

How Can We Reduce The Risks Of STA-MCA Bypasses?

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Purpose

Direct STA-MCA bypass, first described by Yasargil, is rarely performed. We aim to identify the risk factors associated with post-bypass stroke risk, to stratify patients' surgical morbidity.

Materials and Methods

We studied a large STA-MCA bypass database (769 patients, 1250 bypasses, 1991-2014), and analysed the 30-days stroke risks using univariate/multivariate logistic regression analyses.

Scores assigned

Suzuki stage as proposed.

DSA score (1.Steno-occlusion; 2.ICIC collateralization; 3.ECIC collateralization)

mMRI brain score (1.Ischemia/hemorrhage/atrophy; 2.DWI+ve infarct)

Haemodynamic reserve(HDR) score (1.Impaired augmentation with acetazolamide; 2.Steal phenomenon)

Results

The 30-days ischaemic stroke risk is 7.8% (60/769) and 6.2% (29/467) after the first and second bypasses respectively. With 1250 bypasses, 92 strokes (ischaemic and haemorrhagic) were recorded, leading to a 7.3% per procedure stroke risk.

Younger age groups are associated with lower postop stroke risk (5.4% (11/205) in paediatric cohort; 12.9% (73/564) in adults). Furthermore, the older the age category, the higher the postop stroke risk, 9.3% in 19-39years, 16.5% in 40-59years, and 20% in >60years (p=0.001). Other statistically significant factors associated with higher postop stroke risks include ischemic presentation, diabetic, hyperlipidemic, higher Suzuki stage, DSA score, mMRI score, HDR score, types of bypass surgery.

To address the issue of confounding factors, logistic regression analysis was performed. Older age, DSA score, mMRI score, HDR score, are clearly associated with higher postop stroke risks.

Conclusion

4 factors are highly correlated with postbypass morbidity (age, DSA score, mMRI score, HDR score). We will develop a post bypass stroke risk predictive modelling for patient care to reduce surgical morbidity.