FEB 2008
QUESTION 05

Outline the physiological factors which influence cerebral blood flow

Cerebral blood flow

750ml/min which represents 15% of cardiac output

flow = cerebral perfusion pressure / cerebrovascular resistance

Cerebral perfusion pressure

MAP - (central venous pressure OR intracranial pressure)

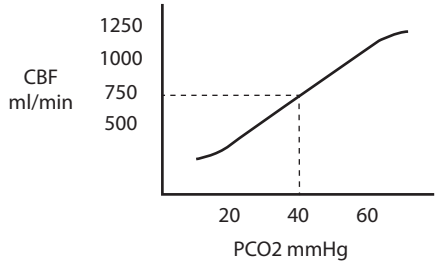
ICP can cause a starling resistor model if it exceeds CVP

normal range is 70-90 mmHg

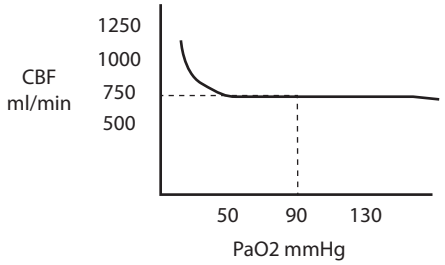
Cerebrovascular resistance

extrinsic factors

pCO2 demonstrates a near linear relationship with CBF due to changes in resistance



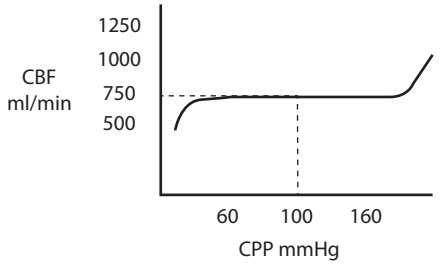
pO2 only changes the CBF when paO2 decreases below 50mmHg (steep part of HbO2 curve)



intrinsic factors

myogenic stretch

demonstrates autoregulation which maintains CBF between a CPP of 60 - 160



metabolic factors

increased metabolic activity will increase flow to the brain

this may be more important from a regional distribution perspective