Neurosurgical Training in Europe

- The genesis of Academic Neurosurgery. Part I: The so-called "Gestational Period" and the contributions of Harvey Cushing
- Teleneurosurgery between Greenland and Denmark
- The Rise of Stereotactic Neurosurgery in Germany
- Wilhelm Tönnis and His Network around 1950: His National and International Impact
- Characterising acute and chronic care needs: insights from the Global Burden of Disease Study 2019
- Improving postoperative care for neurosurgical patients by a standardised protocol for urinary catheter placement: a multicentre before-and-after implementation study
- Education paths in neuro-oncology: combining technical skills with multidisciplinary care. A survey from the AINO (Italian Association for Neuro-Oncology) Youngster Committee
- Quantitative evaluation of neuroradiological and morphometric alteration of inferior Fronto-Occipital Fascicle across different brain tumor histotype: an Italian multicentric study

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Whitfield et al. described a competency-based European Training Requirement (ETR) in neurosurgery that is applicable across all European centres.

The competency-based approach ETR in neurosurgery was developed in accordance with the European Union of Medical Specialists (UEMS) Training Requirements guidelines. The UEMS ETR template, based upon the UEMS Charter on Post-graduate Training was utilized. Consultation took place with Council and Board members of the European Association of Neurosurgical Societies (EANS), the Young Neurosurgeons forum of the EANS and members of the UEMS.

They described a competency-based curriculum comprising 3 stages of training. Five entrustable professional activities, outpatient care, inpatient care, emergency on call, operative competencies and team working are described. The curriculum emphasizes the importance of high levels of professionalism, early consultation with other specialists where relevant and the importance of reflective practice. Outcomes must be reviewed at annual performance reviews. Evidence of competency should be multifaceted and include work-based assessments, logbook data, multisource feedback, patient feedback and examination performance. Required competencies for certification/licensing are provided. Approval for the ETR was provided by the UEMS.

A competency-based ETR was developed and approved by UEMS. This provides a suitable framework for the development of national curricula that train neurosurgeons to an internationally recognized level of capability [1)]

Many proposals and guidelines have been published and recommended for neurosurgical training in Europe [2) 3) 4) 5)]

Theoretical and practical aspects of neurosurgical training are highly variable throughout European countries, despite some efforts within the last decades to harmonize this.

Some countries are rated significantly above (and others significantly below) the current European

average for several analyzed parameters [6].

Although there is a comparable duration of 4 to 6 years of neurosurgical residency across Europe, the content thereof varies widely.

The reason for these diverse training conditions could be explained by (1) the number of sovereign countries in Europe, (2) the unique historical educational concept in each of the European countries, and (3) the different socioeconomical setting of these countries. Another cause can be found in the cultural autonomy of each country and hence the ability of each country's specific neurosurgical society to implement recommendations of the EANS for resident training only to a varying degree. There rarely is any specific or mandatory neurosurgical curriculum for any teaching hospital [7].

The US residency programs overall tend to be more structured when compared to the corresponding curricula in Europe, although exceptions may apply. This is evident especially via the well-organized monthly and/or yearly rotations, which advance the resident during the consecutive PGYs [8].

Country-specific composite scores for satisfaction with quality of theoretical and practical training, as well as working hours per week, were obtained from an electronic survey distributed among European neurosurgical residents between June 2014 and March 2015. These were related to anonymous country-specific results of the EBE-NS between 2009 and 2016, using uni- and multivariate linear regression analysis.

A total of $n = 1025$ written and $n = 63$ oral examination results were included. There was a significant linear relationship between the country-specific EBE-NS result in the written part and the country-specific composite score for satisfaction with quality of theoretical training [adjusted regression coefficient (RC) -3.80, 95 % confidence interval (CI) -5.43-7 -2.17, $p < 0.001$], but not with practical training or working time. For the oral part, there was a linear relationship between the country-specific EBE-NS result and the country-specific composite score for satisfaction with quality of practical training (RC 9.47, 95 % CI 1.47-17.47, $p = 0.021$), however neither with satisfaction with quality of theoretical training nor with working time.

With every one-step improvement on the country-specific satisfaction score for theoretical training, the score in the EBE-NS Part 1 increased by 3.8 %. With every one-step improvement on the country-specific satisfaction score for practical training, the score in the EBE-NS Part 2 increased by 9.47 %. Improving training conditions is likely to have a direct positive influence on the knowledge level of trainees, as measured by the EBE-NS. The effect of the actual working time on the theoretical and practical knowledge of neurosurgical trainees appears to be insignificant [9].

The European Training Courses in Neurosurgery

The EANS Training Committee and the Executive Director are responsible for arranging the European Training Courses in Neurosurgery.

What it is: 4 annual 4-day courses covering the key topics of: Vascular Neurosurgery

Tumour

Head Injury/Functional

Spine/Peripheral Nerves

History: Founded in the 1970s by Professors Brihaye, Pia and Vigoroux, the courses aim to serve the needs of neurosurgical trainees in the latter half of their training in neurosurgery.

The excellence of the courses and their scientific and social value is acknowledged throughout the neurosurgical community, and the current committee would like to acknowledge the tremendous part played by the founders, past chairmen of the Training Committee and previous Executive Administrator, Stephanie Garfield-Birkbeck, in bringing this about.

Fellowships

AOSpine Fellowships

AOSpine has compiled a comprehensive list of available fellowships. Please visit https://aospine.aofoundation.org/Structure/education/spine-centers/Pages/spine-centers.aspx for more information.

The Brain Prize

The Brain Prize of €1 million is awarded annually.

The Prize recognizes highly original and influential advances in research on the nervous system. If several researchers have contributed significantly to this achievement, more than one individual may receive the Prize. Nominees can be of any nationality but the research for which they are nominated must have been conducted in Europe or in collaboration with researchers in Europe. More information available on www.thebrainprize.org.

Fellowships in Portugal

The Portuguese Society of Neurosurgery is offering a number of clinical fellowships in accredited training programmes, lasting from six months to two years.

Further information is available from the SPNC secretariado@spnc.pt or www.spnc.pt

AANS Fellowships

The AANS also offer a range of fellowships.

Pain and Spine Fellowship

Scott & White Neuroscience Institute

The comprehensive Pain & Spine Fellowship at Scott & White is designed to provide educational experience in spinal and pain pathology to a graduate of a Neurosurgery training program or senior neurosurgery resident. Clinical and research experiences will be included. Both US and International candidates will be considered.

Contact: Vasilios A. Zerris, MD, MPH

Cervical Spine Research Society - European Section Research Grant

The Cervical Spine Research Society is a multidisciplinary organization that provides a forum for the exchange of ideas and promotes clinical and basic science research of the cervical spine. The organization values collegial interaction and strong scientific principles.

To faciliate research in the field of cervical spine the Cervical Spine Research Society - European Section (CSRS-ES) has the opportunity to offer € 25.000,- annually to research projects.

European Board Examination in Neurological Surgery

see European Board Examination in Neurological Surgery.

European Association of Neurosurgical Societies

see European Association of Neurosurgical Societies.

Working Time directive

The introduction of the European Working Time directive 2003/88/EC has led to a reduction of the working hours with distinct impact on the clinical and surgical activity of neurosurgical residents in training.

A survey was performed among European neurosurgical residents between 06/2014 and 03/2015. Multiple logistic regression was used to assess the relationship between responder-specific variables (e.g., age, gender, country, postgraduate year (PGY)) and outcome (e.g., working time).

A total of 652 responses were collected, of which n = 532 responses were taken into consideration. In total, 17.5, 22.1, 29.5, 19.5, 5.9, and 5.5 % of European residents indicated to work <40, 40-50, 51-60, 61-70, 71-80, or >80 h/week, respectively. Residents from France and Turkey (OR 4.72, 95 % CI 1.29-17.17, p = 0.019) and Germany (OR 2.06, 95 % CI 1.15-3.67, p = 0.014) were more likely to work >60 h/week than residents from other European countries. In total, 29 % of European residents were satisfied with their current working time, 11.3 % indicated to prefer reduced working time. More than half (55 %) would prefer to work more hours/week if this would improve their clinical education. Residents that rated their operative exposure as insufficient were 2.3 times as likely as others to be willing to work more hours (OR 2.32, 95 % CI 1.47-3.70, p < 0.001). Less than every fifth European resident spends >50 % of his/her working time in the operating room. By contrast, 77.4 % indicate to devote >25 % of their daily working time to administrative work. For every advanced PGY, the likelihood to spend >50 % of the working time in the OR increases by 19 % (OR 1.19, 95 % CI 1.02-1.40, p = 0.024) and the likelihood to spend >50 % of the working time with administrative work decreases by 18 % (OR 0.84, 95 % CI 0.76-0.94, p = 0.002).

The results of this survey on >500 European neurosurgical residents clearly prove that less than 40 %

conform with the 48-h week as claimed by the WTD2003/88/EC. Still, more than half of them would chose to work even more hours/week if their clinical education were to improve; probably due to subjective impression of insufficient training [10)].

Books

Training in Neurosurgery in the Countries of the EU: A Guide to Organize a Training Programme

Editors: Reulen, H.-J. (Ed.)

Agreed standards and guidelines are the heart and soul of improving the differing training systems and to harmonize neurosurgical training in the European countries. Such standards and guidelines have been laid down in the European Training Charter of the European Union of Medical Specialists and recently novellated. This book, written by experienced neurosurgeons, offers all those concerned with neurosurgical training - trainers and trainees - practical advice to implement the above mentioned standards and recommendations. It has been written as a manual: “How to do it”. It describes the tasks of a chairman (programme director), the tasks of the teaching staff, the organisation of a training curriculum, a rotation plan or a morbidity and mortality conference, the periodic progress evaluation, the course of an external audit and many more important topics. It contains a lot of practical tips, check lists and useful examples. Well educated young colleagues offer “safe neurosurgery” to our patients.

Table of contents (15 chapters) Introduction Antunes, J. Lobo Pages 1-2

UEMS charter on training of medical specialists in the EU — the new neurosurgical training charter Steers, J. (et al.) Pages 3-11

Neurosurgical training programme director position and responsibilities Neil-Dwyer, G. (et al.) Pages 13-16

Teaching staff Antunes, J. Lobo Pages 17-19

The ideal neurosurgical training curriculum Long, D. M. Pages 21-31

Internal regulations and general guidelines of a neurosurgical department and training programme Reulen, H.-J. (et al.) Pages 33-38

Principles of teaching in a structured training programme, the rotations, and the surgical training plan Steiger, H.-J. Pages 39-50

A structured neurosurgical training plan and the neurosurgical logbook in the UK Lindsay, K. W. Pages 51-57

The European Neurosurgical Log-Book (UEMS/EANS) Reulen, H.-J. Pages 59-66

Morbidity & mortality conferences — How can we do it? Brennum, J. (et al.) Pages 67-71

Problem-based learning in residency training and the tutorial process for training and education in neurosurgery Winkler, P. A. (et al.) Pages 73-76

Research rotation in a trainee’s curriculum Reulen, H.-J. (et al.) Pages 97-101

The accreditation of a training programme Reulen, H.-J. Pages 103-106

The European Examination — its present status and potential development Haase, J. Pages 107-114

Neurosurgical subspecialization: pros and cons Schackert, G. (et al.) Pages 115-119

PASSION Resident project

PASSION Resident project

Neurosurgical Training in France

Neurosurgical Training in France

Neurosurgical Training in Germany

Neurosurgical Training in Germany

Neurology

Kleineberg et al. found substantial variation among European countries in the duration of residency training programmes, and especially in the choice of obligatory rotations to external medical disciplines. Despite a presumably similar spectrum of patients, neurology residency training programmes across Europe are not harmonised. The structure of the programme should be determined by its relevance for neurologists today and in the future [11)].

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