

Cardiology cathlab-based management of thrombotic carotid stenoses in acute ischaemic stroke: tools, techniques, local stroke unit collaboration, challenges and patient outcomes

P. Musialek¹, A. Mazurek¹, L. Tekieli², T. Tomaszewski³, K. Banaszkiewicz³, M. Urbanczyk⁴, R.P. Banys⁴, Z. Moczulski⁴, A. Klecha⁵, T. Kowalczyk⁵, T. Drazkiewicz⁶, M. Trystula⁶, R. Musiał⁷, P. Podolec¹, I.Q. Grunwald⁸

¹Jagiellonian University, John Paul II Hospital, Dept of Cardiac & Vascular Diseases, Krakow, Poland; ²John Paul II Hospital, Jagiellonian University Medical College, Institute of Cardiology, Dept Interventional Cardiology, Krakow, Poland; ³John Paul II Hospital, Dept. Neurology, Krakow, Poland; ⁴John Paul II Hospital, Dept. of Radiology, Krakow, Poland; ⁵Podhalanski Multispecialty Regional Hospital, Dept. of Cardiology, Nowy Targ, Poland; ⁶John Paul II Hospital Dept. Vascular Surgery, Krakow, Poland; ⁷John Paul II Hospital, Dept. Intensive Medical Therapy and Anaesthesia, Krakow, Poland; ⁸University of Dundee, Chair of Neuroradiology, Ninewells Hospital, Dundee, United Kingdom

Funding Acknowledgement: Type of funding sources: Public hospital(s). Main funding source(s): John Paul II Hospital in Krakow and Jagiellonian University

Background: Shortage of endovascular operators able to deliver thrombectomy in acute ischemic stroke (AIS) on a 24/7/365 basis is a main challenge in health care settings around the world. Another fundamental barrier is getting multispecialty teams to work collaboratively with each other in AIS as is already done (albeit on an elective rather than acute basis) in managing stroke mechanistic pathologies such as AFib (pharmacology/ablation) or PFO (diagnosis/closure).

Purpose: To present accumulating experience en route to a full interventional stroke service on the basis of a cardiac cathlab and local multi-specialty collaboration.

Methods: Within the PARADIGM-EXTEND (symptomatic and increased-stroke-risk asymptomatic carotid stenosis) all-comer study we have treated, on an emergent basis, 21 patients (15 men, age 58–83 years, median 68 years) with AIS caused by severe carotid artery stenoses. All cases were performed as part of our pathway towards a full 24/7 thrombectomy stroke service.

Results: All lesions (100%) were thrombotic (mobile thrombus - 29%; one was a thrombotic total occlusion). Proximal neuroprotection (flow reversal using a CCA±ECA balloon) with thrombus aspiration was used in 19/21 patients (90.5%; in ICA total thrombotic occlusion TigerTrieveXL was used). In 2 patients proximal system use was unfeasible. All cases were done under ACT control and using, consistent with the PARADIGM-EXTEND

protocol, the MicroNET-covered embolic prevention stent system (CGuard) that was routinely optimized with large balloons/high pressures.

There were no procedure- or device-related complications. TIMI/TICI-3 was achieved in all cases. Embolism-to-infarct territory was 0% and embolism-to-new territory was 0%. Vascular access closure device use was 76%. A 30-day good clinical outcome (mRS of 0–2) rate was 95.2%. One patient with thrombotic near-occlusion, in whom crescendo stroke episodes superimposing the baseline late presentation event necessitated treatment, had a haemorrhagic stroke transformation on day 2 that finally led to death. By 30 days no new stroke, stent thrombosis, myocardial infarction or other SAE occurred.

Conclusion: Cardiologists skilled in carotid interventions are naturally positioned to deliver AIS treatment. 24/7 interventional services and networks for AMI have long been established and, as demonstrated in our centre, the services and skills can be translated -in collaboration with a local stroke unit/neurology- to AIS. Breaking away from traditionally-perceived “territories” towards working as a multispecialty AIS team is a logical concept that provides an effective healthcare solution for large numbers of stroke patients currently needing -and not receiving- thrombectomy. Working hand in hand with neurology and radiology in managing acute carotid syndromes is thus part of a natural evolution towards full interventional stroke services, including thrombectomy, in the cardiology cathlab.