Lost Fundamentals in Neurosciences - A Call for Discussion

My mentors in Neurology, all clinicians, advocated the primacy of fundamental basic Neurosciences in training. They insisted that we learn how action potentials form and propagate or how Schwann cells myelinate axons. Their lessons were not confined to current professional practice but went well beyond, emphasizing how disease interacts with the function of the human nervous system. An exquisite knowledge of such function, not easily acquired, was the starting point. It opened the door.

A fundamental grounding and appreciation of Neurosciences is gradually disappearing from clinical programs in Neurology and Neurosurgery. Neurology programs are less likely to involve basic Neuroscientists in their teaching despite longer periods of training and the development of academic half days. Many other apparent priorities now occupy valuable learning opportunities. Neurological and Neurosurgical residents are rarely encouraged to attend the Society of Neurosciences meeting or to join the Canadian Association of Neurosciences. In the current quest to define “competency”, it is not clear whether the Royal College examinations in Neurology now rigorously evaluate fundamentals. Is it possible that future clinical Neurosciences trainees will not learn basic neurophysiology either as medical students or residents? Without fundamentals, how do we build upon the complexities of plasticity, regeneration, and stem cell biology? The decline of Neuroscience training is even more evident in medical school curriculae. Medical students now argue that neuroanatomy training ought to be discarded or diluted. Future physicians may be left with a lesser grasp of neuroanatomy than interested members of the general public who read and have internet access.

It may be argued that not all trainees require fundamental training in Neurosciences. Perhaps they have had previous experience in the area or are innately curious and acquire the knowledge on their own. But what of the others who merely need an impetus? Do we close the door to them? What initiatives can we provide?

The Canadian Journal of Neurological Sciences actively recruits Neuroscience work to appear in our pages as reviews or original articles. Both new and seasoned authors are invited to submit reviews. We ask for fundamental and undiluted basic articles beyond those that directly address a clinical question. My hope is that this effort might help to bridge a widening gap between clinical and basic Neurosciences.

Another initiative worth considering, but not widely exploited by our clinical programs is the annual meeting of INMHA, the Institute of Neuroscience, Mental Health and Addiction of the Canadian Institutes of Health Research (CIHR). These meetings ought to be mandatory for clinical trainees in Neurosciences and Psychiatry. They are wonderful opportunities to directly experience bench to bedside medicine: a testimonial from a patient, a clinical overview, a cutting edge research presentation and considerable discussion. This year’s meeting in Vancouver highlighted Parkinson’s disease, mood disorders and addiction. With an acknowledged bias on my part, I suggest that this meeting should replace some of the currently subsidized theme courses offered for residency programs.

I encourage a dialogue on like issues in this journal. What exactly are the arguments, both for and against maintaining the teaching of rigorous fundamentals? Why is it unnecessary to include time spent in crystallizing exquisite appreciation of neuroanatomy and neurophysiology? Is it wrong to insist on this knowledge? Is our mission simply to create professionals versant in the professional practice of current Neurology?

Let us also examine the success stories. Perhaps some residency programs are bridging the divide between clinical and basic Neurosciences. How is this being done?

Without opportunity and impetus from my mentors to consider fundamental Neurosciences it is unlikely I would have chosen this field. Appreciation of its beauty, complexity and unknowns build on hard won concepts. The door needs to be opened wider so that we can be imaginative, not simply competent.

Douglas Zochodne
Editor-in-Chief
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