Q1 Answers

1.

BPPV
Vestibular labrynthitis
Meniere’s disease
Acoustic neuroma

2.

Ischaemic stroke
Haemorrhagic stroke
CNS malignancy
MS
Posterior circulation migraine

3.

Negative head impulse test
Skew gaze on cover testing
Nystagmus that is persistent, vertical, torsional or changes direction
Ataxic gait – broad based, cerebellar gait
Dysdiadochokinesis
Past pointing
Intention tremor
**Q2 Answers**

1. Multiple round opacities left lung
   Loss volume right hemithorax (consistent with collapse)
   Right upper lobe consolidation
   Air bronchograms
   Also right lower lobe opacification / consolidation
   Pleural effusion right side (parapneumonic)
   Hilar mass (probably lymphadenopathy right side)

2. Multi-lobar pneumonia
   Malignancy probably metastatic

3. Increase O2 – 15L via non-rebreather aiming for O2 sats >90%
   IV normal saline bolus 1000mL aiming for systolic BP >100mmHg
   IV antibiotics – for severe CAP – eg ceftriaxone 1g, azithromycin 500mg

4. Details of malignancy – known/ unknown, prognosis, treatability
   Pt wishes
   Family expressing wishes on behalf of patient (only if patient wishes unknown)
   AHD
   Baseline level of function / QOL
   Cognitive capacity
   Co-morbidities
   (some others will be OK)
Q3 Answers

1.
Fournier’s gangrene
(necrotising fasciitis scrotum)

2.
Oedema scrotum
Erythema scrotum
Patches black, necrotic skin scrotum

3.
Urgent surgical referral for debridement
IV antibiotics – meropenem 1g/ vancomycin 3g/ clindamycin 600mg (linco)
IV fluids – N/S boluses to maintain systolic >100mmHg
Glycaemic control with IV insulin infusion
Analgesia – IV morphine 2.5mg aliquots or other sensible option

4.
Staph aureus
Streptococcal species
Polymicrobial gram negatives and anaerobes
Q4 Answers

Q1
RSV
Influenza
Parainfluenza
HMPV
Adenovirus
rhinovirus

Q2
Cardiac failure – murmur, hepatomegaly, oedema
Bacterial pneumonia – asymmetrical chest signs, high fever, septic shock

Q3
No oxygen requirement (sats >93%)
Feeding normal or close to normal
Minimal use accessory muscles / increased WOB
Normal behaviour
Parents capable / psychosocial factors considered (only one mark for this stuff)
No apnoeas
No significant chronic medical problems
Q5 Answers

Q1

CXR – lung edge with pneumothorax, mediastinal shift with tension haemo or pneumo, veiling hemithorax with haemothorax

FAST scan – free fluid peritoneum with abdominal visceral injury, pericardial fluid with heart injury/tamponade

Q2

No crystalloid

Blood product use – begin packed cells

Goal – cerebral perfusion/radial pulse / systolic 80mmHg

Blood product ratios 1:1 – 1:2 FFP/platelets:packed cells

Massive transfusion protocol (not an extra mark in addition to ratios and blood product use)

Q3

Pericardial blood / tamponade

Large ongoing air leak

Large ongoing ICC blood losses (some number given will be needed eg >1500ml and 200mL/hr but hard to mark anything as “wrong”)

Q4

Agitation interfering with management / facilitate management

Refractory shock with decreased consiousness

Deteriorating hypoxia

To expedite surgical management also acceptable

Q5

Tension pneumothorax (critical answer)

Tension haemorrhax

Blocked ETT – blood/sputum

Misplaced ETT – right main bronchus

Ventilator dys-synchrony (includes not sedated)

Inappropriate ventilator settings eg too large volume

Bronchospasm
Q6 Answers

Q1
Pupil mid-sized
pupil irregular
Lateral ciliary injection
Cloudy cornea

Q2
Acute angle closure glaucoma

Q3
(electronic indentation) Tonopen
Impression (Schiottz) tonometry
Applanation tonometry with slit lamp (Goldmann)
Rebound tonometry
Pneumato-tonometry

Q4
<20-22 cmH2O

Q5
Acetazolamide 500mg Iv or oral
Pilocarpine drops
Apraclonidine drops
timolol drops

Q6
Anti-emetic eg ondansetron 8mg
Analgesia eg morphine 2.5mg aliquots
Q7 Answers

Q1
LBBB
Concordant ST elevation I,aVL,V4
Concordant ST depression inferior leads
Excessively discordant ST elevation V2,3

Q2
Acute MI with LBBB, meets Sgarbossa criteria/STEMI equivalent, for reperfusion

Q3
Pre-oxygenate sitting up
Add 15L O2 via NP to standard BVM (or use NIV to preox)
Reduce dose of induction agent
Use of adrenaline prior to induction (either infusion running or 50mcg dose or so with induction)
Bag pt through apnoea
(probably some others)
Q8 Answers

Q1
Fracture line anterior cortex supracondylar part of humerus
Distended anterior fat pad (sail sign)
Distended posterior fat pad

Q2
Gartland 1 supra-condylar fracture of humerus

Q3
Capitellum (capitulum) 1
Radial head 3
Medial (Internal) epicondyle 5
Trochlea 7
Olecranon 9
Lateral (External) epicondyle 11

Q4
Analgesia – give drug/s and doses
Sling / long-arm plaster – both acceptable
Orthopaedic follow up
Q9 Answers

(essentially an access block question)

Q1

Hospital occupancy too high

Delayed radiology / pathology results

Delayed inpatient team reviews

Delayed senior MO review resulting in delayed decision making

Difficult bed booking process

High complexity case load

Staffing issues eg sick leave, understaffing nursing

(many others,. not accept “access block” as this is the problem)

Q2

More frequent senior medical ward rounds for early discharge

More admitting medical officers

More frequent use of direct admission by ED staff

Improved access to radiology / pathology

Early senior ED doctor review for early disposition decisions

Improve (decrease) hospital bed occupancy

Less elective surgery

Hospital avoidance programs eg HITH

Streamlined care plans for common problems

(will be a lot of acceptable answers)
Q10 Answers

Q1

HAGMA: AG = Na – (HCO₃ + Cl)

Appropriate respiratory compensation

CO₂ = 1.5*HCO₃ + 8

Q2

Diabetic ketoacidosis

Q3

Low Na – dilutional due to hyperglycaemia – corrected Na = (glucose-5)/3 + actual Na

High K – due to acidosis – corrected is approx. 4.7

Low Cl – to maintain electrical neutrality, loss from kidneys in face of large amount of other anions (ketones)

Q4

Serum ketone finger prick – in DKA to monitor response to treatment with serial measures

UEC – assess for pre-renal renal failure with DKA

Urine – for UTI in febrile / urinary symptoms, can also use as surrogate (albeit poor) for serum ketones

CXR – assess for pneumonia if respiratory symptoms present

CT head – if signs of cerebral oedema eg reduced LOC

Serum antibodies – in first time DKA

(Accept other things that look for cause if explained well – BC, LP)

Q5

- Bolus 10ml/kg N/S aiming for improved perfusion
- Replace fluid deficit over 24 -48 hrs (deficit plus maintenance)
- Initially use N/S then change to N/S plus 5%D when BSL <15
- Add 20-40mmol/L K to each bag once K <5.5

Q6

- Insulin 0.1U/kg infusion
- Correct cause eg Abs for sepsis
Q11 Answers

Q1

DUB – absence of any other cause, age perimenopausal

Cervical cancer – lesion seen on speculum

Trauma – Hx of trauma, laceration on examination

Endometrial cancer - USS showing endometrial mass, bulky uterus on bimanual (accept fibroids for same reasons)

Coagulopathy – Hx coagulopathy, abnormal coags

Hypothyroidism – abnormal TFTs

PID - cervical motion tenderness / purulent dc / recent instrumentation

Q2

Tranexamic acid – 500mg tds

NSAIDs – eg ibuprofen 400mg tds, mefenemic acid

Norethisterone 5mg tds
Q12 Answers

Q1
Renal parenchymal laceration
Devascularisation parts kidney (hypodense)
Large perinephric haematoma

Q2
IR – blush identified on arterial phase and IR available
Nephrectomy – severe bleeding / shock not amenable to IR
Conservative – no blush on CT, minimal ongoing transfusion requirement

Q3
Haemorrhagic shock / death
Urinoma
Abscess
Hypertension
Urinary fistula
Delayed bleeding
Q13 Answers

Q1
Submandibular abscess (Ludwig’s angina)

Q2
Large swelling right side of face and below mandible / neck
Accompanying erythema

Q3
Analgesia – IV morphine 2.5mg aliquots or similar titrate to pain
IV Abs – benzylpenicillin 1.2g and metronidazole 500mg
Urgent ENT (or max-fax) review for drainage and airway control
Also accept anaesthetic referral for airway control

Q4
Seldinger
- Locate cricothyroid membrane (CTM)
- Insert needle through CTM under air aspirated
- Pass guidewire through needle
- Remove needle
- Incise skin
- Dilate tract
- Insert tube
Q14 Answers

Q1

Classes are: SSRI, SNRI, other antidepressants (TCAs), MAOIs, lithium, analgesics (fentanyl, tramadol), anti-emetics (metoclopramide, ondansetron), anti-convulsants (valproate), amphetamines, supplements (ginseng, st john’s wort)

Q2

CNS – anxiety, agitation, delirium, hallucinations, seizures, coma

Autonomic – flushing, mydriasis, sweating, tachycardia, hypertension, tachypnoea, hyperthermia, hypotension, diarrhoea

Neuromuscular – tremor, hyper-reflexia, clonus, myoclonus, hyper-tonia, rigidity
Q15 Answers

Q1
Accept any of:

CATCH

CHALICE

PECARN

Nexus 2

Q2

CATCH

CT head is only required if:

Minor head injury + Any of:

HIGH RISK

GCS <15 at 2 hrs/ Suspected open skull fracture/ Worsening Headache/ Irritability on exam

MEDIUM RISK

Suspected BOS fracture/ Large Haematoma (5cm)/ Dangerous Mechanism (Elevation >3ft, 5 stairs or bicycle without helmet)

CHALICE

CT is required if any of the following present:

- Examination
  - Glasgow Coma Score (GCS)<14, or GCS<15 if <1 year old
  - Suspicion of penetrating or depressed skull injury or tense fontanelle
  - Signs of a basal skull fracture (defined as evidence of blood or cerebrospinal fluid from ear or nose, panda eyes, Battle sign, haematympanum, facial crepitus or serious facial injury)
  - Positive focal neurology (defined as any focal neurology, including motor, sensory, coordination or reflex abnormality)
  - Presence of bruise, swelling or laceration >5 cm if <1 year old

- Mechanism
  - High-speed road traffic accident either as pedestrian, cyclist or occupant (defined as accident with speed >40 m/s)
  - Fall of >3 m in height
  - High-speed injury from a projectile or an object

If none of the above variables are present, the patient is at low risk of intracranial pathology.
Q3

Consent

Sedation/Access – IV: ketamine 0.5-1mg/kg or other suitable agent

Antiemesis – ondansetron 0.15mg/kg

Monitoring – at least Sats and Cardiac/NIBP
Q16 Answers

Q1
Peri-lunate dislocation
Scaphoid fracture

Q2
Analgesia – IV morphine 2.5mg aliquots or similar, titrated to pain
Reduction under procedural sedation / Bier’s block
Plaster short arm cast
Referral to ortho for ORIF

Q3
Median nerve injury
Vascular compromise / hand compartment syndrome

Q4
Carpal instability
Scaphoid
- Non-union
- Avascular necrosis
Osteoarthritis
Chronic pain syndromes / RSD
<table>
<thead>
<tr>
<th>Investigation</th>
<th>Justification</th>
</tr>
</thead>
</table>
| CTPA                | High sensitivity for proximal clot  
Gives some information about complication (RV strain, pulm infarction)  
Readily identifies differentials  
Concern is radiation exposure (females of reproductive age, pregnancy) |
| V/Q                 | Readily identifies large perfusion defect  
Lower radiation exposure (esp with perfusion-only)  
Higher rate of indeterminate scans  
False positives in pre-existing lung disease |
| Transthoracic ECHO  | Rarely provides direct evidence of clot  
Will provide relevant information on RV strain and pressures.  
No radiation – can be used at bedside and support provisional diagnosis in shocked patient. |
| CXR                 | Can identify differentials and mitigate need for further investigation (ie evidence of PTX or consolidation)  
Often will be normal/ near-normal |
| Duplex USS legs     | No radiation exposure  
Useful in patients with relative C/I to radiation  
More useful in ambulant patients cf inpatients |
| D-Dimer             | Evidence supports that a negative D-dimer coupled to a low pre-test probability (Wells) lowers incidence of PE to below test threshold. |
Q18 Answers

Q1
Haemolysis due to ABO incompatibility
Febrile non-haemolytic reaction
Allergic reactions
TRALI

Q2
Non-immune haemolysis
Sepsis
TACO

Q3
Stop the transfusion
Check pt details for incorrect blood administration
Samples of pt blood and transfusion pack to blood bank
Also accept IV fluids, paracetamol

Q4
iron overload
transmissible infections eg HIV
alloimmunisation
GVHD
Post-transfusion purpura
TRIM (transfusion related immune modulation)
Q19 Answers

Q1
Pulmonary oedema

Q2
Bilateral diffuse infiltrates
Fluid in horizontal fissure
Cardiomegaly
Kerley B lines

Q3
Hyperkalaemia

Q4
Broad QRS
Loss of P waves
Tall peaked T waves

Q5
Arrange urgent dialysis
CPAP 5-10 cmH2O
GTN infusion aim for reduction in BP <160mmHg
Ca (gluconate 30mL or Cl 10ml) 10%
NaHCO3 100mmol
Salbutamol 5mg neb
Insulin 10U + 50mL 50% dextrose
(also accept PR resonium reluctantly....)
Q20 Answers

Q1

Drug use
Localising symptoms of infection

Trauma

Significant past medical problems eg immunosuppression, epilepsy

Ill contacts
(there will be plenty of others)

Q2

Abnormal vital signs

Neurological abnormalities

Focal signs of infection

Track marks
(there will be plenty of others, but not accept different sites of infection as separate answers)

Q3

Involve parents

Separate space

Low stimulus environment

Security presence / show of force

Q4

Droperidol 5-10mg IM / IV

Olanzapine 5-10mg IM

Midazolam 5-10mg IM / IV

Ketamine 4mg/kg IM
Q21 Answers

Q1

Large left sided acute extradural haematoma
Mixed density “swirl sign” indicative of rapid bleeding
Parenchymal haematoma left parietal region
Midline shift to right
Loss of sulci consistent with raised ICP
Large scalp haematoma left temporal region

Q2

Urgent neurosurgery
Intubation
Maintain adequate oxygenation
Maintain MAP (as long as >75mmHg)
Low normal CO2
Other stuff (max one mark – normal temp, head up, normal BSL, normal Na)
Q22 Answers

Q1 as per BTS

<table>
<thead>
<tr>
<th>Treatment option</th>
<th>Clinical indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>discharge</td>
<td>small primary minimal symptoms</td>
</tr>
<tr>
<td>Admit for observation</td>
<td>Small secondary minimal symptoms</td>
</tr>
<tr>
<td>aspirate</td>
<td>Large primary / or symptoms</td>
</tr>
<tr>
<td></td>
<td>1-2cm secondary</td>
</tr>
<tr>
<td>Small calibre ICC</td>
<td>Large / symptomatic PTX primary or secondary</td>
</tr>
<tr>
<td>Large calibre ICC</td>
<td>Accept this as option for tension ptx</td>
</tr>
</tbody>
</table>

Q2

Tension pneumothorax (pass/fail)

Increased size PTX

Re-expansion pulmonary oedema

Exacerbation of underlying lung disease eg COPD / asthma

Anaphylaxis to drugs given

Pain
Q23 Answers

Q1
Tumour Lysis syndrome

Q2
HAGMA – renal failure, also possibly type B lactic acidosis with malignancy
Met alkalosis – vomiting

Q3

<table>
<thead>
<tr>
<th>Abnormality</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperkalaemia</td>
<td>Due to death of large numbers malignant cells with liberation of intracellular K</td>
</tr>
<tr>
<td></td>
<td>Contribution from acidosis with cellular shift with H+</td>
</tr>
<tr>
<td>Hypocalcaemia</td>
<td>Ca precipitation with phosphate</td>
</tr>
<tr>
<td>Hyperphosphataemia</td>
<td>Due to cell death with intra-cellular PO4 release and also due to acute renal failure</td>
</tr>
<tr>
<td>Raised LDH</td>
<td>Released from dead cells</td>
</tr>
<tr>
<td>Renal failure</td>
<td>Due to uric acid crystal deposition in tubules (acute uric acid nephropathy)</td>
</tr>
</tbody>
</table>
Q24 Answers

Q1
Papilloedema
focal neurological abnormalities
new onset seizures
depressed consciousness
cellulitis/infection back
purpura / evidence of bleeding diasthesis

Q2
Organisms on gram stain
Raised wbc count
Neutrophilia
Raised protein
Low glucose

Q3
Streptococcus pneumonia
Haemophilus influenza
Neisseria meningitidis

Q4
CSF culture
Blood culture
CSF PCR
Serum PCR
Urine Strep Ag
Q25 Answers

Q1

Junior staff supervision
- No patient discharged without senior discussion/review
- All imaging reviewed by senior ED staff at time of presentation

Delayed reporting of investigations
- Meet with radiology to review plain film reporting

Staff not checking abnormal results
- All investigation results checked by ordering staff/routine results checking processes

No notification of abnormal results to ED clinical staff
- Direct notification of abnormal results to ED consultant phone
(others will be acceptable)

Q2

Introduce and explain role

Apologise and acknowledge

Pledge to investigate incident and feedback

Immediate clinical priorities – ensure care (analgesia) and expedite consultant review and early orthopaedics involvement

Investigate case – review notes, interview staff involved, look at issues (any mentioned in (1) will be fine)

Document findings and outcomes

Feedback to relative and patient
### Q3

<table>
<thead>
<tr>
<th>Drug</th>
<th>Max safe dose for this patient (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bupivacaine</td>
<td>2</td>
</tr>
<tr>
<td>Ropivacaine</td>
<td>3</td>
</tr>
<tr>
<td>Lignocaine (without adrenaline)</td>
<td>3-5</td>
</tr>
<tr>
<td>Lignocaine (with adrenaline)</td>
<td>7</td>
</tr>
</tbody>
</table>

### Q4

- USS guided
- Aspirate prior to injection
- Use minimum effective dose (consider diluting with saline to achieve desired volume)
- Education sessions
- Anything sensible
Q26 Answers

Q1

Appropriate hospital AND
No initial signs of envenoming on assessment (normal exam and normal initial lab results)

OR

Antivenom administration has commenced

Q2

<table>
<thead>
<tr>
<th>SNAKE</th>
<th>COAGULOPATHY</th>
<th>NEUROPATHY</th>
<th>RHABDOMYOLYSIS</th>
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</thead>
<tbody>
<tr>
<td>Brown</td>
<td>VICC</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Tiger</td>
<td>VICC</td>
<td>Delayed</td>
<td>Severe</td>
</tr>
<tr>
<td>Black</td>
<td>ACC</td>
<td>None</td>
<td>Severe</td>
</tr>
<tr>
<td>Taipan</td>
<td>VICC</td>
<td>Rapid</td>
<td>Mild</td>
</tr>
</tbody>
</table>
Q27 Answers

Q1
Large bowel obstruction

Q2
Dilated large bowel
Fluid levels
No rectal gas
Cut off point distal descending colon

Q3
Malignancy
Diverticular stricture
Luminal FB / food bolus
Intussusception
Extrinsic compression
Hernia
Inflammatory bowel stricture

Q4
Perforation / peritonitis / sepsis (only 1 mark max for these)
Metabolic eg Hyponatraemia, hypokalaemia
Shock / dehydration due to 3rd space losses
Anything else reasonable eg renal failure from hypoperfusion