no change to her level of consciousness or focal neurological deficits.

Cranial CT revealed five intracerebral aneurysms, the largest in the anterior communicating artery. There is evidence of diffuse subarachnoid haemorrhage, Fisher grade 2.

Her vital signs are:

- blood pressure 145/75 mmHg MAP 88 mmHg
- pulse 85/min sinus rhythm

Past medical history

Polycystic kidney disease

- renal transplant 10 years ago
- end-stage renal disease treated with haemodialysis for two years prior to transplantation

Hypertension

Medications

atorvastatin 20mg daily
enalapril 5mg BD
mycophenolate 1g BD
prednisone 5mg daily
tacrolimus 5mg BD
trimethoprim / sulphamethoxazole one tab BD

What specific information do you require about this patient's medical problems to ensure optimisation for the coiling procedure?

Topics:

1. Assess patient and prepare in a nonhybrid theatre setting
2. Management of rupture after coil insertion
3. Planning and management of transfer to definitive care

VIVA 7 PASS RATE: 83.9%

A 50-year-old woman has been transferred to your tertiary referral centre for a total thyroidectomy for a massive goitre with associated recent voice change.

You review her on the ward as she is booked on your list for the following day.

Medications:
carbimazole 15 mg bd
propranolol 40 mg bd
rosuvastatin 10 mg daily

Weight	120 kg
Height	165 cm
BMI	44 kg/m^2

How will you assess her airway preoperatively?

Topics:

1. Preoperative assessment of endocrine disease and airway
2. Airway management with no front of neck access and an airway described as poor on ENT nasendoscopy
3. Stridor post extubation from bilateral recurrent laryngeal nerve palsy

VIVA 8 PASS RATE: 73.1%

You are the on-call anaesthetist for a regional base hospital. It is 2030 hours and you have just arrived in the carpark to review a patient for tomorrow's elective operating list, when you receive a request for assistance from the ED consultant. He is busy resuscitating a sick patient and cannot attend a new category 1 trauma patient that has just arrived by ambulance.

The new arrival is a 45-year-old man who has been assaulted at a local hotel. He has been struck in the neck with a broken beer bottle and was found by paramedics lying on the floor of the public bar. They noticed profuse bleeding from an anterior neck wound before applying some gauze.

He is restless, irritable and combative.

How are you going to manage this situation?

Topics:

1. Management of urgent airway in the Emergency Department.
2. Transfer to OT for further exploration. Sudden fall in BIS and implications
3. Management of occult injury from noncompleted primary survey

VIVA 9 PASS RATE: 81.2%

A 45-year-old man presents to your Preadmission Clinic for a review ahead of an open left adrenalectomy for phaeochromocytoma in four weeks time.

He currently takes the following medications:

- Bio Magnesium supplements 2 capsules daily
- dapagliflozin 10 mg mane
- enalapril 40 mg mane
- frusemide 20 mg mane
- metoprolol 100 mg BD

How would you assess a patient with a phaeochromocytoma who is to undergo surgical resection?

Topics:

1. Assessment and management of phaeochromocytoma preoperatively and at induction
2. Management of intraoperative BP changes and especially hypotension post ligation adrenal vein
3. Postoperative brachial plexus injury with diagnosis and management

VIVA 10 PASS RATE: 81.2%

You are the duty anaesthetist in a regional hospital. You are called to the Emergency Department by the surgical registrar to review an 8-year-old boy who has been booked for an urgent appendicectomy.

The child has been previously well and presents with a three day history of abdominal pain and vomiting.

An ultrasound has been performed which suggests appendicitis. The surgical registrar would like to operate as soon as possible as he thinks the child is showing signs of sepsis.

Initial information on booking:

weight	25 kg
pulse	150 bpm
BP	80/40 mmHg
RR	45 bpm
temp	37.3° C

FBC:

Hb	120 g/L	(110- 155)
WCC	17 $x10^9$ /L	(4-11.0)
Plt	250 $x10^9$/L	(140-400)

Electrolytes and renal function:

Na	133	mmol/L (133-144)
K	3.5	mmol/L (3.6-5.3)
Cl	104	mmol/L (97-110)
Bicarbonate	8	mmol/L (22-29)
Urea	5.0	mmol/L (2.7-7.8)
Creatinine	35	μmol/L (20-44)

What specific features would you look for in the assessment of this child?

Topics:

1. Preop assessment in Emergency Department leading to a diagnosis of Diabetic Ketoacidosis (DKA)
2. Management of DKA
3. Management of induction of a septic child with a full stomach

VIVA 11 PASS RATE: 82.5%

You are seeing a 64-year-old man in the Preadmission Clinic who is booked for a left lower lobectomy for non-small cell carcinoma.
He is on your list in two weeks' time.

Past Medical History:

- hypertension
- type II diabetes mellitus
- paroxysmal atrial fibrillation

Medications
perindopril 2mg bd
rivaroxaban 20 mg daily

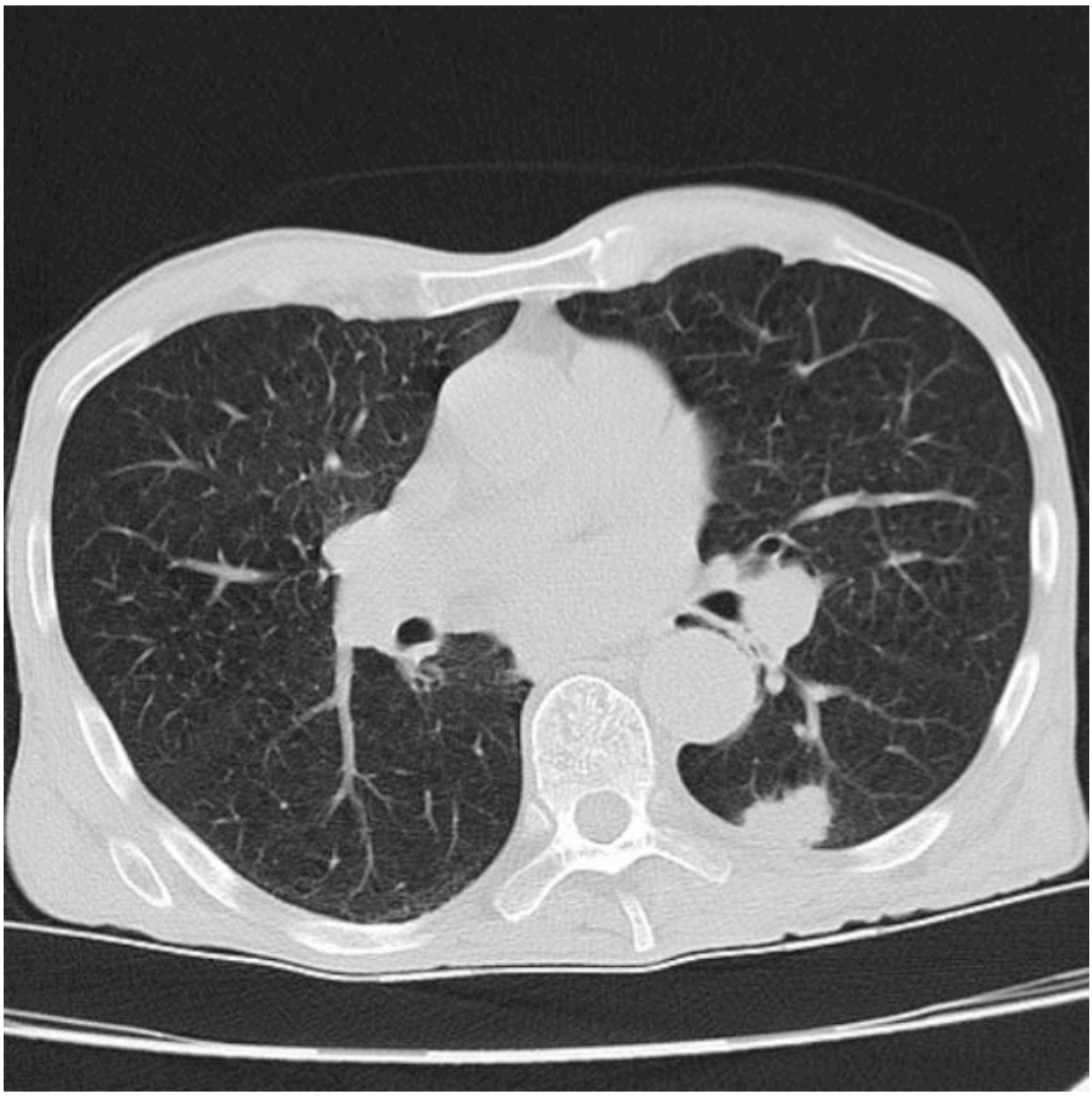
metoprolol 50mg bd
empagliflozin 10mg daily

He currently smokes 1 packet cigarettes per day and has a 42 pack-year history.

Height - 177cm Weight - 74 kg BMI 23.6 kg/m^2

His chest CT scan is displayed below.

How will you assess this patient's suitability to undergo a lobectomy?



Topics:

1. Preoperative assessment including plan for GA and analgesia
2. Management of intraoperative lung reinflation (unintended)
3. Development of hypotension in Postanaesthesia Care Unit from Atrial Fibrillation

VIVA 12 PASS RATE: 83.8%

You are asked to provide analgesia for a 26-year-old woman who presented in labour to your regional hospital on a weekday. She has a three month history of shortness of breath on minimal exertion. She has not presented for any antenatal care during the pregnancy and the shortness of breath has not been investigated. Otherwise she has had an uneventful pregnancy.

Her observations are:
Pulse 110/min
BP 110/80 mmHg
Respiratory rate 24/min
SpO2 95%
Height 170 cm
Weight 75 kg

How will you assess this patient?

Topics:

1. Assessment and analgesia in a setting of undiagnosed Mitral Stenosis
2. Management of fetal distress leading to an emergency LUSCS
3. Management of uterine atony post delivery

VIVA 13 PASS RATE: 86.2%

A 47-year-old woman with acromegaly attends your preoperative assessment clinic one week prior to undergoing a transsphenoidal hypophysectomy for pituitary adenoma. She has a history of hypertension and type II diabetes mellitus. She is a heavy smoker, has a hoarse voice and reports a recent hospital admission for investigation of shortness of breath on exertion.

Medications:

- lisinopril 20 mg daily
- metformin 1000 mg nocte
- metoprolol 100 mg mane
- octreotide 75 mcg subcutaneously x 3 daily

What features of the history will help you determine the severity of her condition?

Topics:

1. Preoperative assessment including Obstructive Sleep Apnoea and hypertension
2. Management of induction and extreme hypertension with topicalisation
3. Management of high urine output and diagnosis of Diabetes Insipidus postoperatively

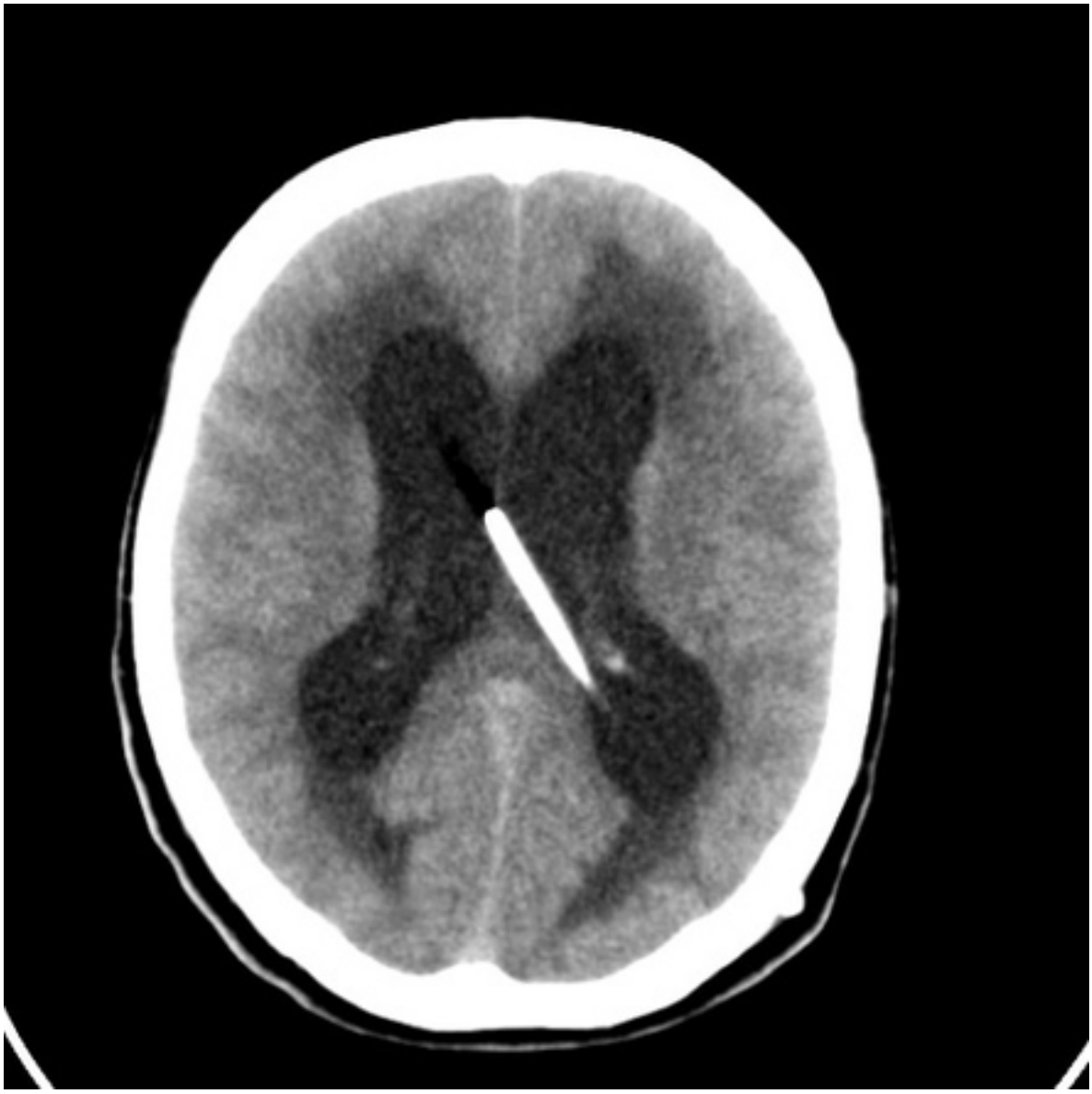
VIVA 14 PASS RATE: 88.8%

You are reviewing a 44-year-old man for revision ventriculoperitoneal shunt for congenital aqueductal stenosis which was first diagnosed at age 13. This operation will be his fourth revision. He is an inpatient on the neurosurgical ward.

His current medications are:

- dexamethasone 4 mg bd orally
- omeprazole 20 mg mane orally
- levetiracetam (Keppra) 250 mg bd orally

Please comment on the CT scan and explain what specific information you would like in your assessment of this patient.



Topics:

1. Assess shunt failure and hydrocephalus. Discuss management of induction.

2. Develops Left sided neck swelling from vascular injury. Discuss diagnosis and management
3. Patient combative in recovery. Discuss management of delirium

VIVA 15 PASS RATE: 78.8%

You are working in the day surgery unit of a large regional hospital and allocated to a gynaecology list with a registrar. The next patient on the list is a 23-year-old woman booked for a hysteroscopic myomectomy.

Past Medical History
Menorrhagia secondary to uterine fibroids
Anxiety

Medications
Ferrous sulphate
Fluoxetine

Past Surgical History
Hysteroscopic myomectomy 2019

What additional information would you like to obtain to assist in formulating an anaesthetic plan?

Topics:
1. Preparation for GA with Supraglottic airway. Leads to difficult ventilation secondary to fluid overload.
2. Difficult intubation management
3. Diagnosis and management of tracheal injury in Intensive Care Unit – presents with pain and pneumothorax

VIVA 16 PASS RATE: 83.8%

You are the on-site anaesthetist in a large regional centre and have been called to the Emergency Department to assist with the management of an 70 year-old woman who was brought in by ambulance ten minutes ago after falling down the stairs at home.

The patient lives independently and was discovered at the base of the stairs by her visiting daughter this morning after having fallen down the stairs last night. The patient was unable to reach the telephone to call for help and was not wearing her personal alarm button.

The patient is sitting up on a trolley and appears short of breath.

Observations:
HR - 113 bpm
BP – 148/92 mmHg non-invasively
SpO_2 - 92 % on oxygen 15 l/min via non-rebreather mask
GCS - 12 (E3 V4 M5)

Past medical history:

- atrial fibrillation
- chronic back pain

Regular medications:

- apixaban 2.5 mg bd
- buprenorphine transdermal patch 15mcg/hour
- digoxin 125 mcg daily
- perindopril 2 mg daily

Describe your initial assessment and management of this patient.

Topics:

1. Assess and diagnose a flail segment with Intercostal Catheter management as per ATLS guidelines
2. Differential Diagnosis of hypotension and tachycardia from rhabdomyolysis
3. Failed serratus blocks – analgesic options for extubation