

Candidate number		Score	
------------------	--	-------	--

Brain death viva

You are asked to review in ED a 34 year old man who presented with 2 days of headache, vomiting and fever. He is previously well with no regular medications or allergies.

His initial GCS is E4 V4 M5. He is agitated and difficult to access for treatment.

An intravenous line had been placed but has been pulled out.

Five milligrams or intramuscular midazolam has been given and now his GCS has fallen.

On Examination

GCS E2 V2 M5
 Temp 39.4°C
 Pulse 124/min
 BP 148/64 mmHg
 Sats 96% on air
 RR 28 breaths per minute

What is your differential diagnosis?

1. What is your differential diagnosis?

- CNS –
 - infection (meningitis, encephalitis, abscess)
 - Intracranial bleed (SAH, ICH)
- Other sepsis
- Less likely but consider
 - Drug ingestion (meth, cocaine)
 - Toxidrome serotonergic syndrome, cholinergic syndrome
 - CV thrombosis/non infective encephalitis
 - Encephalopathy- hepatic
 - Thyrotoxicosis
 - Heat stroke/TTP

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
10 All plus prioritisation and discussion of diff Dx	7 Most plus prioritisation	5 Infection/ICH No diff	3 No mention CNS infection	1 No mention of CNS infection	0 No sensible Diff Dx

/10

2. What investigations do you need and why?

- Bloods
 - FBC- WCC
 - Micro- blood cultures, other samples
 - Glucose
 - U&Es/LFTs/glucose- sepsis, sick
 - VBG including lactate
 - Coags



- ECG- toxidrome
- Radiology
 - Head CT
- Tox screen

**Should not perform LP (reduced LOC) and discuss why wouldn't even with head CT*

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
10 Appropriate tests, says why and prioritisation	7 App tests	5 Bloods Micro CTH	3 Disordered/multiple irrelevant tests	1 Performs LP	0 Performs LP

/10

3. Outline your immediate Mx priorities

- Priority to get Abx in
- Explain Abx choice
 - Ceftriaxone high dose for CNS penetration. Covers Strep/N.Meningitides/H.inf
 - Vancomycin- cover resistant strep
 - Acyclovir- HSV encephalitis
 - Patient otherwise well- if immunocompromised would need Listeria cover- ampicillin
 - mero or cefepime to cover Pseudomonas (okay to ask for ID advice)
 - IVDU need to cover for S.aureus
 - Skull #/ post neuro surg (S.aureus, GNB cover)
- Steroids-dexamethasone 10mg q6hr prior to starting Abx
- Needs head CT as focal sign plus falling GCS- intubate and ventilate.
- Discuss induction agents and principles of neuroprotection
- Access
- General ICU
- Communication with family/other staff

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
20 Abx choice explained Steroids Neuroprotection Anticipate need for pressors General ICU	14	10 Abx but can't explain why Intubates with reasonable plan	3-6 No Abx but Unsafe or fails to intubate	1 No Abx or intubation	0 No Abx or other app Rx

/20

He is I&V without difficulty, remains CV stable and is taken to CT.

CT shows slit like ventricles, moderate sulcal effacement and effacement of basal cisterns. Sinuses clear. No bleeding. No infarct

4. What is your interpretation of this? How does it change your management?

- Radiological and clinical evidence of raised ICP.
- Mx of raised ICP
- Physical- head up, ensure ETT ties aren't tight
- Physiological- inc MAP to maintain CPP (CVL NAd, fluids) , normal CO₂, Na-145-150, normoglycaemia
- Pharm -Sedation, +/-paralysis, ?anti-epileptics – no role if not fitted
- EVD- ventricles slit like.

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
10 Raised ICP and offers full Rx in synthesized way	7 Raised ICP and cover most Rx	5 Raised ICP	3 Raised ICP recognised but no change Rx	1 Doesn't recognise raised ICP	0 No answer

/10

6hr post-admission to ICU his nurse asks you to review him. MAP 130 and sinus tachy 130/min and has passed 600mL dilute urine over pass 2 hr and his pupils have become fixed and dilated

5. What is your differential and how will you approach this situation?

- Diff Dx
 - Rising ICP/coning with DI
 - Seizures- add agent (don't explain polyuria)
 - Awareness/pain (don't explain polyuria)
- Emergency- Rx for raised ICP- next tier- further sedation, increase Na
- Rx seizures
- ABG- for Na,CO₂,glucose,hypoxia
- Urgent CTH

Shows: complete effacement of ventricles and basal cisterns with tonsillar herniation and multiple infarcts. CTA showed sluggish flow R vertebral artery, absent flow L vertebral artery and anterior circulation

- Recheck U&Es/Na/ABG

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
10 Gives thorough Diff Dx and Rx plan with priorities	7 Diff Dx and Rx	5 Rx for raised ICP/seizure	3 Doesn't recognise pot coning Gives seizure/aware ness	1 Doesn't recognise pot coning	0 No diff or Rx

/10

Urgent CT head shows: complete effacement of ventricles and basal cisterns with tonsillar herniation and multiple infarcts. CTA showed sluggish flow R vertebral artery, absent flow L vertebral artery and anterior circulation

6. What are the implications of this?

- Unsurvivable
- Some flow on CT at time but likely to become BD
- Need to have family meeting
- Stop sedation and paralysis
- Continue physiological support to allow BD testing and maintain extra-cranial organ function
- Notify donation agency

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
20 Unsurvivable Family meeting Anticipate BD & need to support through and why Discuss extra- cranial support	14 Unsurvivable Family meeting BD and some Rx	10 Unsurvivable Family meeting Needs pushing to say BD	3-6 Doesn't recognise Px Has family meeting	1 Doesn't recognise Px No plan for Family meeting	0 No answer

/20

7. How will confirm brain death? (10)

- Preconditions
 - Cause of injury know
 - Absence of sedation
 - Neuromuscular function intact (check with nerve stimulator)
 - Temp >35C
 - Able to assess 1 ear/1eye
 - Adequate BP

- No significant metabolic or endocrine derangement
- Able to perform apnoea test

- 4hr observation period whilst meeting preconditions
- Clinical testing if meets above otherwise radiological

E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
10 Covers all in detail/implications without prompting	7 Covers with prompting but knows where to look who to ask	5 Covers with prompting	3 Misses important preconditions Unaware how to check	1 Makes major error	0 No answer
					/10

Gestalt					
E Excellent	G Good pass	P pass	F fail	B Bad fail	A Abysmal
10	7	5	3	1	0
					/10

Feedback	/100
General viva comments	
Viva specific comments	
Top-tip	