Craniotomy versus Decompressive Craniectomy for the Management of Acute Subdural Haematoma

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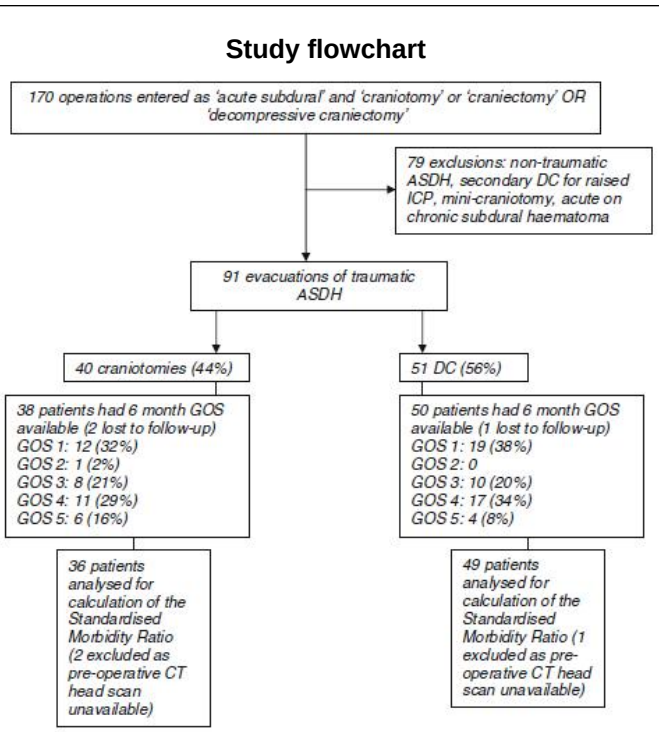
Introduction

- Approximately two-thirds of TBI patients undergoing emergency cranial surgery have an acute subdural haematoma (ASDH) evacuated
- ASDH is frequently associated with underlying parenchymal injury which further exacerbates brain swelling
- Therefore, even though craniotomy (CR) and evacuation is the established primary treatment for ASDH, leaving the bone flap out [i.e. primary decompressive craniectomy (DC)] is an option

Methods

- Patients who underwent evacuation of an ASDH from August 2005 to August 2010 were included in this single-centre retrospective review of prospectively collected data

Study flowchart



Results

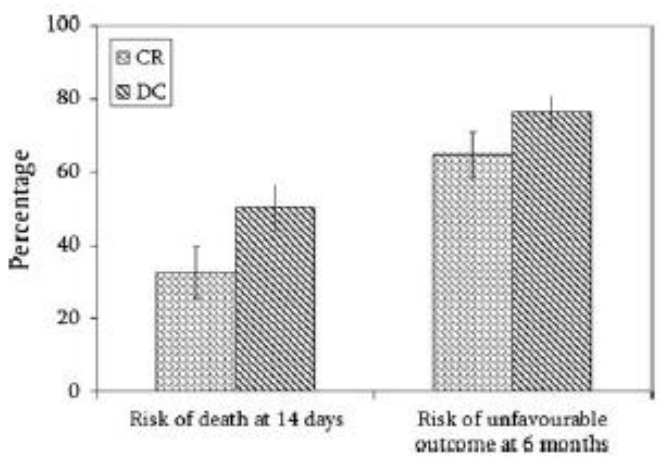
- The group undergoing DC was younger and had a higher proportion of comatose patients, significant extracranial injuries and obliterated basal cisterns

Baseline characteristics

		Craniotomy	Decompressive Craniectomy	
Operation		36 (42 %)	49 (58 %)	
Age		59 years (IQR 40–69 years)	45 years (IQR 31–61 years)	#p=0.015
Gender		18 male (50 %) 18 female (50 %)	33 male (67 %) 16 female (33 %)	p=0.122
GCS	≥ 13	11 (31 %)	5 (10 %)	#p=0.001
	9–12	11 (31 %)	6 (12 %)	
	≤ 8	14 (38 %)	38 (78 %)	
	Median GCS	9.5	5	
Pupils	Both reactive	27 (75 %)	28 (57 %)	p=0.160
	One reactive	8 (22 %)	15 (31 %)	
	None reactive	1 (3 %)	6 (12 %)	
Extracranial injury	*Present	1 (3 %)	16 (33 %)	#p=0.001
	Absent	35 (97 %)	33 (67 %)	
CT scan features	Obliterated basal cisterns or IIIrd ventricle	7 (19 %)	28 (57 %)	#p=0.001
	Midline Shift (present)	35 (97 %)	49 (100 %)	p=0.99
	Median midline shift (mm)	9 (Q1-Q3: 6–14)	11 (Q1-Q3: 8–13)	p=0.41

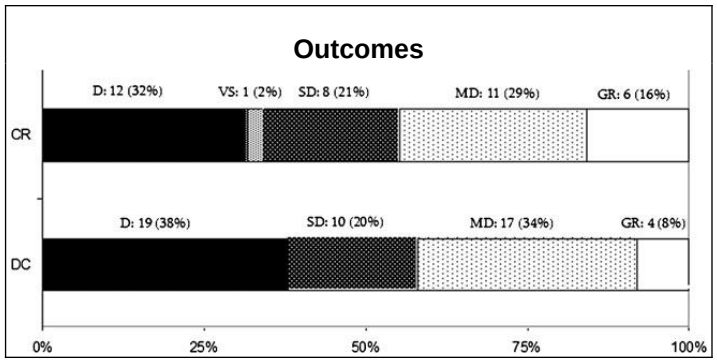
- The mean predicted risk of mortality at 14 days and unfavourable outcome at 6 months was significantly worse in the DC group

CRASH predicted risks



- Despite a worse injury severity in the DC group, the unadjusted outcomes were not significantly different between the CR and DC groups

Outcomes



Conclusions

- We believe that the absence of outcome differences despite a higher predicted risk for mortality/poor outcome in the DC group possibly suggests that primary DC may be more effective than CR for selected patients with ASDH
- The BTF has identified the question of craniotomy versus decompressive craniectomy for primary evacuation of ASDH as an important area for further research
- A randomised trial comparing craniotomy with DC for the primary evacuation of ASDH is justified and required

References

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2. Primary decompressive craniectomy for acute subdural haematomas: results of an international survey. Kolias AG, Belli A, Li LM, Timofeev I, Corteen EA, Santarius T, Menon DK, Pickard JD, Kirkpatrick PJ, Hutchinson PJ. Acta Neurochir 2012

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