

Could Early Decompressive Craniectomy Provide Better Outcomes For Patients Following Traumatic Brain Injury?

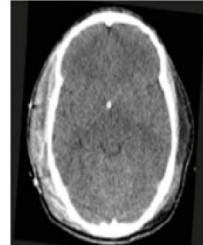
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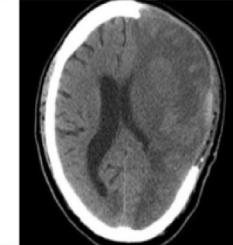
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- This poster will show critical analysis of the evidence surrounding the timing of decompressive craniectomy (DC). It will examine whether early DC provides better outcomes for patients following traumatic brain injury (TBI).
- The pathophysiological process following TBI can lead to neurological damage (secondary brain injury). This occurs due to raised intra cranial pressure preventing optimal cerebral perfusion and oxygen delivery to the brain. Thus causing irreversible ischaemia. (Brain Trauma Foundation, 2007)
- Early intervention and treatment, for increased ICP, can prevent secondary brain injury (American Association of Neurological Surgeons, 2016)

DC is the removal of a large part of the skull which helps overcome the non compliant nature resulting in reduced ICP. It is a second tier therapy and often used as life saving treatment
(Zhang *et al.* 2016. Akyus *et al.*, 2010)



Diffuse oedema pre DC
(ResearchGate.net, 2008-2016)



Cerebral swelling post DC (Ban *et al.*, 2010)

Evidence

Study	Method	Sample size and location	Main outcome measures	Results
DECRA (Cooper J <i>et al.</i> 2011)	Multi centre Randomised control trial (RCT)	N = 155 Australia, New Zealand and Saudi Arabia	1) Extended Glasgow Outcome Score (GOSe) 6 months post injury 2) Days in ICU and treatments for ICP	Early DC group - less days on ICU, less treatments for ICP, worse GOSe score - increased unfavourable outcome
Wen <i>et al.</i> (2011)	Prospective cohort	N = 44 China	Glasgow Outcome Score (GOS) at 6 months post injury (PI)	No difference in GOS for early and late DC
Akyus <i>et al.</i> (2010)	Observational study	N = 76 Turkey	GOS at 12 months PI	Early DC provided better GOS
Cianchi <i>et al.</i> (2012)	Retrospective Cohort	N = 186 Italy	GOS 6 months post ICU	GOS did not differ between early DC, late DC and conservative management groups.
Zhang <i>et al.</i> (2016)	Meta-analysis	N = 282 China	GOS and GOSe (no timing stated)	No significant difference in late or early DC. Pupil abnormality associated with outcome

Discussing the Evidence

- Ineffective randomisation of pupil abnormalities
- Minimal RCTs
- Discrepancy in DC technique
- Does GOS and GOSe provide reliable assessment for analysis of outcome?

Ethical and Nursing Implications

- Post op complications impacting on patient's quality of life (Honeybul & Ho, 2011)
- Possibility of prolonged patient harm physically and psychologically (Madder, 2012)
- Emotional and physical stress for nurses as patient's highly dependent post DC (Livesay & Moser, 2014)

Results and Future Directions

- Non extensive research with many limitations
- Awaiting RCT results - RESCUEicp
- Ongoing RCTs – RESCUEASDH
- "The jury is still out for early DC in TBI"

References

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