proLékaře.cz | 13.11.2026

doi: 10.14735/amcsnn201866

Neurosurgical resident training in the Czech Republic

Neurochirurgické předatestační vzdělávání v ČR

Abstract

Introduction: Resident training is essential to be able to offer high-quality medical care. Neurosurgical training in its traditional form is currently challenged by law-enforced working hour restrictions and general re-structuring within Europe. We aimed to evaluate the current situation of resident training in the Czech Republic. *Methods:* An electronic survey was sent to European neurosurgical trainees between 06/2014 and 03/2015. The responses of Czech trainees were compared to those of trainees from other European countries. Logistic regression analysis was used to assess the effect size of the relationship between a trainee from the Czech Republic and the outcomes (e.g. satisfaction, working time). *Results:* Of n = 532 responses, 22 were from Czech trainees (4.14%). In a multivariate analysis, Czech trainees were as likely as non-Czech European trainees to be satisfied with clinical lectures given at their teaching facility (OR 1.84; 95% CI 0.77–4.43; p = 0.170). The satisfaction rate with hands-on operating room exposure was nonsignificantly higher than in other European countries (OR 3.22; 0.72–14.39; p = 0.125). Approximately 100% of Czech trainees vs. 88.7% of trainees from other European countries performed a surgical procedure as the primary surgeon within the first year of training (Pearson Chi2 test 2.28; p = 0.131). They were about 4-times as likely to begin with their own cranial cases within 36 months of training (OR 3.69; 1.04–13.07; p = 0.042). Czech trainees were 52-times as likely to perform on average ≥ 4 peripheral nerve interventions per month (OR 52.05; 11.46–236.31; p < 0.001), but less likely to operate ≥ 10 burr hole trepanations (OR 0.13; 0.02–0.97; p = 0.047) and the exposure was balanced regarding craniotomies and spine procedures. About 72% of Czech trainees adhered to the weekly limit of 48 h as requested from the European Working Time Directive 2003/88/EC, and this was better than the international comparison (OR 0.26; 0.09–0.75; p = 0.013). *Conclusion:* Most theoretical and practical aspects of neurosurgical training are rated similarly by Czech trainees when compared to the situation of trainees from other European countries. They adhered better to the 48 h week as requested by the European WTD 2003/88/EC.

Key words

resident education – surgical education – neurosurgery – European Working Time Directive – future perspective – training conditions – satisfaction rate – craniotomy – spine surgery – working time – Czech Republic

Klíčová slova

předatestační vzdělávání – chirurgické vzdělávání – neurochirurgie – European Working Time Directive – budoucí vývoj – podmínky vzdělávání – spokojenost – kraniotomie – spinální chirurgie – pracovní doba – Česká republika

The authors declare they have no potential conflicts of interest concerning drugs, products, or services used in the study.
Autoři deklarují, že v souvislosti s předmětem studie nemají žádné komerční zájmy.
The Editorial Board declares that the manuscript met the ICMJE "uniform requirements" for biomedical papers.
Redakční rada potvrzuje, že rukopis práce splnil ICMJE kritéria pro publikace zasílané do biomedicínských časopisů.

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Accepted for review: 6. 9. 2017
Accepted for print: 23. 11. 2017

The study was supported by MO 1012.

The authors thank Amy Pinchbeck-Smith and Susie Hide from the European Association of Neurological Surgeons (EANS) for their great support with designing and distributing this survey amongst the EANS-registered residents. We furthermore thank all participating residents for their precious time and their trust.

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Souhrn

Úvod: Předatestační vzdělávání je zásadní k získání kvalitních znalostí a schopností pro následnou lékařskou praxi. Tradiční vzdělávání je v posledních letech ovlivněno zákony omezujícími počet hodin, které lékař smí pracovat. Zaměřili jsme se na současnou situaci lékařů v neurochirurgické přípravě v ČR. *Metodika:* V období od 06/2014 do 03/2015 proběhl elektronický průzkum mezi neurochirurgickými rezidenty v Evropě. Odpovědi mladých lékařů z ČR byly porovnány s lékaři ostatních evropských zemí. Regresní model byl použit k analýze efektu velikosti souboru a výsledků průzkumu (např. spokojenost, odpracované hodiny atd.) *Výsledky:* Celkem bylo k dispozici 532 odpovědí, z ČR 22 (4,14 %). V multivariantní analýze byli lékaři z ČR stejně spokojeni jako ostatní evropští lékaři s klinickým vzděláváním (OR 1,84; 95% CI 0,77–4,43; p = 0,170). Spokojenost s výkony a časem stráveným na operačnímu sále byla nesignifikantně vyšší než ve zbytku Evropy (OR 3,22; 0,72–14.39; p = 0,125). Všichni lékaři v ČR a 88,7 % lékařů z Evropy provedli jako hlavní operatéři nějakou operaci během prvního roku předatestačního vzdělávání (Pearsonův Chi2 test 2,28; p = 0,131). Lékaři z ČR přibližně 4× častěji provedli jako hlavní operatéři intrakraniální operaci během prvních 36 měsíců vzdělávání (OR 3,69; 1,04–13.07; p = 0,042). Lékaři z ČR 52× častěji prováděli ≥ 4 výkony na periferních nervech/měsíc (OR 52,05; 11,46–236,31; p < 0,001), méně často prováděli ≥ 10 trepanačních návrtů (OR 0,13; 0,02–0,97; p = 0,047). Přístup ke kraniálním a spinálním výkonům byl u nich vyrovnaný. Asi Celkem 72 % českých lékařů dodržuje 48h týdenní pracovní limit („European Working Time Directive 2003/88/EC"), což je častěji než ve zbytku Evropy (OR 0,26; 0,09–0,75; p = 0,013). *Závěry:* Většina teoretických i praktických aspektů neurochirurgického vzdělávání je hodnocena lékaři z ČR stejně jako lékaři ze zbytku Evropy. Mladí lékaři z ČR častěji dodržují 48h pracovní týden.

Introduction

Resident training is one of the most important aspects of the daily clinical work in an academic teaching hospital. In neurosurgery, a great amount of theoretical and practical training is required in order to become familiar with a broad variety of pathologies and treatments. Traditionally, these skills have been acquired during the difficult years of residency, where trainees literally lived in hospitals, eagerly serving and watching their superiors operate while becoming increasingly independent. Nowadays, surgical training has lost much of its archaic character, and while law-enforced working time limits have come into play, the education of trainees is automatically reduced. Modern training concepts try and offset some of these deficits by the progressive use of training courses, hand-on workshops and standards in training, e. g. by the European Association of Neurosurgical Societies (EANS) [1–4]. It was in the light of the political developments of the past few years that a survey was started amongst European neurosurgical trainees. This survey aimed to determine working time, training conditions and satisfaction rates in different EANS member states. While the results have recently been published, the present work aimed at specifically analysing the responses of neurosurgical trainees from the Czech Republic (CR) and comparing them to the situation in other European countries [5,6].

Methods

The method of data collection has been described in more detail before [5]. In short, an online survey consisting of 33 questions was distributed amongst European neurosurgical trainees between 06/2014 and 03/2015. Trainees were invited to attend the EANS training course in Nicosia, Cyprus (August 2014) and Uppsala, Sweden (February 2015), by direct e-mail contact and by using social media platforms (Facebook, etc.). Participants were ensured about confidentiality of their data. All data were collected in an online database and subsequently exported into Excel. Questionnaires of all responders obtained until 30/04/2015 were included in the final analysis.

Statistical considerations

Frequency distributions and summary statistics were calculated for all questions with categorical answers. Parameters such as satisfaction rates, timing of surgical procedures or caseloads were additionally turned into a binary variable (e. g. satisfied vs. non-satisfied, < 12 months vs. ≥ 12 months, < 10 vs. ≥ 10 procedures/month). Logistic regression analysis was used to assess the size effect of the relationship between a trainee being from the CR and the outcomes (e. g. satisfaction, working time). First, a univariate model was built to assess the relationships without adjustment, and then a multivariate model was built using forced-entry methodology. Multivariate analysis was corrected for age, gender, postgraduate year (PGY) and type of clinic as those were imbalanced at baseline and/or considered to be potential confounders. Results of the multivariate analysis are presented as odds ratios (OR) with 95% confidence interval (CI). The software used for the statistical analysis was Stata v14 (StataCorp LP, College Station, Texas, USA). Graphs were drawn using GraphPad Prism v5.0c (GraphPad Software, Inc., San Diego, California, USA).

Results

A total of 652 responses were collected. One hundred and twenty responses were excluded because: a) the responders stated that they were not neurosurgical residents (n = 87); or b) the responders indicated to be working in a non-European country (n = 33). Thus, 532 responses were taken into consideration, of which 22 (4.14%) were from Czech trainees. Most of the non-Czech responders worked in Germany, in the United Kingdom (UK), Switzerland, Italy, Poland, Ukraine, Portugal, Netherlands, Greece, Spain and Turkey. Fourteen residents (3%) indicated working in Europe, but did not specify their country [7].

Table 1 shows the baseline parameters of the study cohorts. The age- and sex-distribution of Czech and non-Czech trainees was similar and trainees from the CR, much likly than in the rest of Europe, mostly worked at university departments. Czech units were smaller concerning the number of trainees, but had a similar or even higher case load for cranial and spinal cases/year respectively.

Theoretical education

In the multivariate analysis, Czech trainees were 184% as likely as non-Czech European trainees to be satisfied with clinical lectures given at their teaching facility (OR 1.84; 95% CI 0.77–4.43; p = 0.170). They were 100% as likely to be satisfied with anatomical lectures (1.00; 0.36–2.76; p = 0.994), 77% as likely to be satisfied with journal clubs (0.77; 0.29–2.05; p = 0.609), 118% as likely to be satisfied with teaching during ward rounds (1.18; 0.41–3.43; p = 0.756), 198% as likely to be satisfied with tumour boards (1.98; 0.63–6.28; p = 0.243)