Quiz 4
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Q1) When does neural tube start to form? When does the the rostral neuropore close? When does the caudal neuropore close?

Cannot be exact with the dates but these events occur around:

Neural tube forms: about 22 day
Rostral neuropore close: about day 25
Caudal neuropore close: about day 27

TW Sadler. Longman's medical embryology. Ninth edition. Lippincott Williams and Wilkins, Phili, 2004 p 90

Q2) How do you manage patients with hypertension secondary to intracerebral haemtoma?

There does not appear to be consensus on this. Decreasing blood pressure likely to decrese risk of rehaemorrhage and vasogenic oedema but there is a risk of causing ischaemia..

According to Warburton Indications for management of hypertension in ICH (Liz A Warburton. managmento facute ischaemic stroke. In Textbook of neuroanaesthesia and critrical care. In: Basil Matta, David Menon, John Turner. GMM, London 2000, p 357):

☑ hypertensive encephalopathy
☑aortic dissection
☑cardiac failure
☑acute renal failure
☑Blood pressure readings exceeds limits of autoregulation : i.e systolic BP > 220 diastolic BP > 110

It is also not clear how rapidly or cautiously the blood pressure should be brought down. Whether it be over minutes or over days.

American heart association guidelines from (1999) (reviewd in Torbey MT. Bood pressure management. In: Handbook of Neurocritical care. Humana PressTotowa, 2004, 234):

- if SBP is > 230 mmHg or DBP >140 mmHg on two readings 5 mins apart, institute sodium nitroprusside
- if SBP is from 180-230 mmHg on two readings 20 mins apart, institute intravenous labetalol, ermolol, enalaprilat, Nicardipine
- If SBP is <180 mmHg and DNP <105 mmHg, defer antihypertensive therapy
- If ICP monitoring is available, CPP shouild be kept at >70 mmHg

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Labetalol, esmolol and enalapril do not have effect on ICP. Nitroglycerine and sodium nitroprusside cause vasodilatation and cause increase in CBF and ICP; these effects can decreased by slowly infusing these drugs (Allen SJ, Parmley CL, Cardiovascular therapy. In: Handbook of neuroanaesthesia. 4th edition. Eds.: Newfield P, Cottrell JE. Lippincott Williams & Wilkins, Philadelphia, 2007 pp377

The control of BP in patients with ICH is controversial. It is useful to discuss this topic with your neuro-intensivist. Do you follow any protocol in your unit?

Q3) What is the iv loading dose of Sodium valproate in adults?

20mg/kg (can go up to 30 mg/kg)

Infusion rate of 3 - 10 mg/kg/min

Target serum concentration > 100microgram/ml

Venkataraman V et al. Epilepsy Res, 1999 June; 35(2):147-53
Limdi Na et al. Epilepsia 2007; 48(3): 478-83

Q4) Can a patient sense touch, If the spinal posterior column is affected?

Yes. Tactile sensation is carried by the anterlateral pathway. It is the discriminatory tactile sensation that is carried in posterior column. So if the posterior column is affected the patient can feel touch but cannot discriminate between single or paired stimuli; unable recognize numbers traced on the skin

Q5) How would you treat a pure chance fracture?

Chance fracture is mainly osseous. Patient can be treated conservatively or operatively. Conservative treatment will entail the patient wearing an extension brace. Operative treatment would entail bisegmental pedicle screw fixation without (posterolateral) fusion; However, the the metal work would need to be removed after 8-12 months (after the bone has healed) to allow regain the range of motion.

(I would go for the conservative treatment; avoiding 2 operations, expenses, risk of operative complications)

Bartolome Marre. Thoracolumbar and lumbar spine fracture. In: AOLSpine manual clinical applications(Vol 2). Eds.: Aebi M, Arlet V, Webb JK. Thieme, Stuttgart 2007, pp178-179

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