

First 2011
VIVA 4

What are the determinants of intracranial pressure?

This viva explored basic and highly relevant area of CNS physiology. Candidates are expected to draw, interpret and explain the relationship between intracranial pressure, cerebral blood flow and variety of chemical and physiologic control mechanisms as they may be illustrated within graphs. Basic pharmacologic principles of ICP control were also discussed. Lack of knowledge depth and conceptual understanding were areas that need further attention.

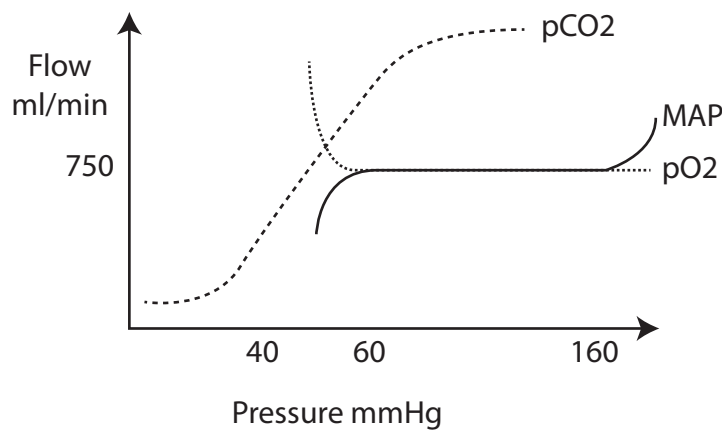
What is normal cerebral blood flow and discuss how pCO₂, pO₂ and MAP affects CBF

Normal CBF is 750ml/min and this represents 15 % of CO

the brain demonstrates autoregulation, therefore within a MAP of 60-160 CBF is relatively constant

pCO₂ has a near linear relationship with respect to CBF within the normal physiological parameters

pO₂ will only increase CBF when it drops below normal physiological values



“What is normal intracranial pressure?”

10-15 mmHg

“What is the Kellie-Monroe doctrine?”

states that for an ICP to remain stable one of the three compartments must be forced out these three compartments are the brain tissue 85%, the CSF 10% and the CBF 5%

“Discuss pharmacological principles associated with controlling raised ICP”

essentially they are focussed on

- reducing metabolic demand via sedation and barbituates

- preventing temperature increases by managing infections and inflammation (no steroids)

- reducing pressure via osmotic agents and diuresis

- preventing seizures with anticonvulsives