TBI Management

https://app.sli.do/event/shsdsrl3

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Aims and Objectives

To develop an understanding of the Pathology of TBI

To be more confident in the Management of TBI

To develop a tool kit of skills to nurse patients with a TBI

TBI STATISTICS

Important cause of death and disability in young adults

Estimated only 15% of patients return to work in 5 years.

Cause of 15-20% of deaths in 5-35 year olds

Alcohol (involved in up to 65% cases)

Assaults 30 – 50%

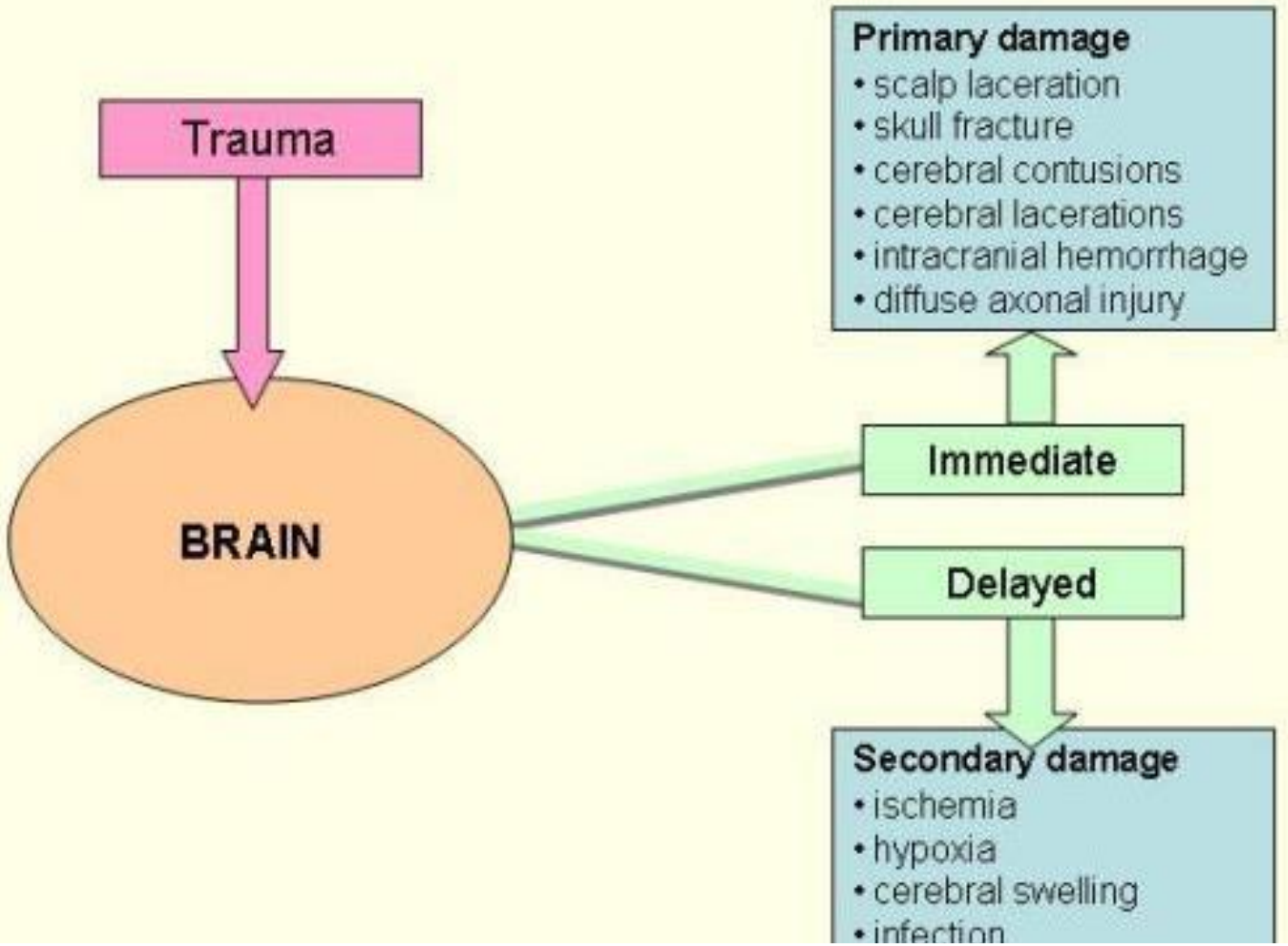
Road Traffic Accidents – 25%

Falls 22- 43%

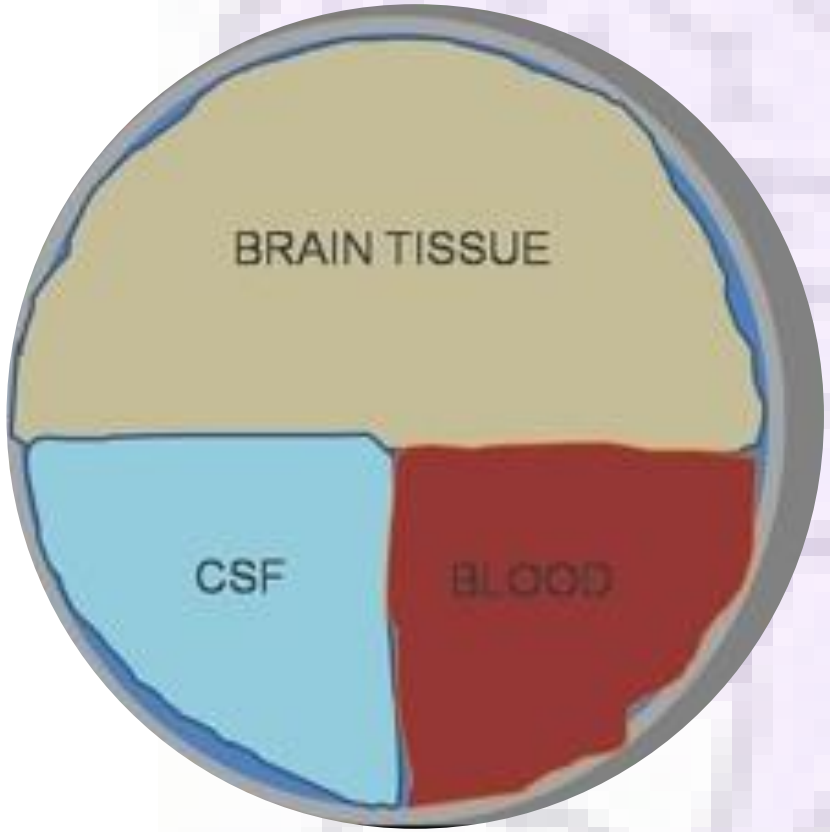
Sports & recreation 10 – 15%

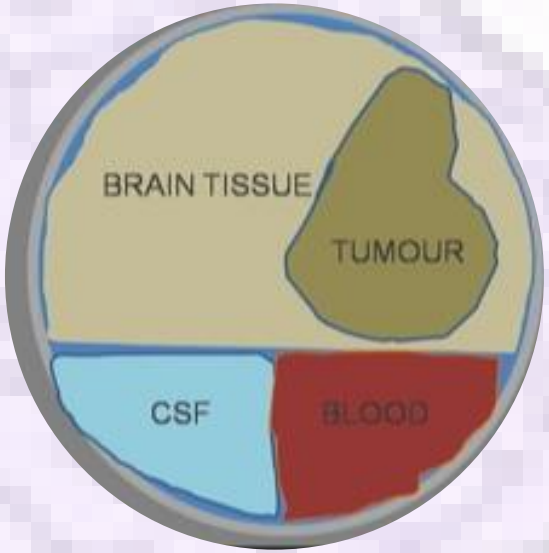
UK figures show 70 – 80% are male

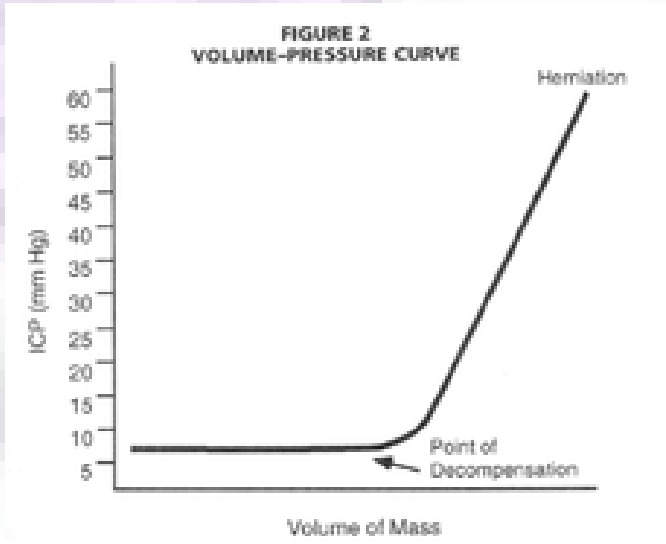
Primary Vs Secondary Brain Injury



Monro-Kellie hypothesis







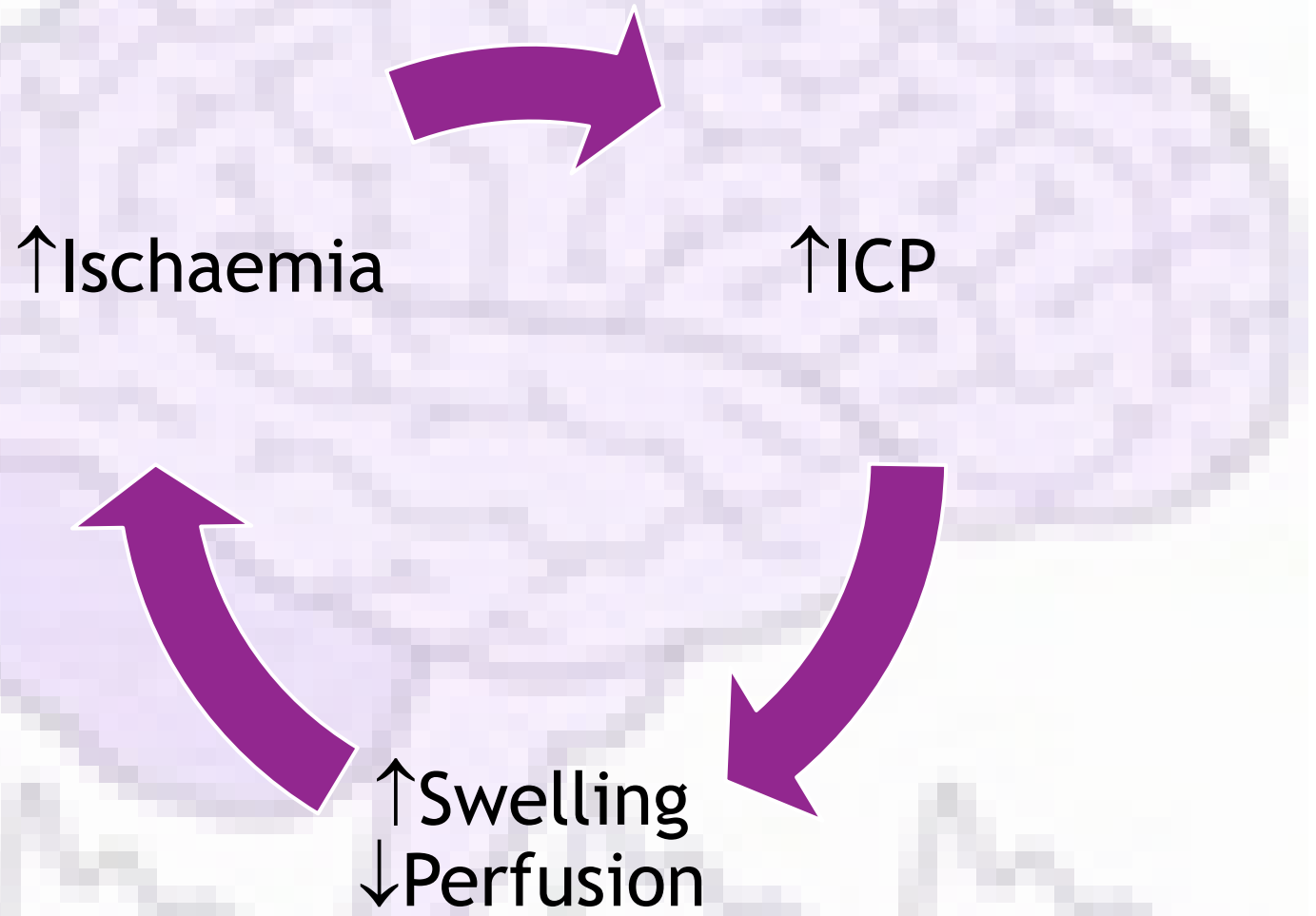
Cardiovascular

Cerebral Perfusion Pressure = MAP – ICP.

CPP 60-70 required to perfuse damaged brain.

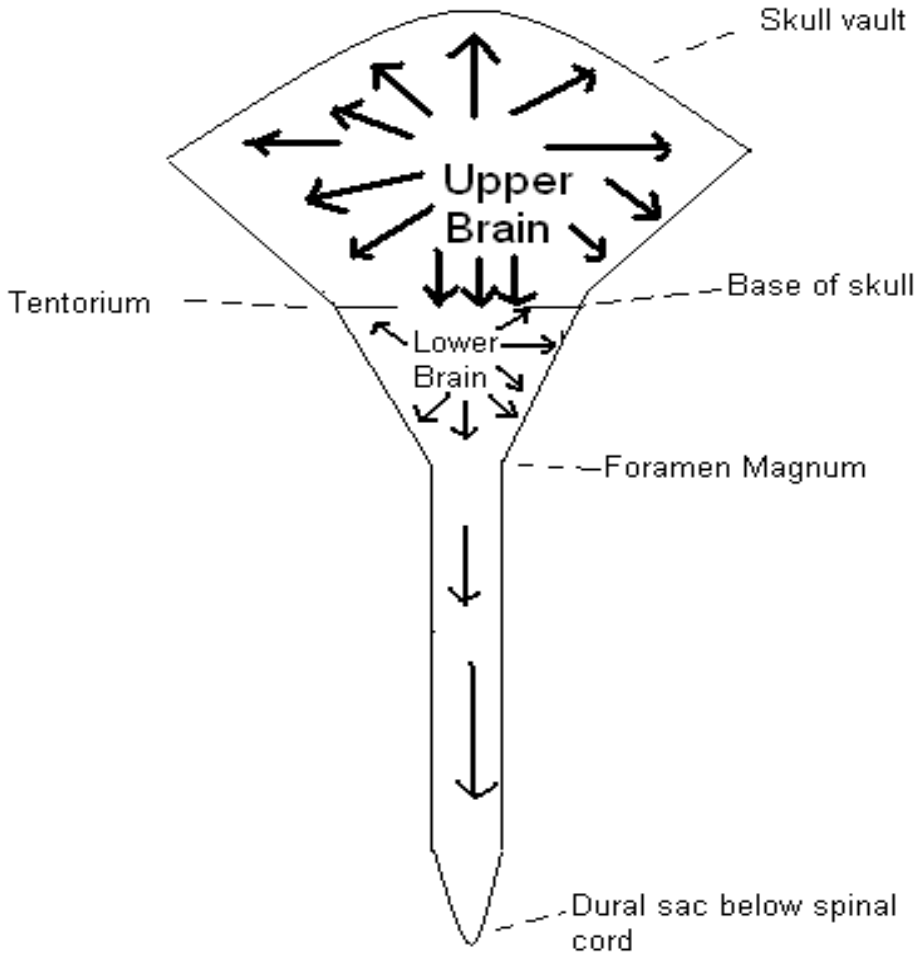
Without monitoring, assume ICP 20-25.

Un-Controlled ICP



If this cycle is not halted, patient will ‘cone’

Coning



Huge pressure in the upper brain

Less pressure in the lower brain

Almost no pressure at the base of the spinal cord

Creates a “pressure cone” in which the upper brain forces itself through the tentorium, crushing the brain stem

Patient X Scenario (Day 1)

A 21 year old bot was admitted from A and E

a car crash victim, He was the passenger

He was brought in by HEMS and intubated at the scene

GCS as the Scene was E1 V1 M2

His pupils are L 4+ R 5+

Blood pressure and Heart Rate have remained within normal range

CT scan shows a Traumatic SAH With Large Midline shift and some brain stem herniation

He is an isolated head injury who has had his Spine Radiologically Cleared

He was given two 100ml Boluses of 5% saline in A and E

He Is sedated on Propofol and Fentanly

The neursurgeons are taking him to surgery for an ICP bolt ASAP

Patient X (Day 2)

Patient X has an ICP of 32mmhg for more that 5 minutes

His Pupils are L 3+ R 8-

Patient X Scenario Part 2 (Day 1)

Head up 45% (At least)	Lying on his back	Head straight	Nothing Tight on the Neck
PRVC Ventilation C02 4.5-5	5% Saline	Sedation -? Midazolam	Bis less than 30
Maintain a Map of 90mmhg & CPP 60mmhg	Normothermic	Give Fluid Challenge against Hemisphere	? Start Norad if Needed
CT SCAN			

Blood Gas	
Ph	7.45
PCO2	4.8
PO2	11.2
Na+	143
K+	3.9
Glu	9.3
Lac	1.3

Patient X (Post 2nd CT Scan)

CT Scan shows worsening Midline Shift and more extensive brain stem Herniation

He is not for any Neurosurgical Management

Patient X Day 2 (Post CT Scan)

Blood Gas	
Ph	7.50
PCO2	4.4
PO2	10.
Na+	151
K+	3.9
Glu	9.3
Lac	1.3

ICP 41	BIS 21	GCS E 1 V1T M1 Pupils L 8- R 8 -	Pt is Having episodes of SB
BP is 230/85 (Map 133)	He has been started on Labetalol	He has passed 600mls of urine in the last hour	Family Chat

Patient X
Last Resorts

- Start Paralysing Agent
- Cooling
- Thiopentone

Patient X Conclusion

- Patient X was suspected to be coning/Coned
- He had a DNR put in place
- The catastrophic brain injury pathway was implemented and followed
- SNODS were Informed

Patient X Conclusion

- He was brain Stem tested with his mum present
- He was brain stem dead and pronounced dead
- The family were very keen for organ Donation
- He went for organ donation and donated his Kidneys, Liver, Lungs and Heart