

Lecture: Autoregulation of CBF (Numbers)

blood flow through the brain (CBF)	Normal CBF:	50 to 65 ml /100 grams of brain tissue / minute. = 750 to 900 ml/min for entire brain = 15% of the resting cardiac output .
	Ischemia	below 18 to 20 ml / 100 g / minute
	Tissue death	below 8 to 10 ml / 100 g / minute.
Normal CPP		= 70 - 90 mmHg <ul style="list-style-type: none"> • CPP = MAP - ICP
70 % increase in arterial PCO2		<ul style="list-style-type: none"> • doubles the cerebral blood flow • dilate blood vessels up to 3.5
The rate of utilization of oxygen by the brain tissue		3.5 (± 0.2) ml of oxygen / 100 grams of brain tissue/minute
PO2	normal value PO2	= 35 to 40 mm Hg
	increase cerebral blood flow	below about 30 mmHg
	Brain function becomes deranged	below 20 mmHg
Cerebral blood flow is auto regulated		between arterial pressure limits of 60 and 140 (or 150) mm Hg.
cerebral perfusion is determined by blood pressure alone without autoregulation.		Outside the range of 60 to 150 mmHg
Normal ICP		ranges from 1 to 15 mm Hg ' (but other sources give ranges like 8 to 18 mm Hg).
Cushing reflex		ICP > 33 mmHg
Number of capillaries and rate of blood flow are about greater in the gray matter than the white matter.		four times
CSF	CSF Volume	150 ml
	Rate of production	500 ml/d
	Lumbar CSF pressure	70-180 mm hg = 112 mm (normal average)
	CSF absorption stops	When CSF pressure below 68 mm
	Osmotic pressure	equal to that of plasma.
	Sodium ion concentration	equal to that of plasma.
	Chloride ion	about 15 percent greater than in plasma.
	Potassium ion	approximately 40 percent less than in plasma.
	Glucose	about 30 percent less than in plasma.
	brain weight	In air =1400 gm, In CSF =50gm