

Q1 Answers

1.

BPPV

Vestibular labyrinthitis

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 consciousness

Deteriorating hypoxia

To expedite surgical management also acceptable

Q5

Tension pneumothorax (critical answer)

Tension haemothorax

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 (Schiotz) 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: $AG = Na - (HCO_3 + Cl)$

Appropriate respiratory compensation

$$CO_2 = 1.5 * HCO_3 + 8$$

Q2

Diabetic ketoacidosis

Q3

Low Na – dilutional due to hyperglycaemia – corrected Na = $(\text{glucose}-5)/3 + \text{actual Na}$

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, mefenamic 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:

The children's head injury algorithm for the prediction of important clinical events rule

A computed tomography scan is required if any of the following criteria are present.

• History

- Witnessed loss of consciousness of >5 min duration
- History of amnesia (either antegrade or retrograde) of >5 min duration
- Abnormal drowsiness (defined as drowsiness in excess of that expected by the examining doctor)
- ≥3 vomits after head injury (a vomit is defined as a single discrete episode of vomiting)
- Suspicion of non-accidental injury (NAI, defined as any suspicion of NAI by the examining doctor)
- Seizure after head injury in a patient who has no history of epilepsy

• Examination

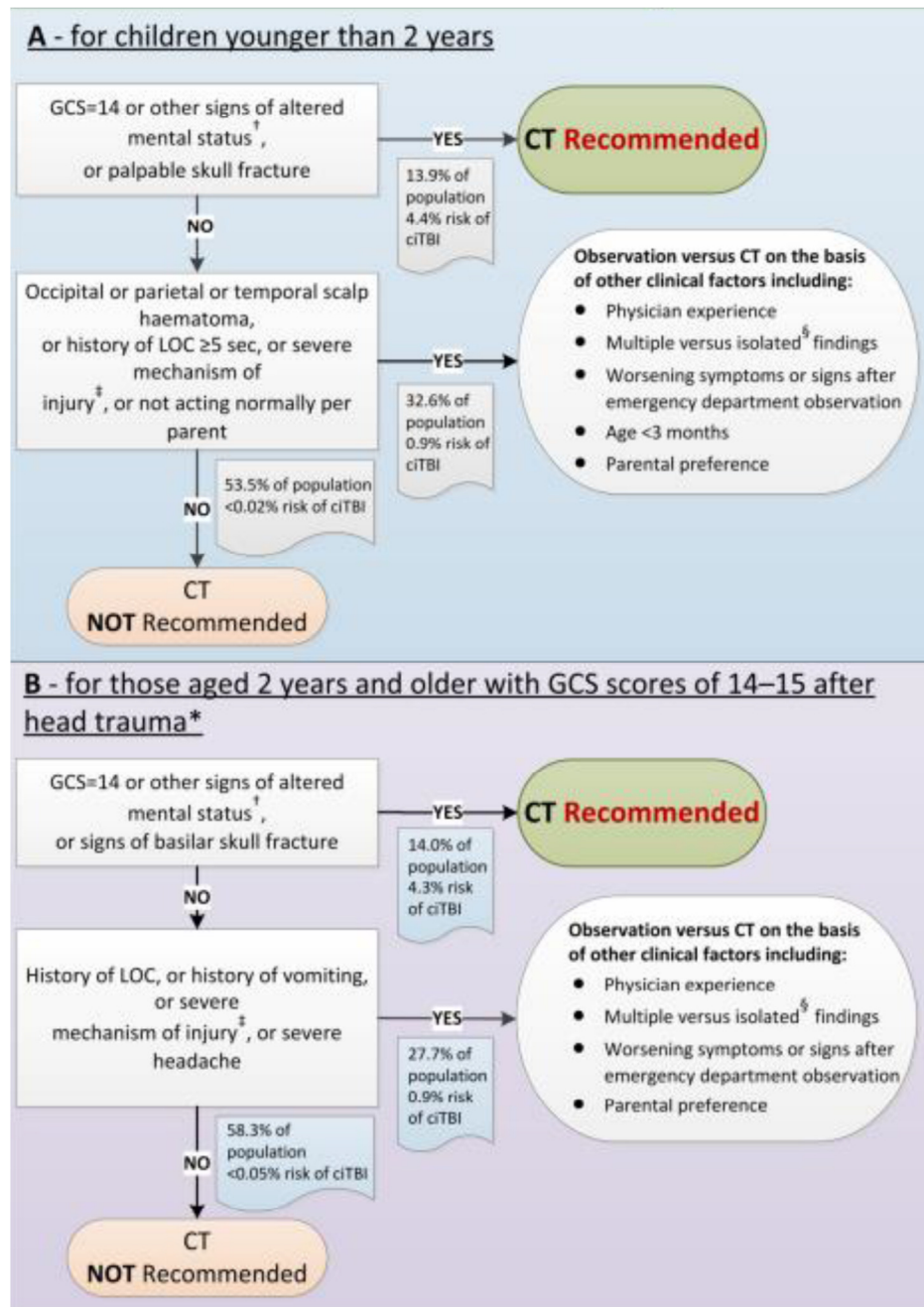
- Glasgow Coma Score (GCS) <14, or GCS <15 if <1 year old
- Suspicion of penetrating or depressed skull injury or tense fontanelle
- Signs of a basal skull fracture (defined as evidence of blood or cerebrospinal fluid from ear or nose, panda eyes, Battles sign, haemotympanum, facial crepitus or serious 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/h)
- 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.

PECARN



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

Q17 Answers

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

?Allow weaker contributory answers if well justified/criticised? Ie ABG/ECG etc?

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 $>75\text{mmHg}$)

Low normal CO_2

Other stuff (max one mark – normal temp, head up, normal BSL, normal Na)

Q22 Answers

Q1 as per BTS

Treatment option	Clinical indication
discharge	small primary minimal symptoms
Admit for observation	Small secondary minimal symptoms
aspirate	Large primary / or symptoms 1-2cm secondary
Small calibre ICC	Large / symptomatic PTX primary or secondary
Large calibre ICC	Accept this as option for tension ptx

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

Abnormality	Explanation
Hyperkalaemia	Due to death of large numbers malignant cells with liberation of intracellular K Contribution from acidosis with cellular shift with H ⁺
Hypocalcaemia	Ca precipitation with phosphate
Hyperphosphataemia	Due to cell death with intra-cellular PO ₄ release and also due to acute renal failure
Raised LDH	Released from dead cells
Renal failure	Due to uric acid crystal deposition in tubules (acute uric acid nephropathy)

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

Drug	Max safe dose for this patient (mg)
Bupivacaine	2
Ropivacaine	3
Lignocaine (without adrenaline)	3-5
Lignocaine (with adrenaline)	7

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

SNAKE	COAGULOPATHY	NEUROPATHY	RHABDOMYOLYSIS
Brown	<u>VICC</u>	<u>None</u>	<u>None</u>
Tiger	<u>VICC</u>	<u>Delayed</u>	<u>Severe</u>
Black	<u>ACC</u>	<u>None</u>	<u>Severe</u>
Taipan	<u>VICC</u>	<u>Rapid</u>	<u>Mild</u>

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