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Editorial

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Neurological diseases constitute 6.3% of the global burden on health and are responsible for 12% of overall mortality, according to the World Health Organization. Needless to say, neurological diseases such as cerebral vascular disease and dementia—whether vascular or Alzheimer's— are among the most prevalent.

The number of patients with neurological diseases handled by non-neurologist physicians is increasing alarmingly in the different health systems of the world; therefore it is of paramount importance for doctors to have a basic neurological training of good quality. In the last 20 years, the term "neurophobia" has been coined to indicate the fear—not only in medical students but also in general practitioners and non-neurological specialists—of neurological syndromes or diseases. Scholars of learning techniques have searched for and analyzed the different factors associated with this neurophobic phenomenon because neurophobia has practical implications that will impact the quality of care for patients with neurological diseases.

In a survey of more than 400 students in Ecuador, Neurology was the most difficult subject, where they felt the least clinical confidence, and where they felt they had the least amount of knowledge. The deficiencies in the training were considered the worst in Neurological Semiology, followed closely by Neuroanatomy.

Similar results have been described in other countries of the world. In a study conducted in Saudi Arabia surveying 422 medical students in different medical schools, the majority of students reported little interest in neurology, which was associated with a particularly bad teaching experience and the complexity of the neurological examination. A survey among more than 2,000 students in the United Kingdom showed that the frequency of neurophobia has not changed in recent years and neurology remains the specialty considered the most difficult.

Beyond the complexity of the subject itself, the quality of teaching undoubtedly influences the development of their competence. A recent survey conducted in four Ecuadorian cities with medical students showed that two-thirds of the students considered the teaching of basic neurology (not exclusively neuroanatomy) insufficient or even non-existent. The complexity in the teaching of neuroanatomy has traditionally been considered one of the main factors associated with neurophobia. A study in Singapore showed that the teaching of neurology by a non-neurologist is a factor associated with the development of neurophobia.

The teaching methodology has been analyzed. In one investigation in the United States it was reported that a more clinical-oriented approach in neuroanatomy would be very useful. Prithishkumar et al. demonstrated the effectiveness of a program with early clinical exposure in first-year students by replacing the classic course in a classroom with hands-on experience in medical units, taking advantage of the different neurological disorders for neuroanatomy learning, resulting in 95% of the students understanding more—and better—than with the conventional method.

New strategies and teaching methods are necessary to change the students' attitude. The use of technology with computerized 3D simulators will make neuroanatomy more interesting and the use of neurological exam videos will help develop these skills to be applied to patients.

We still need to address, however, the most important issue: a medical student should know neurology. Literature on this is practically non-existent. In 1999, Dr. Charles at Vanderbilt University proposed a curriculum for the teaching of neurology to medical students during the four years of coursework. Neuroanatomy and Neurophysiology were taught in the first year, Neuropathology in the second, Neurological Semiology in the third, and in the fourth year Neurological Diseases that included subjects with heterogeneous neurological emergencies, coma, cerebral vascular disease, epileptic seizures, headache, dizziness, back and neck pain, and peripheral nerve disorders, among others.

Our country's problems regarding teaching neurology at the undergraduate level include several factors.

1) Teachers without defined profiles. In many of the universities of the country, the subject of neurology corresponding to the clinical cycles is taught by a non-neurologist and this influences the results of the teaching (as demonstrated in the Singapore study).
2) The duration of the clinical course is variable and ranges from two to ten weeks, averaging five weeks. How much can a medical student read about the subject in this period of time?
3) Program contents are "to the taste of the teacher." In many of our universities, teachers will teach topics with which they feel comfortable. For example, if the teacher is a neurosurgeon, he will teach about head trauma and brain tumors exhaustively, leaving aside classic neurological issues such as peripheral nerve diseases.
4) Lack of appropriate textbooks. In a survey conducted by the Mexican Academy of Neurology, professors of undergraduate neurology said the books recommended to the students included mostly Harrison's Principles of Internal Medicine, Micheli's Neurología, and, in some isolated cases, Adams and Victor's Principles of Neurology.

The teaching of basic neurosciences such as neuroanatomy and neurophysiology is beyond the reach of the Mexican Academy of Neurology; however, the Academy can support the teaching of clinical neurology subjects.

The recent publication of the second edition of Neurología Elemental (Elemental Neurology) by the Mexican Academy of Neurology aims to help resolve, at least partially, factors associated with the development of the aforementioned neurophobia.
Elemental Neurology consists of three sections.

The first section on neurological examination is accompanied by videos teaching the different maneuvers, in order to fill the learning gap in clinical skills. It is up to the teachers to interact with the students using this tool.

The second section is dedicated to neurological semiology, reported as one of the main shortcomings in the teaching of neurology. This section is intended for the student to learn to recognize the symptoms and signs that will allow him to put together neurological syndromes.

The third section focuses on what a group of academics has considered the ten most frequent neurological diseases that a medical student should know. This section is complemented by interactive clinical cases that allow the student a clinical exercise.
Elemental Neurology intends to fulfill yet another objective, which is mainly to educate the non-neurologist professor. The reading of this work by the non-neurologist specialist will allow him to cover topics that are not his domain and, in this way, better fulfill his role as a teacher.

An adequate teaching of neurology at the undergraduate level could increase the number of doctors interested in pursuing a specialty related to neurology, it might create higher-quality residents, and it will imbue basic knowledge of neurology for the best practice of another specialty.

This effort by the Mexican Academy of Neurology is the first in the country in which an Academy promotes a better level of education in a subject at the undergraduate level—and should be imitated by other Academies or Associations.

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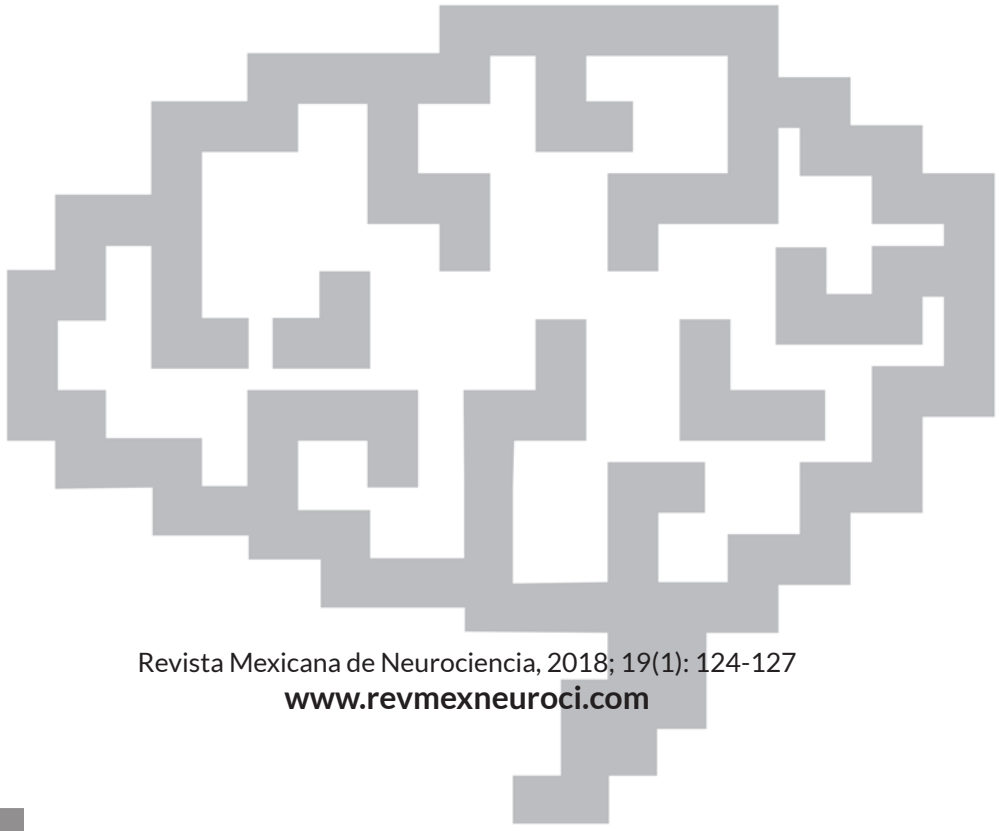

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