BENEFIT OF HEMICRANIECTOMY IN PATIENTS WITH MALIGNANT STROKE: A SINGLE-CENTER RETROSPECTIVE ANALYSIS

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Background and purpose

Malignant stroke (MS) is a life-threatening condition complicating about 20% of stroke patients. Mortality is almost 80%. Therapeutic options are: *conservative treatment (CT)* and/or *decompressive craniectomy (DC)*. Our aim was to compare clinical and functional outcome of MS patients undergoing CT with those undergoing DC.

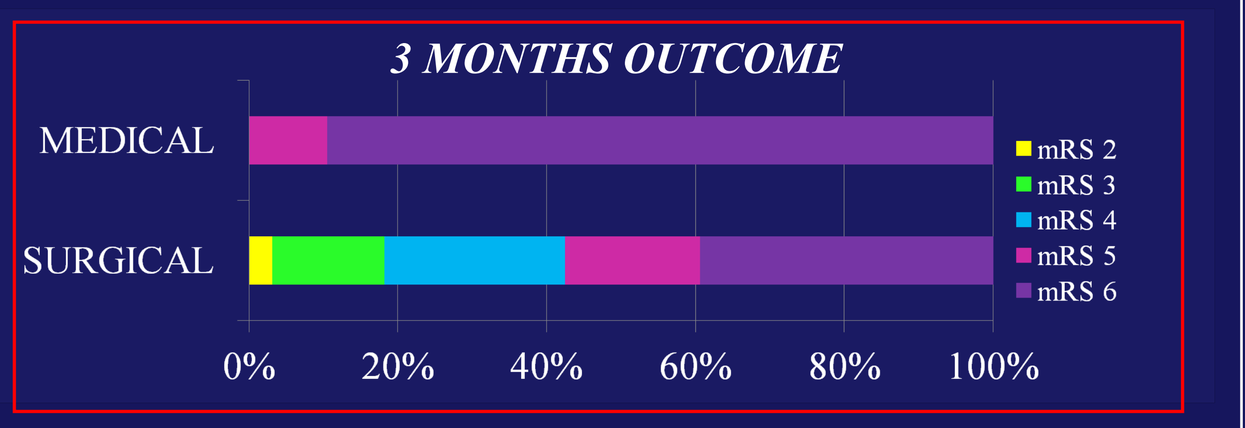
Methods

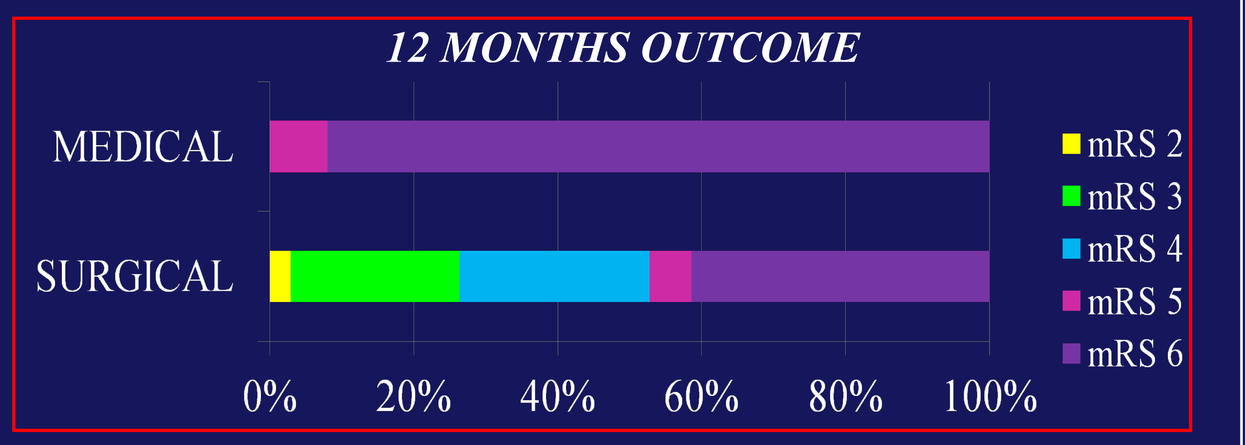
Retrospective analysis of patients with evidence of midline shift > 5 mm secondary to ischemic or haemorragic stroke and/or dramatic clinical worsening within 72 hours after stroke onset. All patients treated according to current guidelines in the very early phase.

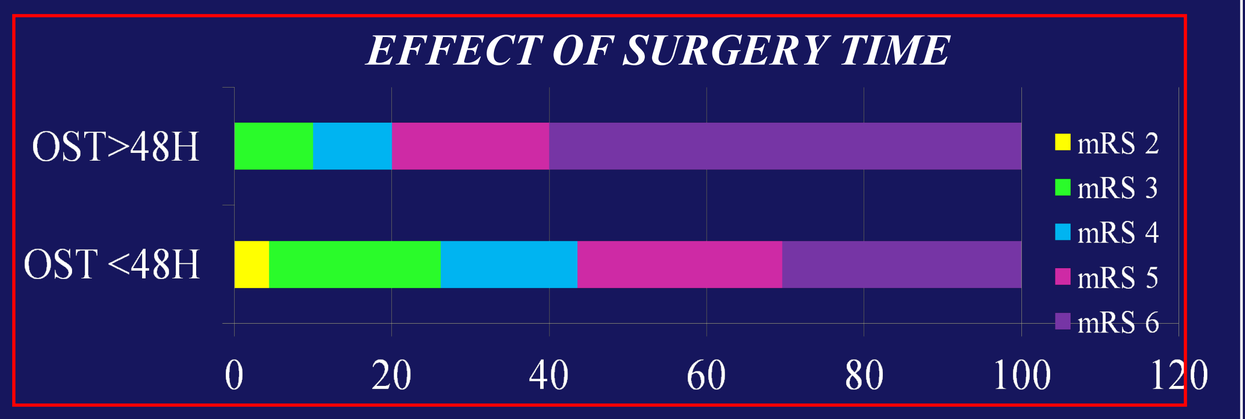
Results

BASELINE CHARACTERISTICS	DC(+) N=34	CT N=38	P Value
Age, ys, mean(DS)	60.2 (10)	70.6 (13.5)	0.0005
Age<60 ys (%)	18 (53%)	11 (29%)	0.38
Sex M, n(%)	23 (68%)	20 (54%)	0.19
AF, n(%)	4(12%)	13(34%)	0.02
Anticoagulation, n(%)	2 (6%)	0	0.017
Diabetes , n(%)	6 (18%)	7 (19%)	0.9
Hypertension, n(%)	23 (68%)	29 (78%)	0.41
Anti-hypertensive drugs, n(%)	3 (9%)	20 (54%)	<0.0001
Current smoke, n(%)	9 (26%)	4 (11%)	0.027
Hypercholesterolemia, n(%)	8 (23%)	11 (30%)	0.6
Statins, n(%)	3 (9%)	11 (30%)	0.14
Lesion side L, n(%)	10 (29%)	20 (54%)	0.05
Lesion side R, n(%)	22(64%)	15(44%)	0.03
IV rtPA , n(%)	11 (48%)	8 (25%)	0.24
Endovascular treatment, n(%)	7 (21%)	11 (30%)	0.5
Emorragia, n(%)	11 (32%)	5 (14%)	0.05
Ischemia, n(%)	23 (68%)	33 (89%)	0.09
sICH, n(%)	16 (47%)	26 (70%)	0.06
Onset to Surgery Time, mean	37,4H	/	/

CLINICAL OUTCOME	DC(+) N=34	CT N=38	P Value
NIHSS onset mean(SD)	19.9 (5.2)	20.2 (4.8)	0.8
NIHSS pre-DC or 24-72h,mean(SD)	24.3 (6.6)	25.7 (6.5)	0.35
NIHSS post-DC (or 3-5 days),mean(SD)	21.4 (7.4)	32 (9)	<0.0001
NIHSS discharge, mean(SD)	23.6 (11.2)	40 (6)	<0.0001
Δ NIHSS, mean(SD)			
Onset- pre-DC	4.4 (7.2)	5.6 (6.8)	0.47
Onset-discharge	3.4 (11.6)	16 (6.4)	<0.0001
Pre-DC-discharge	-0.7 (12.3)	10.4 (8.1)	<0.0001
3 ms mRS,mean(SD)	4.9 (1.2)	5.9 (0.2)	<0.0001
6 ms mRS,mean(SD)	5.1 (1.3)	5.9 (0.3)	0.01
12 ms mRS mean(SD)	5.1 (1.3)	5.9 (0.7)	0.006







MULTIPLE REGRESSION ANALYSIS	
DC	R=0.31 (95% IC 0.07-0.5) (p=0.01)
ONSET TO SURGERY TIME<24H	R=0.37 (95% IC 0.14-0.61) (p=0.001)
ONSET TO SURGERY TIME<48H	R=0.38 (95% IC 0.14-0.61) (p=0.001)
NIHSS POST DC	R=0.42 (95% IC 0.17-0.84) (p=0.004)
NIHSS DISCHARGE	R=0.48 (95% IC 0.13-0.81) (p=0.007)
Δ NIHSS ONSET-DISCHARGE	R=0.41 (95% IC 0.06-0.76) (p=0.02)

Conclusion

Our single center data suggest that:

1. DC reduces disability and mortality in pts with MS treated with 96 hs of symptom onset;
2. favourable outcome further increases in pts treated with DC within 48.

References

1. DECIMAL Investigators. Sequential-Design, Multicenter, Randomized, Controlled Trial of Early Decompressive Craniectomy in Malignant Middle Cerebral Artery Infarction (DECIMAL Trial). Stroke 2007; 38:2506-2517.