SAFETY AND EFFICACY OF DUAL ANTIPLATELET THERAPY IN CAROTID STENTING IN ACUTE ISCHEMIC STROKE PATIENTS WITH TANDEM CAROTID LESIONS WHO UNDERWENT ENDOVASCULAR THROMBECTOMY

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Introduction

- Endovascular thrombectomy (EVT) is now the standard of care for acute ischaemic stroke (AIS) secondary to large vessel occlusion (LVO) of the anterior cerebral circulation.[1] Approximately 20% of these patients have tandem lesions, with an intracranial occlusion and stenosis or occlusion of the cervical carotid artery. Such patients often require carotid artery stenting. This poses complex management issues associated with the need for antiplatelet therapy and the increased risk of symptomatic haemorrhage (sICH).[2]
- Aspirin, a cyclo-oxygenase inhibitor, is typically combined with a P2Y12 inhibitor to provide sufficient platelet inhibition to prevent acute stent thrombosis. Clopidogrel, an early generation P2Y12 inhibitor has been used extensively, however, is susceptible to common drug-drug interactions and genetic polymorphisms which render it less effective. A newer generation P2Y12 inhibitor, prasugrel, avoids these issues, however, concerns exist in regard to its safety.
- In this study, we compare sICH rates between patients treated with aspirin and clopidogrel (DATC) and those treated with aspirin and prasugrel (DATP). Clinical efficacy, as judged by acute stent occlusion/stenosis rates, will be assessed between the two groups. Factors potentially associated with sICH such as age, administration of intravenous tissue plasminogen activator (IV-tPA) and time from symptom onset will be analysed.

Methods

- A prospectively maintained database of patients undergoing EVT for AIS at two comprehensive stroke centres (January 2016-November 2017) was retrospectively screened.
- Patients undergoing acute carotid artery stenting for tandem lesions were identified for analysis (n=44).
- Patients received loading doses of clopidogrel(150-600mg)/aspirin(100-600mg) or prasugrel(15-20mg)/aspirin(300-600mg). The additional use of intra-operative intravenous abciximab was at the operator's discretion.
- Patient age, IV-tPA use and time from symptom onset to reperfusion was recorded prospectively.
- The presence of sICH was assessed by clinical deterioration in combination with parenchymal haemorrhage type 1 or 2 as per ECASS criteria (N.M).[3] Acute stent occlusion was assessed by reviewing (N.M.) routine computer tomography angiography (CTA) at 12-24 hours or when there was a clinical deterioration.
- Univariate logistic regression was used to calculate odds ratios. Statistical analysis was performed using Excel (Microsoft).

Results

- 24 patients received DATC (17 males; age=70.3±11.3yrs) and 20 patients received DATP (16 males; age=66.2±9.2yrs).
- 6 [25%] DTAC and 6 [30%] DTAP patients received prior tissue plasminogen activator (IV-tPA).
- 10 [42%] DTAC and all DATP patients also received abciximab (5-20mg) intraoperatively.
- Symptomatic ICH (parenchymal or subarachnoid) occurred in 4 [17%] of DATC and 4 [20%] of DATP patients (OR 1.46; 95% CI 0.34-6.27, p=0.61).
- Stent occlusion/stenosis at 24-hours occurred in 2[8%]/3[12.5%] DATC and in none of the DATP patients.
- Age ≥75y (OR 4.2, 95% CI 0.92-18.88, p=0.064), prior IV-tPA use (OR 0.95; 95% CI 0.17-5.42, p=0.96) or time to reperfusion from stroke onset >6h (OR1.32; 95% CI 0.31-5.65, p=0.71) showed no difference with sICH risk (figure 4).

Conclusion

- In the current study there was no significant difference in rates of sICH between DATC and DATP.
- No effect on sICH was seen with respect to patient age, administration of IV-tPA or time from symptom onset to reperfusion.
- Thromboembolic complications may be reduced with the use of prasugrel consistent with more robust antiplatelet action.
- The current study is limited by the relatively small numbers and the retrospective nature of the analysis.
- Further studies are warranted to determine the optimal antiplatelet approach for carotid stenting during EVT for LVO.

Figure 1: DSA – pre and post EVT

Figure 2: DSA – pre and post carotid stenting

Figure 3: CT Brain showing ICH

Figure 4: Forest Plots for sICH

References

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