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Curiositas (Neurology)

In this edition of Curiositas we have a neurology perspective on a range of interesting topics.

UNDERGRADUATE QUIZ

A 50 year old woman (70kg) presents with convulsive status epilepticus which persists despite lorazepam therapy, for which she is prescribed phenytoin.

Medicine	Dose	Route
PHENYTOIN	300MG	INTRAMUSCULAR

What is wrong with this prescription?

(Mr Mohab Hassib, Medical Student, Queen's University Belfast; Dr Michael Kinney, ST7 in Neurology, Western Health and Social Care Trust; Dr Mark McCarron, Consultant Neurologist, Western Health and Social Care Trust)

CONTINUING MEDICAL EDUCATION QUIZ

A 29 year old female gives a 4 month history of a frontal headache described as 'pressure', of 6/10 severity. It is worse with coughing and in the morning. She has noticed intermittent blurring of vision and occasional whooshing noises in her right ear. On systemic questioning weight gain of 12 kg over the last 6 months is identified. Neurological examination was normal other than funduscopic examination, which is shown below.

Courtesy of Dr Kinshuck http://www.goodhopeeyeclinic.org.uk

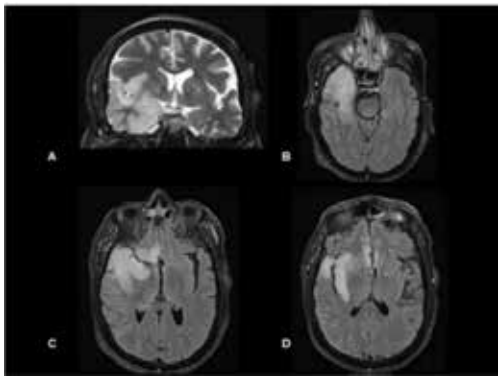
(Website last accessed 21/03/2017)

1. Describe the fundi.
2. What is the likely diagnosis and what differential diagnoses should be considered?
3. How would you investigate and manage this patient?

(Dr Gavin McCluskey, CT2 in Medicine, Southern Health and Social Care Trust; Dr Michael Kinney, ST7 in Neurology, Western Health and Social Care Trust; Dr. Mark McCarron, Consultant Neurologist, Western Health and Social Care Trust)

'ON THE ACUTE MEDICAL TAKE'

A 50 year old male patient presents with an altered mental state and is noted to be febrile. He has a tonic-clonic seizure at home prior to coming to hospital. On assessment he scores 13/15 on the Glasgow Coma Scale. He is confused and opens his eyes to voice. His neurological examination is otherwise normal. Magnetic resonance imaging (MRI) of his brain is displayed below.

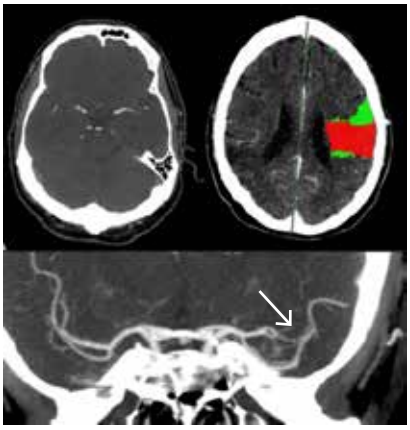


1. What is the most likely diagnosis and what would be your initial management?
2. What other non-infective diagnoses should be considered if he failed to improve?

(Dr Gordon Anderson, FY1 in Medicine, Northern Health and Social Care Trust; Dr Michael Kinney, ST7 in Neurology, Western Health and Social Care Trust; Dr Mark McCarron, Western Heath and Social Care Trust)

POSTGRADUATE QUIZ

A 56 year old male presented to the emergency department with a sudden onset of dysarthria with right arm and right leg weakness which started 45 minutes earlier. His National Institutes of Health stroke score was 18. He had a stroke 12 weeks earlier with full recovery after receiving thrombolysis. He has atrial fibrillation and takes APIXIBAN 5 mg BD.



1. What does the acute imaging demonstrate?
2. What potential treatment could be considered?

(Dr Rebecca Robinson, CT1, Stroke Medicine, Belfast Health and Social Care Trust; Dr Patricia Gordon, Consultant Stroke Physician, Belfast Health and Social Care Trust).

ANSWERS See overleaf

CONSIDER CONTRIBUTING TO CURIOSITAS?
Please refer to '*Curiositas: Guidelines for contributors*' http://www.ums.ac.uk/curiositas.html and email *umj@qub.ac.uk* with your ideas and submissions.

Curiositas: Answers

UNDERGRADUATE QUIZ

Phenytoin should be given intravenously at 20 mg/kg (max 2g in total) at a rate not exceeding 1 mg/kg/min (or a maximum of 50 mg per minute). In a 70kg woman the correct dose is therefore 1400mg. The rate should not exceed 50 mg/min due to the risk of cardiac arrhythmias and hypotension. If given in the elderly, the rate can be reduced, particularly if cardiac side effects emerge. For this reason cardiac monitoring is mandatory.

(Mr Mohab Hassib, Medical Student, Queen's University Belfast; Dr Michael Kinney, ST7 in Neurology, Western Health and Social Care Trust; Dr Mark McCarron; Consultant Neurologist, Western Health and Social Care Trust)

CONTINUING MEDICAL EDUCATION QUIZ

1. The images show bilateral optic disc oedema, without haemorrhage.

2. The most likely diagnosis is idiopathic intracranial hypertension (IIH). The main differential diagnoses would include a space occupying lesion, hydrocephalus and cerebral venous sinus thrombosis.

3. Initial investigation would involve an urgent computed tomography (CT) scan of brain with a mandatory venogram study to exclude the above differentials; lumbar puncture in the lateral position to measure the opening pressure of cerebrospinal fluid (CSF) if not contraindicated. CSF constituents must also be checked and be normal in an IIH case. A CSF opening pressure of > 25cm CSF is elevated. Specialist ophthalmology confirmation of the optic disc oedema and visual field testing is essential as visual loss is the major morbidity.

4. The patient should be educated regarding weight loss. Pharmacotherapy options include acetazolamide, topiramate, or furosemide. If experiencing rapidly deteriorating visual fields, an urgent neurosurgical referral for ventriculoperitoneal shunt insertion should be considered.

(Dr Gavin McCluskey, CT2 in Medicine, Southern Health and Social Care Trust; Dr Michael Kinney, ST7 in Neurology, Western Health and Social Care Trust; Dr. Mark McCarron, Consultant Neurologist, Western Health and Social Care Trust)

'ON THE ACUTE MEDICAL TAKE'

1. In the UK, herpes simplex virus (HSV) is the commonest identified cause of encephalitis in adults. This case is a classical presentation, with typical imaging findings predominantly involving the medial temporal lobes. CSF assessment typically confirms the presence of HSV, as it did in this case. Aciclovir (10mg/kg TDS) should be started empirically if a strong clinical suspicion exists and if a >6 hour delay in performing the lumbar puncture and acting on the results is anticipated. Renal function should be regularly monitored whilst on aciclovir, due to risk of acute kidney injury. Aciclovir dose adjustments should be made depending on pre-existing renal function. HIV and syphilis serology should also be checked in patients with encephalitis.

2. Autoimmune encephalitis should be considered. It tends to be more sub-acute in its presentation, and is associated with behavioral disturbances, autonomic dysfunction and stereotyped movement disorders, particular facial movements. MRI can be normal and should not be used to exclude the diagnosis. CSF/Serum antibody testing is performed to confirm the diagnosis and should be guided by a neurologist typically.

(Dr Gordon Anderson, FY1 in Medicine, Northern Health and Social Care Trust; Dr Michael Kinney, ST7 in Neurology, Western Health and Social Care Trust; Dr Mark McCarron, Western Heath and Social Care Trust)

POSTGRADUATE QUIZ

1. The imaging shows a proximal left middle cerebral artery (M2) occlusion (white arrow), on the CT angiogram (bottom image), with a perfusion deficit (green) and established infarct core (red) on the CT perfusion image (top right).

2. The time of onset is crucial in identifying patients suitable for thrombolysis. The current time window is 4.5 hours. Thrombolysis was contraindicated due to the use of anticoagulants. The time window for clot retrieval is typically 6 hours, but is essentially determined by the presence of an accessible proximal clot in the presence of ongoing significant clinical deficit, without substantial established infarct. Clot retrieval was successfully carried out with vessel recanalisation achieved in this case in the neuro-interventional suite by the neuroradiology team.

He made an excellent recovery and was discharged with mildly reduced fine finger movements in his right hand.

(Dr Rebecca Robinson, CT1, Stroke Medicine, Belfast Health and Social Care Trust; Dr Patricia Gordon, Consultant Stroke Physician, Belfast Health and Social Care Trust).

USEFUL REFERENCES

Case 1: Joint Formulary Committee, British National Formulary. London 72. BMJ Group and Pharmaceutical press, 2017.

Case 2: Friedman DI, Liu G, Digre K. Revised diagnostic criteria for the pseudotumr cerebri syndrome in adults and children. Neurology 2013;81:1159-1165

Case 3: Solomon T, Michael BD, Smith PE, Sanderson F, Davies NW, Holland M et al. Management of suspected viral encephalitis in adults—Association of British Neurologists and British infection Association National Guidelines. J Infect 2012;64:347-73

Case 4: Interventional procedures guidance [IPG548] Mechanical clot retrieval for treating acute ischaemic stroke. 2016, NICE. Accessed online [Last accessed 27/04/2017]: www.nice.org.uk/guidance/ipg548