Acta Neurochirurgica (2018) 160:1671
https://doi.org/10.1007/s00701-018-3613-x

EDITORIAL (BY INVITATION)

The requirements of trainees and microsurgical skills

Karl Schaller[1]

Received: 21 June 2018 / Accepted: 25 June 2018 / Published online: 29 June 2018

Reduced working time, ever-complex working time schemes, over-administration, raising numbers of trainees, increasing expectations from *informed* patients, and decreasing *classical* microsurgical indications build up pressure on our models for adequate neurosurgical education. However, (micro)surgical skills will remain a central element of qualification as a neurosurgeon for years to come and despite numerous emerging interventional technologies. One element for education of the future generation of surgeons consists in providing access to surgical skill labs, and, i.e., making such basic courses obligatory for junior trainees, or for the identification of senior medical students and PGY1/2 trainees, which are predestined for a surgical career.

In the present study, the authors address part of the above: they analyze the relationships between physiological hand tremor and performance in an experimental surgical task, and subjective anxiety, respectively. Forty more or less senior medical students participated in the study. They had to suture the dura (at least one knot) under the microscope in an ex vivo swine model. Performance was measured by a so-called Direct Observation of Procedural Skills program (DOPS). Tremor at rest, when holding an instrument, and when throwing the suture was assessed by observers using a Likert scale. Anxiety was tested by asking 10 standardized questions. A dexterity test was performed as well. Subjective and objective tremor assessment were not significantly associated. Increasing anxiety and tremor at rest decreased the performance only slightly, and tremor at rest did not affect dexterity. The authors conclude that students' confidence was important for simulation-based performance, whereas neither the objective nor the subjective notion of tremor influenced performance. Thus, confidence should be encouraged in them.

The results from this study are relevant, but they can be no more than just the starting point for a more profound reflection on the selection of the (happy) few we train and who will lay hand on our precious patients ultimately, and on which parameters we should use in order to identify the right persons for that. Surgical skills alone won't be decisive, and possibly less and less in the future with increasing use of robotic and hybrid human-robotic devices and transcutaneous technologies. Empathy cannot be trained for example. But, can it be assessed? And, what about psychological stability and stress resistance of a trainee? Will such comprehensive, and potentially more elaborate and demanding skill labs be able to replace the average period of observation of a junior resident by his experienced superiors, i.e., one year of basic training under supervision? And, if so, will it have a positive impact on current attrition rates of app. 20% across large residency programmes? Thus, we cannot escape our responsibility to trust our own gut feeling. For example, the authors are insinuating that the instauration of confidence in anxious students may be helpful to overcome their hesitation to embark on surgical careers. Herewith, it would become very important to apply measures, which prevent ignition of potentially hazardous behaviour and overestimation.

And, furthermore: different training sites have different cultures. Thus, different (cultural) criteria will apply for different training programmes and departments. No more than common technical and psychological denominators may be tested by skill labs as supposed by the authors. It is our responsibility to define and to regularly re-visit the mental and the technical requisites needed by future neurosurgeons—in regard to regional and cultural diversities and possibilities.

This article is part of the Topical Collection on *Neurosurgery Training*

✉ Karl Schaller
karl.schaller@hcuge.ch

[1] Hopitaux Universitaires de Genève, Rue Gabrielle-Perret-Gentil 4, Geneve, Switzerland