

TREATED AND UNTREATED ISCHEMIC STROKE OF CAROTID ORIGIN IN THE ERA OF MECHANICAL REPERFUSION

Karolina Dzierwa^{1,2}

Magdalena Knapik^{2,3,4}, Lukasz Tekieli^{2,3,5},

Adam Mazurek^{2,3}, Artur Klecha⁶

Tomasz Kowalczyk⁶, Teresa Kozmik⁶, Lukasz Wiewiorka^{2,5,6}, Iris Q Grunwald^{7,8}, Piotr Musialek^{2,3}

1 - Cardiovascular Imaging Laboratory John Paul II Hospital Krakow Poland, 2- John Paul II Hospital in Krakow Thrombectomy-Capable Stroke Centre, 3- Jagiellonian University Dept. of Cardiac and Vascular Diseases John Paul II Hospital Krakow Poland, 4- Dept of Radiology Podhalanski Multispecialty Regional Hospital Nowy Targ Poland, 5-Jagiellonian University Dept. of Interventional Cardiology John Paul II Hospital Krakow Poland, 6 - Dept of Cardiology Podhalanski Multispecialty Regional Hospital Nowy Targ Poland, 7- University of Dundee Chair of Neuroradiology Department of Radiology Ninewells Hospital Dundee Scotland United Kingdom, 8 -Division of Imaging Science and Technology School of Medicine University of Dundee Scotland United Kingdom

TREATED AND UNTREATED ISCHEMIC STROKE OF CAROTID ORIGIN IN THE ERA OF MECHANICAL REPERFUSION

OBJECTIVE AND BACKGROUND

To assess referral/treatment pathways and outcomes in patients with acute ischemic stroke of carotid artery origin (AIS-CA) eligible for emergency mechanical reperfusion (EMR) in a real-life cohort. AIS-CA has an unfavourable clinical prognosis, due to the large volume of affected brain tissue and the typically large thrombus load with recanalization rates using systemic intravenous thrombolysis. Intracranial CA lesions causing AIS – present **class I** indication for mechanical thrombectomy (MT), while extracranial internal CA lesions indicate **class IIb** for intervention (endovascular/surgical±intracranial thrombectomy - NOT CLARIFIED). Resulting data gap may affect treatment decisions in everyday practice.

METHODS

EMR referral rate, treatment and clinical outcomes were assessed over a 6-month period in two collaborating stroke centres. Eligibility for EMR was defined as (1) NIHSS (National Institutes of Health Stroke Scale) ≥ 6 or a significant neurologic deficit (eg. aphasia), (2) ASPECTS (Alberta Stroke Programme Early CT Score) ≥ 6 , (3) pre-stroke modified Rankin scale (mRS) ≤ 2 and (4) confirmation of internal carotid artery occlusion/sub-occlusion on CT-angiography.

RESULTS

Thirty consecutive, eligible patients were identified (73.3% male, age 39-87, median ASPECTS-10, pre-stroke mRS 0-1 100%, tandem lesion-26.7%). Twenty (66.7%) of the eligible patients were EMR-referred (6.7% surgery). Twelve (40%) received EMR (surgery 0%), predominantly in thrombectomy-capable stroke centres (100% acceptance rate). Flow reversal (91.7%) transfemoral carotid angioplasty ± MT (25%) was performed with culprit lesion sequestration and lumen reconstruction using micronet-covered stents in all EMR treated patients with mTICI 3 recanalization outcome in 83.3%. Clinical characteristics, ASPECTS and proportion of tandem lesions did not differ in EMR-treated vs. untreated patients. **Functional status was significantly better in EMR-treated vs. untreated patients at 90 days: 91.7% vs. 0% (mRS 0-2); 8.3% vs. 88.9% (mRS 3-5), and 0% vs. 11.1% (mRS 6) ($p < 0.001$).**

CONCLUSION

Referral rate of EMR-eligible patients was low and treatment rates even lower. **AIS-CA treatment was predominantly performed in thrombectomy-capable cardioangiology centres, resulting in overwhelmingly superior outcomes ($p < 0.001$).** To ensure better access and treatment of AIS-CA patients, the referral pathways should involve locally available EMR centers with CAS experience.

