Making endovascular stroke treatment possible: training to save brains (and lives)

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Stroke is a disabling and often deadly disease. Worldwide, it remains the second most common cause of death and a leading cause of permanent disability. During the past three decades, global stroke incidence increased by 70%, its prevalence by 85%, and its mortality by 43% [1, 2]. The global burden of stroke is expected to rise in the future [3]. The number of people living with stroke is estimated to increase by 27% between 2017 and 2047 in the European Union [4]. In the USA, projections throughout 2010 to 2050 expect the number of incident strokes to double [5].

Endovascular stroke treatment (EST) equates to brain resuscitation [6]. Indications for EST are now well established [7] and continue to expand with the publication of new evidence. The recent survey conducted on behalf of the Thrombectomy 2020+ global network collected current information about access to EST on a global scale. Based on the data from 69 countries, despite guidelines-based level 1A evidence supporting immediate intervention, only 2.79% of patients with large vessel occlusion (LVO) received mechanical thrombectomy (MT). Patient access to capable operators was deemed optimal in only 16.5%, and access to MT-capable centres in only 20.8% of cases [8]. These low percentages indicate the challenge ahead to enable each patient eligible for EST to have access to this level 1A evidence treatment.

Shortage of adequately trained stroke interventionalists is a leading cause for limited access to EST [9–11]. The training requirements should be based on skills; medical specialty should be of no importance. Indeed, physicians of various specialities experienced in endovascular procedures have long demonstrated that they can gain additional knowledge and training to perform EST and be an extremely valuable part of this developing system [12, 13]. The required time for diagnostic neuroradiology training is 12–24 months (on top of years of radiology training), and for interventional neuroradiology it is 12–30 months [14–23]. But does one really require the full INR curriculum to deliver EST? Embolization of arteriovenous malformations or spinal angiograms are not part of EST. The WIST guidelines [12, 13] present an important evolution, encompassing an individualised approach to operator training. An interventionalist experienced in carotid stenting has already acquired an essential part of the skillset required for EST. Thus their skill acquisition will take considerably less time compared to someone who has never done an interventional procedure above the aortic arch.

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The WIST guidelines offer personalised training to achieve standardised learning outputs that enable performing cerebral angiograms, carotid stenting and EST safely. They include training on the detection and management of complications such as intracranial bleed or vessel perforation, assessment of imaging and patient eligibility as well as peri- and procedural management. In addition to specifying operator training (which includes the acquisition of skills using a simulator and cadaveric training), WIST guidelines stress the importance of team training, stipulating protocols for hubs and spokes as well as ongoing audit and monitoring. The inclusivity of the WIST training guidelines finally enables a training path for more operators across different specialities and will increase the currently highly insufficient number of EST-capable centres that can perform timely brain resuscitations [9, 24–34]. Modern simulators, together with experienced instructors/interventionalists offer cognitive and technical training that is at least equivalent to hands-on-the-patient training. WIST guidelines map out a rational and effective approach to meeting the demand for EST, which fits within any modern healthcare system [8, 24, 25, 29–34].

Conflict of interest

The authors declare no conflict of interest.

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