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LETTER TO THE EDITOR

Status and perspectives of acute stroke care in Europe

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Dear editor,

Based on recently published studies, the age-standardised incidence of stroke in Europe at the beginning of the twenty-first century ranged from 95 to 290/100,000 per year [1]. An East-West and North-South gradient was observed with higher incidence rates in eastern countries and lower rates in southern countries.

Within Europe, there are two ongoing realities. Specifically, while an overall decline in stroke incidence was noted in the last two decades, several Central Eastern European countries are still experiencing increasing rates in stroke incidence and stroke-related mortality [1]. The organisational models adopted at local and national levels may be influencing these differing stroke care performances [1]; however, there are considerable variations in the quality of care for stroke patients in Europe, both between and within countries.

To this regard, in 2016, the ESO (European Stroke Organisation), European Society of Minimally Invasive Neurological Therapy (ESMINT), European Academy of Neurology (EAN), and the patient organisation Stroke Alliance for Europe (SAFE) formed the European Alliance for Endovascular Stroke Treatment. One of the first goals set by the group was to evaluate the access of patients with ischemic stroke in Europe to the three main pillars of acute treatment, particularly stroke unit care, thrombolysis and thrombectomy. To do so, this working group performed a survey of scientific societies and stroke experts, in which the best available information on access to and delivery rates of these treatments was collected from 44 out of 51 European countries [2].

The estimated mean number of stroke units was 2.9 per million inhabitants (95% CI 2.3–3.6) and 1.5 per 1000 annual incident strokes (95% CI 1.1–1.9) 9.2 and 5.8, respectively. Intravenous thrombolysis was provided in 42/44 countries. The average treatment rate was 7.3% of incident ischaemic stroke patients for intravenous thrombolysis (95% CI 5.4–9.1), and 1.9% for endovascular treatment (95% CI 1.3–2.5); however, countries with the highest rates reached a proportion of 20% and 6% of treated patients, respectively, for intravenous thrombolysis and endovascular treatment.

Despite scientific evidence and clinical guideline recommendations, this data shows too many patients are not treated in stroke units and centres that can offer the best evidence-based treatment in the acute phase. If we assume the highest national rates could be feasible in the remaining countries that participated in this European survey, which is still a somewhat conservative estimate, 226,662 more patients could have been treated with IVT and 67,347 with EVT in 2016. This would mean that only one-third of patients that would potentially be eligible for IVT and one-quarter of candidates for EVT received these treatments in Europe, in this recent period.

These disparities in access and delivery of acute stroke treatment rates within Europe claim for a quality improvement program, with a focus on data and quality outcomes. Unfortunately, only a few countries have established a continuous quality improvement system with a predefined set of criteria that are regularly measured and compared with benchmarks [3].

A structured framework for health service–related researchers, practitioners and policy-makers are needed to improve the understanding of the determinants that underlie these differences and ultimately designing interventions that reduce and eliminate these disparities [4].

The survey addressed the first phase, but because several countries are still lacking prospective stroke registries, coordinators and experts often had to use multiple sources of regional and local information to extrapolate national figures. A further step to improve data quality will be a network of an

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inventory of existing databases and registries on the numbers of IVTs and EVTs performed, and the prospective collection of the annual number of IVTs and EVTs performed per country, through a standardised methodology.

The ultimate goal will be to explore the reasons for the different access to stroke care throughout Europe. A likely reason may be the lack of a universal healthcare system and different GDPs per capita, with low healthcare expenditure in several European countries, but other problems and solutions should be explored. Importantly, stroke is still not on the priority agenda of most European countries, despite its increasing burden [1].

Considering this, ESO started a quality improvement program that is composed of the following pillars.

1.) ESO-EAST (Enhancing and Accelerating Stroke Treatment), which is the first comprehensive programme for improving stroke care in Eastern Europe through the participation of stroke professionals, professional organisations and local authorities in these countries. ESO-EAST is planned to run at a minimum for the period 2015–2019.
2.) Endorsement of the Angels Initiative in 2016, which has the declared mission of increasing the number of patients treated in stroke-ready hospitals and to optimise the quality of treatment in all existing stroke centres.
3.) Stroke Unit and Stroke Centre Certification based on standardised application forms and guidelines for national and international auditors. Key features of this certification are the availability of trained personnel, diagnostic equipment, acute treatment and collaboration with other stroke caregivers [5].

These implementation strategies are embedded in the European Stroke Action Plan (ESAP) for the years 2018 to 2030, which has been prepared in cooperation with the patient organisation SAFE. In the ESAP, four overarching targets were identified:

1. To reduce the absolute number of strokes in Europe by 10%.
2. To treat 90% or more of all patients with stroke in Europe in a dedicated SU as the first level of care.
3. To have national plans for stroke encompassing the entire chain of care from primary prevention to life after stroke.
4. To fully implement national strategies for multisector public health interventions to promote and facilitate a healthy lifestyle, and reduce environmental (including air pollution), socioeconomic and educational factors that increase the risk of stroke.

Conclusions

ESO has started to prepare a framework for reducing inequalities in stroke care throughout Europe. This framework needs to be carried out with the support and collaboration of the National Stroke societies in order to tailor the implementation strategies to the different levels of stroke care.

Compliance with ethical standards

Conflicts of interests Dr. Fischer is a Consultant for Medtronic, Stryker and Commonwealth Serum Laboratories Behring. He is a principal investigator of the SWITCH (Swiss Trial of Decompressive Craniectomy Versus Best.

Medical Treatment of Spontaneous Supratentorial Intracerebral Hemorrhage (SWITCH): A Randomised Controlled Trial), ELAN (Early Versus Late Initiation of Direct Oral Anticoagulants in Post-Ischaemic Stroke Patients With Atrial Fibrillation: An International Multicenter, Randomised-Controlled, Two-Arm, Assessor-Blinded Trial), and SWIFT DIRECT trial (Solitaire With the Intention for Thrombectomy Plus Intravenous t-PA Versus DIRECT Solitaire Stent-Retriever Thrombectomy in Acute Anterior Circulation Stroke).

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