

Comment From the Editor

Neurogastroenterology: A Great Career Choice for Aspiring Gastroenterologists Thinking About the Future

Gastroenterology today is one of the most coveted specialties in medicine, and attracts the “best and brightest” of trainees because of its broad spectrum of illnesses, its robust interface with multiple biological disciplines, and perhaps most of all the ability to intervene diagnostically and therapeutically using minimally invasive techniques. Many trainees go on to further specialize, choosing areas such as so-called “advanced” endoscopy, hepatology, and, increasingly, inflammatory bowel disease. These popular choices no doubt reflect their “passion” for the field, but equally, if not more important, may be based on their perception of factors such as the quality of the doctor-patient relationship (which probably includes the ability to improve outcomes), prestige, intellectual stimulation and challenge, opportunities for research, earning potential, and influence of a mentor, among others.¹ Disproportionately fewer fellows opt for a career in neurogastroenterology (a term that is now preferred over “motility” because it more accurately reflects the breadth and depth of this subspecialty).

For those of us who are actively engaged in this area, this is not only personally disheartening, but has serious implications for the future of the field and perhaps of gastroenterology as a whole, because so many patients have a neurogastroenterologic underpinning. The reasons for this lack of interest are complex. In my opinion, a significant factor is a misperception of the psychiatric nature of the unfortunately named

“functional” bowel disorders, leading to an undue cynicism in approaching these patients. However, these perceptions are “hang overs” from an era that precedes gastroenterology as a specialty. In 1913, *Webster’s Dictionary* defined a functional disease as “a disease of which the symptoms cannot be referred to any appreciable lesion or change of structure; the derangement of an organ arising from a cause, often unknown, *external to itself* opposed to **organic** disease, in which the *organ itself is affected*” (emphasis and italics added). As a group, neurogastroenterologists have clearly not done themselves a favor by persisting with this nomenclature, although the history of gastroenterology is replete with examples of how inaccurate such definitions can be. A classic example is that of peptic ulcer disease, which was thought to be a “nervous” disorder in the traditional sense and each important advance in our knowledge of its true pathogenesis, from acid to *Helicobacter pylori*, were met with resistance. Similarly, evidence abounds today that even prototypical “functional” disorders such as irritable bowel syndrome are often, if not invariably, associated with local immune activation. Yet, the perception that the cause is somehow external (psychological) remains highly prevalent among all ranks in gastroenterology, and I believe it creates a significant barrier in the minds of potential trainees. Second, although psychosocial factors may be more pronounced in patients with neurogastroenterologic disorders, they are very common in other chronic illnesses as well, and may reflect a consequence rather than a cause. Indeed, true psychopathology manifesting as a gastrointestinal illness is rare.

In this commentary, I have therefore attempted to dispel this and other myths about this specialty and provide some guidance to young aspirants to gastroenterology, in the

form of a “top 10” list of reasons to choose this career, in no particular order of importance.

Reason #1. *You will join neurogastroenterology at a time when it is poised for major breakthroughs in diagnosis and treatment.* We are moving to an era of both rational and effective drug development with novel targets emerging frequently, raising the promise of new treatments for a variety of disorders ranging from gastroparesis to irritable bowel syndrome.^{2,3} We will probably also see the introduction of new diagnostic platforms, which will provide information at a molecular and pathological level that will go far beyond what we have today. These will include endoscopic approaches to neuromuscular biopsies as well as refinements of manometry and truly smart sensors.^{4,5} Finally, we may see an emergence of novel endoscopic/minimally invasive therapies that include electrical stimulation, submucosal myotomies, and nerve/muscle transplantations.⁶⁻⁸

Reason #2. *Your growth as a physician will be tremendous.* Because of its broad spectrum and the special needs of some of the patients, clinical neurogastroenterology will bring out the best in you in terms of compassion, thoughtfulness, creativity, critical thinking, and problem solving. You will find yourself maturing rapidly as a physician who learns to employ both the trained intellect and the healing hands.

Reason #3. *You will be a “rocket scientist” in gastroenterology.* There is no doubt that neurogastroenterology requires a high level of cognitive skills and the intellectual challenges it will bring will be a constant source of stimulation and excitement throughout your career. In the last few years, major advances have been made in the field in the pathology, pathophysiology, genetics/pharmacogenomics, and imaging in neurogastroenterology.⁹⁻¹³ Fur-

thermore, because of its many interfaces with other specialties (surgery, endocrinology, immunology, neurology, etc), you will be constantly acquiring new and diverse information that will keep you on your toes. It will be your task to integrate this ever-expanding base of knowledge into a therapeutic approach to your patients.

Reason #4. *You will find patient care to be stimulating and gratifying.* Clinical neurogastroenterology exemplifies the “art of medicine” as well as individualized medicine. There are clearly no easy “cookbook” approaches to this field and the gratification is not as immediate as doing a polypectomy, but contrary to popular belief, a surprisingly large proportion of patients do get better in response to treatments that you will tailor specifically for them. These include patients across the spectrum, including those with dysphagia, gastroparesis, unexplained nausea, diarrhea, and constipation.

Reason #5. *Your patients will love you.* You will be dealing with patients whose problems are real and serious and often have been turned away by other physicians as being “refractory” or “untreatable.” Very few of these patients actually have deep-seated psychiatric problems as the primary pathology; instead, many have pathophysiologically identifiable disorders and you will often be the first physician to give them insight into their problem and hope for relief. Indeed, your patients will often remind you of the reasons you went to medical school in the first place.

Reason #6. *Your colleagues will love you.* Because patients with neuromuscular dysfunction often have complex presentation, your knowledge and insight will represent an extremely valuable resource to other gastroenterologists both within and outside your group, as well other specialists, such as surgeons, rheumatologists, pulmonologists, and endo-

crinologists, who will frequently and actively seek your opinion and not just ask you to perform a procedure. As a consequence, you will gain a high level of prestige and respect from peers and referring physicians.

Reason #7. *You will be in a field of “doers” and “thinkers.”* Although it has a high cognitive component, clinical neurogastroenterology is an active procedural specialty today, with tests of motility, pH, or transit making up anywhere from 10% to 20% of all procedures performed in most academic GI labs. In the near future, we will see a dramatic expansion of “interventional” neurogastroenterology with endoscopic approaches to both diagnosis (eg, full-thickness biopsies) and treatment (eg, submucosal myotomy for achalasia, electrical stimulation, or nerve/muscle transplantation), as mentioned. These are opportunities that will significantly advance the procedural base of this subspecialty.

Reason #8. *You can be a trailblazer in research.* Despite recent progress, much remains to be discovered in this area and the opportunities for innovation and creative thinking in research are tremendous, not only in basic science, but also in clinical research. Further, there are currently fewer researchers in this field than in others, and that will give you a significant edge when applying for grants to the National Institutes of Health. Perhaps the most exciting aspect of research in this field is the diversity of the topics that you can apply yourself to, from stem cells/regenerative medicine to (neurogenic) inflammation, brain imaging, and pain signaling. This diversity reflects the interface of enteric neuroscience with many other disciplines including epithelial biology, the enteric microflora, the mucosal immune system, and, of course, the autonomic and central nervous systems.

Reason #9. *Neurogastroenterology will influence advances in systemic disorders such as the metabolic syndrome*

*and type 2 diabetes, obesity, and osteoporosis, among others.*¹⁴⁻¹⁶ As the experience with gastric surgery clearly demonstrates, neurohormonal signals from the gut are increasingly being recognized as key players in the pathogenesis of these syndromes, thereby offering the opportunity for new forms of therapy that are primarily gastrointestinal in nature. Another area that is under active research is the concept of the enteric nervous system providing a “window” to the central nervous system. Thus, mucosal biopsies in patients with Parkinsonism can mirror the pathology found in the basal ganglia and this potentially can provide a relatively simple and repeatable procedure to both follow the progress of these patients and their response to disease-modifying drugs as well as provide new insights into the pathogenesis of this condition.¹⁷ Collectively, these opportunities could dramatically alter the scope of the neurogastroenterology practice.

Reason #10. *You will never be out of a job!* With some disorders affecting 10%–20% of the population, there is clearly a great number of patients who need to be seen. Combined with a paucity of neurogastroenterologists, most academic medical centers are struggling to meet the demand for patient care. Unlike recent trends suggesting that fellows who have trained in advanced endoscopy are facing a difficult job market, there are plenty of well-paid, prestigious positions for neurogastroenterology across the country. This trend will only be exaggerated with the predicted decline in endoscopic demand and the move toward accountable care and more efficient management of chronic diseases.

In conclusion, I hope that I have painted a picture of a discipline that is robust, exciting, and clinically gratifying, and that offers a tremendous future to our trainees. I hope that at least some of them will read this article and take advantage of this op-

portunity to forge a uniquely satisfying, distinguished, and astonishingly diverse career. A simple and easy way to get a painless introduction to this field is to take advantage of the Clinical Training Program in Gastrointestinal Motility and Neurogastroenterology offered by the American Neurogastroenterology and Motility Society (available at: <http://www.motilitysociety.org>). This program is designed to support trainees (gastroenterology fellows) for a 1-month teaching program at 1 of 10 centers and is an excellent exposure to the fascinating world of clinical neurogastroenterology.

Supplementary Material

The first 5 references associated with this article are available below in print. The remaining references accompanying this article are

available online only with the electronic version of the article. To access the remaining references, visit the online version of *Gastroenterology* at www.gastrojournal.org, and at doi: [10.1053/j.gastro.2011.02.025](https://doi.org/10.1053/j.gastro.2011.02.025).

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