

Cardiology CathLab-based multispecialty stroke thrombectomy — Poland is moving on!

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There is little doubt that mechanical thrombectomy (MT) is a breakthrough technology that can radically improve outcomes in a substantial fraction of stroke patients. Pawłowski and colleagues wisely stress that: “there is a large unmet need to deliver MT to LVO stroke patients in a timely manner” [1]. Consequently, one has to consider three major elements: LVO + MT + TIME. Introduction of MT to clinical practice raised a hot debate on who is able to perform the procedure and who should be “allowed” to do it. In Poland, but also in other countries, the small number of neuroradiology centers with 24/7 staff on-site was suddenly confronted with large numbers of stroke patients who would be eligible to receive MT [2, 3]. Many argued that other interventionists, namely cardiologists and angiologists, should be involved [4, 5], but uncertainty existed whether the quality of the thrombectomy procedures would be sufficient. The current body of evidence shows that MT results by cardiologist/angiologist do not differ from those in neuroradiology centers [1, 6, 7].

The paper by Pawłowski et al. [1] published in the current issue of *Kardiol Pol* bears excellent news for Poland. The results of their cardiology team, among the first group of 15 LVO patients, was better than required by international consensus — they achieved TICI 2b/3 in 93% of cases while >60% is required, embolization in only 7% while <15% is required and intracranial hemorrhage in 0%, with <10% required. Thus, the important message for health care system organizers is: a thrombectomy center based on a cardiac cath lab service could safely offer

a high-quality MT service. Cardiology CathLab-based MT is a truly multispecialty endeavour, as beautifully coined into the “BRAIN Team” concept (Basic CathLab staff, Radiologist, Anaesthesiologist, Interventionalist, stroke Neurologist) by Pawłowski et al. [1].

Interventional cardiologists already provide a fully operational infrastructure with 24/7/365, large volume interventional service for patients with acute myocardial infarction and are highly skilled at reopening occluded arteries [8] — something neurointerventionists rarely do outside of AIS treatment [9], arguably making them better suited to perform safe and effective MTs. In the end, having proven skills and practical knowledge of performing mechanical thrombectomy is much more important than having a certain medical specialty degree, which was also echoed in the recent position paper on stroke thrombectomy by the Chamber of Physicians (Poland) of February 25, 2021 [10].

The concept of TIME is often misunderstood, with some research data showing, in highly selected patients, benefit from late MT procedures. Many neurologists argue that the best delivery of MT is limited to so-called neuroradiology centers of excellence with neurosurgical backup on-site and neuroradiologists that are highly experienced in the cerebral vasculature. However, the rationale and ethics of transporting patients to an outside hospital when MT is feasible locally are questionable, especially if we remind ourselves of the thrombolysis trials where every 6 min delay results in a 1% lesser chance of a good outcome [11]. Kunz et al. showed that expediting MT by

10 minutes is estimated to gain each patient a median of 106 additional days of functional independence [12]. Interfacility transport inevitably delays treatment and has been shown to be associated with worse neurological outcomes [7]. In the MR Clean Registry, every hour that passes from stroke onset to EVT start resulted in a 5.3% decreased probability of functional independence (modified Rankin Scale, 0–2) [13]. In the stent retriever arm of the SWIFT Prime trial, time from symptom onset to reperfusion of 150 minutes led to a 91% estimated probability of functional independence. This decreased by 10% over the next hour, and by 20% with every subsequent hour of delay [14].

LVO causes (focal) brain ischemia. This is in many ways analogue to global brain ischemia as a result of cardiac arrest. There is no doubt among specialists and lay people that, in case of a cardiac arrest, cardio-pulmonary resuscitation is needed as quickly as possible. No one in this scenario would suggest referring patients (with arrested blood flow to the brain) to regional resuscitation centers of excellence with the best-trained staff. Unfortunately, in LVO, where only a part of the brain suffers from impaired blood flow, the unfeasibility and unethical aspect of a remote center of excellence are not generally appreciated. It is difficult to understand why. Stroke thrombectomy is a cerebral resuscitation. Currently, the shortage of MT centers and operators results in a severe under-treatment of the Polish LVO stroke population. With about 0.5 thrombectomy-capable centers per 1 million population [2, 15], the MT rate in 2020 was only approximately 3.1%, compared to approximately 7.5%–8.1% in the neighboring Czech Republic and Germany (both systems have cardiologist participation) [6, 7, 16]. With a 38 million population, this difference translates into a shortage of approximately 1700 MTs and at least 800 disabilities that could have been prevented in Poland each year [2].

To answer the clearly unmet need to deliver effectively this level 1A-evidenced treatment to Polish patients, there is no doubt that more cardiac cath labs engaged in revascularization of LVO in stroke are needed today. Pawłowski and his team [1] show a progressive way forward that is beneficial for patients, the population and the healthcare system.

Article information

Conflict of interest: None declared.

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