



# Surgery

**Single Choice Questions (SCQ) and Extended Match Questions (EMQ)**

**Emergency Medicine Fellowship Program**

**Q1** Which statement is TRUE regarding Testicular Torsion?:

- |                          |  |
|--------------------------|--|
| A) <input type="radio"/> | Vascular compromise has to be confirmed before surgery with special investigations such as Colour Doppler or Radionuclide scan |
| B) <input type="radio"/> | Blood supply to the affected testes needs to be restored within 12 hours   |
| C) <input type="radio"/> | Testicular torsion is the most common cause for testicular loss in the adolescent male   |
| D) <input type="radio"/> | In testicular torsion you expect the pain to improve with elevation of the affected testicle (Prehn sign)                      |
| E) <input type="radio"/> | The presence of white blood cells in the urine confirms the diagnosis of infection   |

**Q2** Regarding the unilateral acute painful tender testicle which of the following is TRUE?

- |                          |  |
|--------------------------|--|
| A) <input type="radio"/> | Occurs more commonly in tall thin males              |
| B) <input type="radio"/> | Mumps orchitis is rarely unilateral                  |
| C) <input type="radio"/> | Parotitis always precedes mumps orchitis by 4-5 days |
| D) <input type="radio"/> | If it transilluminates then torsion can be excluded  |
| E) <input type="radio"/> | Mumps orchitis occurs in 30 of adult males           |

**Q3** Regarding intestinal ischaemic disorders, all the following are true EXCEPT:

- |                          |   |
|--------------------------|---|
| A) <input type="radio"/> | Arterial occlusion accounts for 50 of acute mesenteric ischaemia      |
| B) <input type="radio"/> | The fear of eating has been reported in chronic mesenteric ischaemia  |
| C) <input type="radio"/> | Thumb-printing on plain x-ray is diagnostic of intestinal wall oedema |
| D) <input type="radio"/> | Ischaemic colitis is best diagnosed with sigmoidoscopy and biopsy     |
| E) <input type="radio"/> | Ischaemic colitis is associated with delayed stricture formation      |

**Q4** Which of the following statements is correct when regarding spine injuries

- |                          |   |
|--------------------------|---|
| A) <input type="radio"/> | Neurogenic shock is commonly seen with spinal cord injuries below T6  |
| B) <input type="radio"/> | Anterior cord syndrome occurs commonly in the elderly when a hyperextension injury causes buckling of the ligamentum flavum into the cord |
| C) <input type="radio"/> | Bilateral facet joint dislocation is generally the result of a hyperextension injury  |
| D) <input type="radio"/> | Neurological damage is rare with sacral injuries  |
| E) <input type="radio"/> | Jefferson fracture is a fracture through the C2 pedicles  |

**Q5** Which of the following is true about AAA?

- |                          |   |
|--------------------------|---|
| A) <input type="radio"/> | Most common site is intrarenal abdominal aorta    |
| B) <input type="radio"/> | Peak incidence occurs between 65 and 70 years old |
| C) <input type="radio"/> | Incidence not determined by family history of AAA |
| D) <input type="radio"/> | AAA are estimated to expand 4-5mm per year        |
| E) <input type="radio"/> | Mortality of rupture is approximately 50          |

**Q6** The following are causes of both large and small bowel obstruction except

- A)  Radiation
- B)  Neoplasm
- C)  Inflammatory bowel disease
- D)  Tuberculosis
- E)  Diverticulitis

**Q7** Regarding ingested foreign bodies

- A)  10 to 20 % of swallowed foreign bodies require some sort of intervention
- B)  Button batteries may be observed for 24 hours if lodged in the oesophagus
- C)  Coins will show up on xray in the sagittal plane if stuck in the oesophagus
- D)  50% of adults who present with meat impaction in the oesophagus harbour pathogenic oesophageal conditions
- E)  Papain is the treatment of choice in removal of meat boluses in the oesophagus

**Q8** In males over 40 years of age, the commonest infective organism causing epididymo-orchitis is:

- A)  Chlamydia trachomatis
- B)  Neisseria gonorrhoeae
- C)  Mumps virus

- D)  Escherichia coli
- E)  Mycobacterium tuberculosis

**Q9** Which one of the following conditions is LEAST likely to result in pulmonary embolism (PE)?

- A)  Heart disease
- B)  Malignancy
- C)  Age 70 years
- D)  Estrogen therapy
- E)  Immobility

**Q10.** Regarding pancreatitis all true except:

- A)  Commonest cause in male is alcohol
- B)  Commonest cause in children is trauma
- C)  Commonest cause in females is gallstones
- D)  Scorpion bite is a cause
- E)  Reduced incidence in pregnancy

**Q11.** Regarding Ransons criteria all true except:

- A)  Scores done include on presentation and within 48 hours
- B)  Age 65
- C)  Mortality 100 if score 6

- D)  3 suggests severe pancreatitis
- E)  Is derived from patients who had alcoholic pancreatitis only

**Q12.** Which ONE of the following statements about volvulus is FALSE

- A)  The treatment of choice for a non-strangulated sigmoid volvulus is decompression and detorsion with a rectal tube via a sigmoidoscope
- B)  A single massively dilated loop of bowel with both ends down in the pelvis and the bow positioned superiorly ("bent inner tube" appearance) is characteristic of a caecal volvulus on plain-film radiograph of the abdomen
- C)  Fluid and electrolyte sequestration is usually not a problem in sigmoid volvulus, unlike small bowel obstruction
- D)  Volvulus of the caecum occurs in all ages but is most common in persons 25 to 35 years of age
- E)  Sigmoid volvulus is more common in elderly patients with debilitating disease who lead lives of inactivity

**Q13.** In the diagnosis and treatment of acute appendicitis, which ONE of the following is FALSE

- A)  Although appendicitis may be ruled out if the appearance of the appendix is normal on ultrasonography, a normal appendix is seen in less than 5% of patients
- B)  As compared with ultrasonography, CT has greater sensitivity and negative predictive value
- C)  In approximately 20% of patients undergoing exploratory laparotomy because of suspected appendicitis, the appendix is normal
- D)  A history of anorexia is helpful in differentiating appendicitis from pelvic inflammatory disease
- E)  The inflammatory process of acute appendicitis may cause pyuria or haematuria

**Q14.** With regard to abdominal trauma

- A)  Moderate liver injury involving 25 – 50% of one lobe will take > 12 months to heal
- B)  Liver injury is associated with splenic injury in 10%
- C)  Splenic injury is nearly always accompanied by haemoperitoneum
- D)  In penetrating trauma the spleen is most commonly injured
- E)  In blunt trauma the liver is most commonly injured

**Q15.** The abdominal condition most frequently requiring surgery in the elderly is:

- A)  Appendicitis
- B)  AAA
- C)  Acute cholecystitis
- D)  Large bowel obstruction
- E)  Incarcerated hernia

**Q16.** Regarding the use of CT in the diagnosis of appendicitis:

- A)  It is now considered a criterion standard for all patients with suspected appendicitis

- B)  It has significantly reduced the rate of negative laparotomies
- C)  It has a sensitivity of 90 but a specificity of 50
- D)  Discharge can be made on the basis of a negative CT
- E)  Oral contrast improves its sensitivity for the detection of appendicitis

**Q17.** All of the following are radiographic findings suggestive of acute aortic rupture EXCEPT?

- A)  displacement of the esophagus to the right
- B)  presence of a left “apical cap”
- C)  a left pleural effusion
- D)  elevation of the left mainstem bronchus
- E)  widening of the mediastinum

**Q18.** Which of the following is most important in diagnosing appendicitis?

- A)  Right iliac fossa pain.
- B)  Migration of pain to RIF.
- C)  Rebound.
- D)  Guarding.
- E)  Pain before vomiting.

ANSWERS

1. C

2. A
3. C
4. D
5. D
6. D
7. A
8. D
9. C
10. E
11. B
12. B
13. D
14. C
15. C
16. E
17. D
18. A

1. For abdominal sounds to be considered absent how long must the abdomen be auscultated for?
  - a. 1 minute
  - b. 30 seconds
  - c. 2 minutes
  - d. 5 minutes

2. Abnormal plain abdominal xray and blood results will detect what percentage of patients requiring urgent intervention for abdominal pain?
  - a. <40%
  - b. 60%
  - c. 50%
  - d. 70%

3. The mortality rate of ED presentations in patients > 80 yrs with abdominal pain is ?
  - a. 2%
  - b. 10%
  - c. 18%
  - d. 7%

4. What is the sensitivity of ultrasonography in detecting appendicitis?

- a. <50%
- b 50-65 %
- c 65-75%
- d. >80%

5. In children 1-4 yrs of age the rate of perforation in acute appendicitis is?

- a. 80%
- b. <20%
- c. 50%
- d. 40%

6. On examination of a > 5cm AAA you will be able to palpate the aneurysm in what percentage of patients

- a. 50 %
- b 60%
- c. 75 %
- d. >85%

7. The most common risk factor for developing a sigmoid volvulus is

- a. previous bowel surgery
- b. Irritable bowel disease
- c. pregnancy
- d. constipation

1. ED ultrasound is commonly performed in the rapid assessment of AAA. What is the sensitivity of ED staff performed ultrasound assessment of AAA > 3cm?

- a. 90-100%
- b. 85-90%
- c. 80-85%
- d. 75-80%

2. On CT a patient is shown to have an aortic dissection of the proximal and distal components of the aorta. This corresponds with a Debakey classification of?
- a. I
  - b. II
  - c. IIIa
  - d. IIIb

8. What is the most common age group for testicular torsion?

- a) <10 years
- b) 12-18 years
- c) 20-25 years
- d) 30-50 years
- e) >60 years

11. Which is a correct statement regarding treatment of a torsed appendix testis?

- a) analgesia alone is all that is required
- b) analgesia plus antibiotics for 10 days
- c) surgical resection is mandatory
- d) local anaesthetic infiltration into the appendix is often used
- e) methotrexate has been shown to be beneficial

12. Which size renal stones have a 90% chance of passing?

- a) <3mm
- b) <5mm
- c) <7mm
- d) <8mm
- e) it is not size dependant

13. Which agent has been shown to be highly effective in treatment of renal colic pain?

- a) Hyoscine butylbromide
- b) atropine
- c) nifedipine

- d) NSAID, no one in particular is superior
- e) GTN

14. What percentage of kidney stones have microscopic haematuria?

- a) 100%
- b) 20%
- c) 50%
- d) 70%
- e) 90%

15. At what rate should IV fluids be given in acute renal colic?

- a) so as to get 200ml/hr urine
- b) 2 litres over 2 hours unless CVS contraindicated
- c) maintenance
- d) 1 litre over 1 hour unless CVS contraindicated
- e) it is relatively contraindicated

16. What is the role of plain AXR in diagnosis of renal colic?

- a) it should always be done
- b) it is of marginal value and not cost effective, therefore should not be done routinely
- c) it will show the majority of renal calculi
- d) its sensitivity is too low to be of great value
- e) B, C, D are correct

17. Which statement is incorrect regarding prostatitis?

- a) it is usually due to the organisms of sexually transmitted diseases
- b) there is a tender enlarged prostate on PR examination
- c) if systemically unwell use iv gentamicin and ampicillin

- d) co trimoxazole is a good oral agent as it concentrates in prostatic fluid
- e) urine culture usually reveals the organism

18. Which grade of renal injury involves a deep laceration into the collecting system?

- a) 1
- b) 2
- c) 3
- d) 4
- e) 5

19. Which is the imaging modality of choice in suspected renal haematuria?

- a) IVP
- b) CT
- c) Angiography
- d) Retrograde ureteroscopy
- e) ultrasound

20. Which statement is incorrect regarding renal trauma?

- a) blunt trauma with microscopic haematuria and no other signs of injury does not need imaging
- b) blunt trauma with microscopic haematuria and fracture 11/12 ribs and flank tenderness warrants imaging
- c) a major renal injury cannot occur without macroscopic haematuria
- d) penetrating trauma in the region of the kidney with macroscopic haematuria warrants imaging
- e) penetrating trauma in the region of the kidney with microscopic haematuria warrants imaging

21. Which statement regarding bladder injury is incorrect?

- a) they usually rupture intraperitoneally rather than extraperitoneal
- b) they are usually associated with a pelvic fracture
- c) inability to void and macroscopic haematuria and meatal blood are symptoms
- d) investigation of choice is retrograde cystogram
- e) the rupture can be both intra and extraperitoneal

8)B C 11)A 12)B 13)D 14)E 15)C 16)E 17)A 18)D 19)B 20)C 21)A

33. A 1mm renal calculi in the ureter will most likely impact at

- a) the pelvi-ureteric junction
- b) the vesico-ureteric junction
- c) the pelvic brim
- d) the bladder orifice
- e) all of the above

34. The commonest type of ureteric calculus is

- a) calcium oxalate
- b) triple phosphate
- c) urate
- d) cysteine
- e) granite

35. Regarding renal colic secondary to calculi:

- a) Females are more commonly affected than males
- b) 50% of calculi are radio-opaque
- c) It may present without haematuria
- d) There is a 20% chance of recurrence by 5 years
- e) A CT urogram uses radio-contrast to grade the level of renal obstruction

33=B 34 = A 35 = C Ros 2249-2251

513 A 60-year-old male with history of benign prostatic hypertrophy presents complaining of nausea and vomiting. Laboratory values include serum Na of 145 mmol/L, blood urea nitrogen (BUN) of 45 mg/dL, creatinine of 2.0 mg/dL, urine Na of 10, and urine creatinine of 80. Which of the following is the MOST likely diagnosis?

- (A) Prerenal failure
- (B) Acute tubular necrosis (ATN)
- (C) Glomerulonephritis
- (D) Postrenal failure
- (E) Pyelonephritis

516 Which of the following is NOT an appropriate treatment for priapism?

- (A) Terbutaline 0.25 mg administered subcutaneously in the deltoid
- (B) Aspiration of corporeal blood
- (C) Ice-water enema
- (D) Neo-Syneprine instillation into the corpora cavernosa
- (E) Exchange transfusion

517 A 19-year-old male complains of acute onset of scrotal pain. Which of the following procedures is LEAST indicated?

- (A) Treat with cefixime and azithromycin and discharge home
- (B) Radionulide scan of the testes
- (C) Attempt manual detorsion
- (D) Urinalysis

(E) Doppler ultrasound

520 Patients with renal stones should be admitted in all of the following cases EXCEPT

(A) associated urinary tract infection

(B) single kidney with obstruction

(C) uncontrolled pain

(D) stone > 6 mm

(E) all of the above

523 Which of the following structures needs to be repaired in a fractured penis?

(A) Tunica albuginea

(B) Corpus spongiosum

(C) Corpora cavernosum

(D) Buck's fascia

(E) Urethra

524 All of the following substances cause urinary retention EXCEPT

(A) methamphetamines

(B) ephedrine

(C) cogentin

(D)  $\beta$ -blockers

(E) tricyclic antidepressants

525 All of the following are causes of postrenal failure EXCEPT

(A) bladder tumor

(B) phimosis

(C) neurogenic bladder

(D) urethral prolapse

(E) retroperitoneal fibrosis

527 What percentage of urological stones are radiopaque?

(A) 15

(B) 30

(C) 50

(D) 75

(E) 90

(513) The answer is A Fractional excretion of sodium [FENa(%)] is used in determining the cause of renal failure.  $FENa(\%) = (\text{urine sodium}/\text{serum sodium})/(\text{urine creatinine}/\text{serum creatinine}) * 100$ . The following table illustrates the laboratory findings in the different types of renal failure. Pyelonephritis should not cause renal failure. (Chapter 88)

Pre-renal	Intrinsic renal	Postrenal
FENa(%) <1	>2	>2
Urine Na <20	>40	>40
Serum BUN:Cr >20:1	10:1	<10:1
Urine:serum Cr ratio >40:1	<20:1	<20:1

(516) The answer is C Priapism is a painful, pathologic erection secondary to engorgement of the corpora

cavernosa but not the glans or corpus spongiosum. There are multiple etiologies for priapism including sickle cell anemia, medications, spinal cord injury, leukemic infiltration, and idiopathic. Neither sedation nor ice-water enema is effective in reducing the erection. Shunt surgery is necessary in some cases. (Chapter 91)

(517) The answer is A Testicular torsion is a urologic emergency. It can be difficult to distinguish clinically from torsion of the appendix testis or epididymitis. Urologic consultation for operative exploration should be obtained immediately when testicular torsion is suspected. Radionuclide scans and Doppler ultrasound studies can help confirm the diagnosis, but these are time consuming in a condition for which even a short delay could mean loss of the testicle. Manual detorsion can be attempted in the ED while awaiting surgical consultation. (Chapter 91)

(518) The answer is A Renal transplant patients are treated with immunosuppressive agents to prevent graft rejection. Important measures to prevent infection in these patients include pneumococcal vaccine, hepatitis B vaccine, trimethoprim-sulfa prophylaxis for Pneumocystis carinii pneumonia, and nystatin to prevent oral candida. MMR vaccine is an attenuated live vaccine and is potentially virulent in immunosuppressed patients. Cytomegalovirus is the most common infectious agent in transplant patients and may be suppressed with gancyclovir. (Chapter 96)

(520) The answer is E Renal colic patients with any of these features should be hospitalized for management and urologic consultation. Patients with renal insufficiency, severe underlying disease, or evidence of complete obstruction should be considered for admission and discussed with a urologist. Uncomplicated patients whose pain can be controlled with oral medications may be discharged home with a urine strainer and close follow-up with a urologist. (Chapter 92)

(523) The answer is A Tear of the penile tunica albuginea, the thick fascial layer around the corpora cavernosa, can occur during sexual intercourse or other sexual activity. The urethra is rarely injured, but a retrograde urethrogram may be necessary for full evaluation. The tunica albuginea should be surgically repaired. Buck's fascia is a thin layer of fascia encasing both the corpora cavernosa and the corpus spongiosum. (Chapter 91)

(524) The answer is D Urinary retention is frequently caused or exacerbated by pharmaceutical agents. Some of the most commonly implicated medications include antihistamines, anticholinergics, and antispasmodic agents. Sympathomimetics may cause urinary retention through their ALPHA-adrenergic stimulation.  $\beta$ -blockers can cause erectile dysfunction but do not contribute to urinary retention. (Chapter 91)

(525) The answer is D Postrenal failure can be caused by obstruction anywhere along the urinary tract, from the kidney and the ureters (usually bilateral involvement) to the bladder and the urethra. Bladder neck obstruction may result from neurogenic bladder or medications. Prostatic hypertrophy and functional bladder neck obstruction are the most common causes of postrenal failure. Urethral prolapse should not cause urinary obstruction. (Chapter 88)

(527) The answer is E Most renal stones are visualized on plain x-rays or noncontrast CT scan. The majority (75 percent) of renal calculi contain calcium with either oxalate or phosphate. Struvite or magnesium-ammonium-phosphate stones account for another 10 percent and are associated with ureasplitting bacteria and staghorn calculi. Another 10 percent of stones are composed of uric acid; the remainder are caused by cystine and other uncommon minerals. (Chapter 92)

1. The most common organism causing balanitis is

- a. **staph aureus**
- b. e.coli
- c. strep faecalis
- d. Klebsiella

2. In what percentage of boys aged 6 is phimosis physiological

- a. <5 %
- b 7%
- c. 10%**
- d. 20%

3. In boys aged 10-19 yrs what percentage of scrotal pain is due to testicular torsion?

- a. <10%
- b. 20-40%**
- c. 40-50%
- d. 10-20%

3. The overall passage rate of stones located at the proximal ureter is

- a. >90%
- b 70-85%
- c. 50%
- d.>30%**

4. What is the most common organism responsible for UTIs in neonates

- a. **Staph aureus**
- b. E.coli
- c. strep faecalis
- d. Proteus

5. Which of the following features is the least sensitive and specific for UTI

- a. urinary frequency
- b. Dysuria
- c. **suprapubic discomfort**
- d. self diagnosis of UTI

6. A palpable bladder in a man is sensitive for a urinary volume of 400-600ml

- a. >90%
- b 85%
- c. **80%**
- d. <70%

7. The peak age group for epididymitis is

- a. <20 yrs
- b. **20-35 yrs**
- c. 35-55 yrs
- d. >55yrs

Trauma MCQ

1 . What is the name of the fracture which is clinically associated with gross midface mobility?

- a. Le Forte 1
- b. **Le Forte 2**
- c. Le Forte 3

d. Le Forte 4

2. What percentage of those who present with macroscopic haematuria will have a lower urinary tract injury?

a. <30%

b. 50%

c. 70%

d. >75%

3. An elderly lady has presented after falling hitting her head she has decreased sensation to her upper limbs but normal sensation to her lower limbs she is most likely to have

a. Anterior cord syndrome

b. C 5 fracture with retropulsion

c. Brown `Sequard Syndrome

d. central cord syndrome

4. A Zone III neck injury extends

a. from clavicles to cricoid cartilage

b. from SCM to midline and across the lower edge of the mandible bilaterally

c. from cricoid cartilage to angle of mandible

d. from angle of mandible to base of skull

5. Failure of conservative management in splenic injury occurs in what percentage of cases?

a. <5%

b. 5-10%

c. 10-15%

d. 15-20%

1. Question

Which one of the following is most likely to have a clinically significant positive effect on ICP in patients with brain injury

- 1. Thiopentone
- 2. Suxamethonium
- 3. Avoiding coughing and gagging on the ETT
- 4. Lignocaine

3

Lignocaine prior to (or post) induction is of unproven benefit. The thiopentone dose required to reduce ICP usually also reduce BP and cerebral perfusion pressure. Suxamethonium may transiently increase ICP but is probably of little significance compared to the effect of laryngeal manipulation / irritation on ICP. Maintenance of sedation to avoid gagging on the ETT is most likely to provide the greatest benefit of the options provided. ([link](#))

## 2. 2. Question

Which one of the following is the weakest indication for therapeutic hypothermia to prevent brain injury

- 1. Bacterial meningitis
- 2. Coma following VF cardiac arrest
- 3. Isolated head injury with coma
- 4. Coma following PEA cardiac arrest

1

Therapeutic hypothermia in patients with bacterial meningitis is associated with an increased mortality, so should be avoided. The strongest evidence to support its use is for out of hospital VF/VT arrest, with weaker evidence for PEA. There is no evidence that it is of benefit in head injury. ([link](#))

## 3. 3. Question

The preferred initial maintenance IV fluid in a haemodynamically stable patient with isolated brain injury is

- 1. Hartmann's solution
- 2. Normal saline
- 3. 5% dextrose
- 4. 3% saline

2

In patients with brain injury, avoid hypo-osmolar therapies whenever possible (such as 5% dextrose, N/2 Saline, Hartmann's solution / Ringer's lactate). 3% saline is used as hyperosmolar therapy to transiently reduce ICP when a neurosurgical drainage procedure is planned to reduce ICP, but is not a maintenance fluid. ([link](#))

**4. 4. Question**

Which one of the following statements regarding hyperosmolar therapy for brain injury is incorrect

- 1. They exert their effect by removing water from normal brain tissue in proportion to the volume of undamaged brain tissue.
- 2. They have a substantial effect on brain oedema surrounding a mass lesion.
- 3. The benefits of hyperosmolar therapy require the blood brain barrier to be intact.
- 4. They have maximum effect on ICP at the time of as maximum serum osmolality.

2

Hyperosmolar therapies do not have a substantial effect on brain oedema surrounding a cerebral mass lesion. ([link](#))

**5. 5. Question**

The minimum MAP target for a patient with a severe head injury is

- 1. 70mmHg
- 2. 50mmHg
- 3. 80mmHg
- 4. 60mmHg

3

The target MAP is > 80mmHg and should be achieved with pressors if euvolaemia present. ([link](#))

**6. 6. Question**

The tissue with the highest oxygen extraction ratio is

- 1. The liver

- 2.  The heart
- 3.  The brain
- 4.  The kidney

2

The heart has the highest oxygen extraction ratio of the major tissues at 60%. The O<sub>2</sub> extraction ratios of the brain is 33%, the liver is 15% and the kidney is 7.5%. ([link](#))

#### 7. 7. Question

Which one of the following statements regarding hyperosmolar therapy for brain injury is incorrect

- 1.  Effects are less consistent than hyperventilation.
- 2.  Their continued effect requires maintenance of serum hyperosmolality.
- 3.  Effects are longer lasting than hyperventilation
- 4.  Without intervention to remove the cause of increased ICP, water transfer will reverse in direction and increase ICP.

1

The effects of hyperosmolar therapies are generally considered to be more consistent than the effects of hyperventilation in brain injury. ([link](#))

#### 8. 8. Question

The ideal position for patients with brain injury is

- 1.  Head elevated 20-30 degrees
- 2.  Head elevated 40-50 degrees
- 3.  Supine
- 4.  Head elevated 60-70 degrees

1

Head elevation of 20-30 degrees is considered the best position as it improves venous return to a greater extent than it reduces cerebral blood flow, hence improving cerebral perfusion pressure. Higher degrees of head elevation are associated with decreases in cerebral blood flow greater than the reduction in venous pressure. ([link](#))

#### 9. 9. Question

The ideal target ranges for arterial pO<sub>2</sub> and pCO<sub>2</sub> in most patients with isolated brain injury are

- 1. PCO<sub>2</sub> 30-40mmHg, PO<sub>2</sub> 150-200mmHg
- 2. PCO<sub>2</sub> 35-40mmHg, PO<sub>2</sub> 100-150mmHg
- 3. PCO<sub>2</sub> 30-35mmHg, PO<sub>2</sub> 150-200mmHg
- 4. PCO<sub>2</sub> 30-35mmHg, PO<sub>2</sub> 100-150mmHg

2

Whilst it could be argued that a PCO<sub>2</sub> of 40mmHg should be the target for ventilation, most people err on the side of low normal PCO<sub>2</sub>. However a PCO<sub>2</sub> < 35 is associated with a decrease in cerebral blood flow, hence should be avoided. A PO<sub>2</sub> of 100mmHg is sufficient as hyperoxia may worsen brain injury. ([link](#))

#### 10. 10. Question

SvO<sub>2</sub> is usually

- 1. Higher in the IVC than the SVC
- 2. Higher in the IVC than the SVC
- 3. The same in the IVC and the SVC
- 4. Higher in children

1

The SvO<sub>2</sub> is usually higher in the IVC than the SVC due to the low O<sub>2</sub> extraction ratio of the kidneys. The SvO<sub>2</sub> can also normally be lower in children. ([link](#))

#### 11. 11. Question

Which one of the following statements regarding hyperventilation in severe head injury is false

- 1. It reduces intracranial pressure for up to an hour.
- 2. It may reduce cerebral oxygenation due to cerebral vasoconstriction.
- 3. It is usually slower in onset than hyperosmolar therapies.
- 4. Is not recommended in most intubated patients with a head injury.

3

Hyperventilation has a more rapid onset of effect on ICP than hyperosmolar therapies, but usually a shorter duration of effect. ([link](#))

### 12. 12. Question

The organ that has the highest blood flow per gram of tissue at rest is the

- 1. Kidney
- 2. Heart
- 3. Brain
- 4. Liver

1

Blood flow to organs (mL/100g tissue/min) at rest is: kidney 400; heart 80; brain 50; liver 20; skeletal muscle 5. Tissues with the highest blood flows are the most prone to the adverse effects of hypovolaemia. ([link](#))

### 13. 13. Question

The induction agent combination for RSI in a patient with brain injury least likely to cause secondary brain injury is

- 1. Suxamethonium - thiopentone
- 2. Rocuronium - ketamine
- 3. Rocuronium - thiopentone
- 4. Suxamethonium - propofol

2

Rocuronium and ketamine are probably the best combination as they are the least likely to cause hypotension, or increase ICP, although the increase in ICP with suxamethonium is probably of little significance.

### 14. 14. Question

The normal oxygen extraction ratio of the body in adults is

- 1. 0.4-0.5
- 2. 0.3-0.4
- 3. 0.2-0.3
- 4. 0.6-0.7

3

The overall oxygen extraction ratio of the body in adults is normally  $< 0.3$ . It is increased when tissue oxygen supply is low and is measured by SvO<sub>2</sub> (mixed venous O<sub>2</sub> saturation), which is normally  $> 70\%$  in adults. ([link](#))

### 15. 15. Question

Blood glucose concentration treatment threshold in brain injury is

- 1. 10mmol/L
- 2. 5.5mmol/L
- 3. 7mmol/L
- 4. 8mmol/L

1

Whilst various recommendations exist, and previously lower thresholds were thought to be beneficial, 10mmol/L is the appropriate threshold level. Hypoglycaemia in brain injury is associated with an increased mortality, so must be avoided at all costs. ([link](#))

Q 6. Which of the following is the most likely causative micro-organism for acute cholecystitis?

- A) Staphylococcus aureus
- B) Streptococcus pneumoniae
- C) Methicillin-resistant Staphylococcus aureus
- D) Escherichia coli

1	All of the following are true concerning acute appendicitis EXCEPT
A	It classically affects people 10–30 years of age
B	The classic presentation of anorexia—periumbilical pain with nausea followed by migration of the pain to the right lower quadrant—is present approximately 60% of the time
C	The incidence is the same in pregnant and non pregnant women
D	Negative Ultrasound examination of the appendix excludes appendicitis
Answer	

2	All of the following are risk factors for perforated viscus EXCEPT
A	steroid use
B	alcohol use
C	pregnancy
D	Crohn's disease
Answer	

3	Symptoms of painful defecation with blood spotting on the toilet tissue are MOST suggestive of
A	external haemorrhoids
B	fistula in ano
C	anal fissure
D	internal haemorrhoids
Answer	

4	In regards to acute pancreatitis, which set of admission lab values is MOST predictive of severe disease?
A	WBC 18,000; LDH 370; Glucose 20
B	Amylase 650; WBC 18,000; PaO2 65
C	LDH 370; Amylase 800; Albumin 3.2
D	HCT 33; LDH 370; AST 250
Answer	

5	A 50-year-old man presents with fever 3 days after having an inguinal hernia repaired. The MOST likely etiology of his fever is
A	urinary tract infection
B	postoperative atelectasis
C	surgical wound infection
D	abdominal abscess
Answer	

6	Which of the following statements about anorectal abscesses is true?
A	Ischiorectal and supralelevator abscesses are usually associated with inguinal adenopathy
B	Intersphincteric abscesses can usually be adequately managed with incision and drainage in the emergency department
C	Symptoms include pain which increases with defecation, and fever is variably present
D	After incision and drainage in the emergency department, antibiotics are usually indicated
Answer	

7	You deliver a child at 36-weeks gestation and notice intestines protruding from a defect in the abdominal wall. On inspection, you note that the intestines lack a peritoneal covering. All of the following statements are true EXCEPT
A	the child most likely has an omphalocele
B	associated anomalies are seen in 30–50% of children with omphalocele
C	gastroschisis can involve major fluid losses and resuscitation should be initiated
D	immediate surgical consultation is indicated
Answer	

8	Which of the following is true regarding umbilical hernias?
A	May increase in size over time in adults
B	In children, there is a greater incidence in boys
C	Rarely have complications in adults
D	They should be surgically repaired prior to the age of 2 years
Answer	

9	A 3-day-old baby presents to the emergency department with bilious vomiting and abdominal distension. He was the term product of an uncomplicated pregnancy. The MOST likely diagnosis is
A	pyloric stenosis
B	intussusception
C	necrotising enterocolitis
D	volvulus
Answer	

10	Regarding intussusception
A	The male:female ratio is 1: 4
B	Classic red currant jelly stools are present in 80% of cases
C	It is the most common cause of intestinal obstruction in children < 3 months
D	Plain abdominal xray is normal in up to 30% of cases
Answer	

11	With respect to testicular pain in a 14-year-old male, which of the following statements is FALSE
A	Torsion of the appendages occurs more often than torsion of the testes itself
B	Diagnosis of epididymo-orchitis necessitates evaluation of the urinary tract as part of follow-up
C	Salvage rate in torsion operated on within 4 hr is approximately 75%
D	Ten percent of testicular tumours present with pain secondary to acute haemorrhage within the tumour
Answer	

12	In the diagnosis and treatment of acute cholecystitis, which ONE of the following is FALSE
A	Most clinicians advocate early cholecystectomy (ie within several days after onset of symptoms) on the basis of lower complication rates, reduced costs and shorten recovery period
B	Biliary colic localises to the mid-epigastrium less often than the right upper quadrant
C	Courvoisier sign refers to a palpable, non-tender gallbladder in a patient with jaundice
D	CT is inferior to ultrasound in the assessment of the acute biliary disease
Answer	

13	Which ONE of the following statements about volvulus is FALSE
A	Sigmoid volvulus is more common in elderly patients with debilitating disease who lead lives of inactivity
B	A. Volvulus of the caecum occurs in all ages but is most common in persons 25 to 35 years of age
C	Fluid and electrolyte sequestration is usually not a problem in sigmoid volvulus, unlike small bowel obstruction
D	A single massively dilated loop of bowel with both ends down in the pelvis and the bow positioned superiorly ("bent inner tube" appearance) is characteristic of a caecal volvulus on plain-film radiograph of the abdomen
Answer	

14	In the diagnosis and treatment of acute appendicitis, which ONE of the following is FALSE
A	In approximately 20% of patients undergoing exploratory laparotomy because of suspected appendicitis, the appendix is normal
B	A history of anorexia is helpful in differentiating appendicitis from pelvic inflammatory disease
C	The inflammatory process of acute appendicitis may cause pyuria or haematuria
D	Although appendicitis may be ruled out if the appearance of the appendix is normal on ultrasonography, a normal appendix is seen in less than 5% of patients
Answer	

## Answers

1. E
2. C
3. C
4. A
5. A
6. C
7. A
8. A
9. E
10. D
11. C
12. B
13. D
14. B
- 15.