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Revascularization Effect on Neurocognition: An Analysis of Moyamoya Disease Patient Outcome

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Gender	Age	Bypass date	Type of bypass
F	29	30/05/2012	STA-MCA
M	40	17/04/2013	STA-MCA
F	38	11/09/2013	STA-MCA
F	48	28/05/2013	EMAS+EDAS
F	38	15/01/2014	EMAS+EDAS
M	48	15/04/2014	STA-MCA
F	23	17/10/2014	STA-MCA
M	40	30/12/2014	STA-MCA
F	49	16/01/2015	STA-MCA
F	29	14/05/2014	STA-MCA
F	44	10/02/2015	STA-MCA
F	30	21/04/2015	STA-MCA
M	23	19/05/2015	STA-MCA

Methods:

- ▶ 2012 to 2015
- ▶ Prospective cohort
- ▶ 13 patients
- ▶ Left:Right side surgery = 7:6
- ▶ Neuropsychological assessment before and after operation at 1 and 6 months

MOCA at 1 month
Mean 25.5

- Improve 45.5%
- Static 18.2%
- Worse 36.4%



MOCA at 6 months
Mean 26.3

- **Improve 70%**
- Static 20%
- Worse 10%

p>0.05

Neurocognitive Battery		1-month postop		6-month postop	
Attention	Divided attention	Deteriorated	Insig	Improved	Insig
	Sustained attention	Deteriorated	Insig	Deteriorated	Insig
Memory	Verbal memory	Equivocal	Insig	Improved	p<0.05
	Visual memory	Improved	Insig	Improved	p<0.05
Executive functioning	Inhibition	Deteriorated	Insig	Improved	Insig
	Working memory	Improved	Insig	Improved	Insig
	Non-verbal fluency	Improved	p<0.05	Improved	p<0.05
	Verbal fluency	Deteriorated	p<0.05	Deteriorated	Insig
Processing speed		Deteriorated	Insig	Improved	Insig

Discussion and Conclusions:

- ▶ Cognitive function is a better correlation to patient's quality of life after bypass surgery than number of ischaemic events
- ▶ **Sustained** improvement observed in MOCA scores after operation
- ▶ **Initial deterioration** in some aspects of neurocognitive functions at 1 month
- ▶ **Significant improvement** observed at 6 months after surgery (both in memory and executive functions)
- ▶ Adjuncts for neuroplasticity/re-learning may be a potential area of focus in facilitating neuro-rehabilitation for this group of patients
- ▶ Implications for **paediatric** age group (future area of study)
 - ▶ **? Earlier surgery** = More pronounced effects of neuroplasticity

References:

- Macyszyn et al. *J Neurosurg* 2017;126:1523–1529.
 Lin et al. *J Neurosurg* 2014;120:612–617.
 Starke et al. *Neurosurg Focus* 2009;26(4):E6.
 Baaj et al. *Neurosurg Focus* 2009;26 (4):E7.
 Evans et al. *Perceptual and Motor Skills* 1985.
 Teuber et al. *Annual Review of Psychology* 1955;6:267–296.



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