



The case for subspecialization in neurology: movement disorders

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Within the world of medicine, the advent of new treatments and new technology has resulted in an increase in the number of specialties and subspecialties. This is especially true in neurology. A widely quoted article has demonstrated that 74% of neurology residents will do a fellowship (Larson et al., 2000), and given that the survey was done over 10 years ago, the number increased, as the most recent AAN resident survey gives a number of almost 78% (Resident Survey, 2008).

Movement disorders is one of the many neurology fellowships that is non-accredited. On the AAN webpage there are currently 44 programs listed in the United States and Canada that offer a movement disorders fellowship (Directory for Fellowship Positions: American Academy of Neurology, 2010). The AAN resident survey reported that 9% of residents going into a fellowship chose movement disorders (Resident Survey, 2008). The question under consideration is to determine when a general neurologist should refer a patient to a movement disorders specialist.

GENERALIST VS. SPECIALIST CARE

The idea of doing a fellowship is to obtain special skills to allow better care for patients. The question is whether there is any evidence for this. The literature does not completely answer this question. For instance, one study suggests that internists in procedure-oriented subspecialties tended to do worse on general medical knowledge examinations (Ramsey et al., 1991). There are also mixed results whether specialists result in less expensive care or more unnecessary tests (Donohoe, 1998). A more recent analysis, however, suggests that most studies suggest superior outcomes when comparing a single discrete medical condition (Smetana et al., 2007). As this paper rightly mentions, many patients have multiple chronic conditions, and as these studies are about the outcome of a single condition, the scale may be unfairly tipped in the direction of the specialist.

WHITHER NEUROLOGY?

The next question that must be answered is whether primary care physicians need neurologist involvement for neurological conditions. The answer to this seemingly simple question differs depending upon whom you ask (Swarztrauber et al., 2002). In this study general internists, family physicians, and neurologists were given questionnaires regarding the management of three neurological conditions (transient cerebrovascular event, dementia, Parkinson disease). For the issue of the transient event, over 50% of internists felt that the primary care physician should manage the condition alone or curbside the neurologist. In dementia over 70% feel the same. Only for Parkinson disease was there close to a majority recommending the referral. In this questionnaire an attempt was made to determine knowledge base, and the higher knowledge on a particular condition by the internist was associated with a lower chance for referral. For the same conditions neurologists felt that a patient should be referred in 92.4, 94.4, and 89.6% of the time respectively, substantially different than the numbers from the primary care provider.

NEUROLOGIST SUBSPECIALIZATION

Assuming the patient is referred to a neurologist, the next question is whether that patient needs to see a subspecialist within neurology or a general neurologist. With the majority of residents now doing a fellowship, albeit in unequal numbers, this is now more than just an academic question. It is instructive to see what patients think. One study looked at the perceptions of multiple sclerosis patients (Vickrey et al., 1999). There were several key differences patient perceptions of specialists vs generalists. Patients who saw multiple sclerosis specialists felt they received better communication about new treatments and side effects and also felt that they had better access to research and multiple sclerosis care in specific areas. One of the most

interesting differences was that the patients in the general neurologist group had discontinued disease-modifying therapies in a higher proportion. Whether this difference is related to better comfort and knowledge of the medicine by the specialist or the specialist's ability to better educate the patient is not clear in the study. Regardless of the reason, it seems that the care is better with the subspecialist, felt both subjectively by the patient and objectively by the proportion of patients on medication.

REFERRAL TO MOVEMENT DISORDERS SUBSPECIALISTS

The earlier study (Swarztrauber et al., 2002) does suggest that primary care providers do value neurologist management of Parkinson disease. Another study suggests that physician extenders value equally the management skills of the neurologist and are more likely to refer for confirmation of diagnosis (Swarztrauber and Graf, 2007). Given the results of the multiple sclerosis study (Vickrey et al., 1999), it seems reasonable to expect better outcomes by movement disorder specialists for the treatment of Parkinson disease, and the data supports this supposition. A study looking at the care of Parkinson disease patients showed statistically significant differences between neurologists and non-neurologists in the adherence to PD quality care indicators, and it also showed statistically significant benefits in these same indicators between movement disorder specialists and general neurologists (Cheng et al., 2007). While both specialists and generalists provided high quality of care of symptoms when they were recognized, there were significant differences in the treatment of wearing-off. Furthermore, there were significant differences in the assessment and recognition of non-motor symptomatology.

Another important area that has been examined in many studies is the "correctness" of the diagnosis of Parkinson disease. A study was conducted in North Wales that

looked at the 402 patients who were on anti-Parkinsonian medications (Meara et al., 1999). Only 74% of these patients had any sort of Parkinsonism; of the remaining individuals, the majority had essential tremor and others had gait apraxia and dementia. A similar study done in London suggested that 15% of individuals diagnosed with Parkinson disease actually have a different disorder while 20% of patients who likely have Parkinson disease have already been evaluated and have been diagnosed incorrectly (Schrag et al., 2002). Conversely, in a movement disorders clinic, a study was performed with neuropathological examination to confirm diagnosis, and the positive predictive value and sensitivity of the clinical diagnosis was extremely high (Hughes et al., 2002). The positive predictive value of a clinical diagnosis of idiopathic Parkinson disease was 98.6% (72/73) with a sensitivity of 91.1% (seven false negatives, 72/79). For multiple system atrophy the values were 85.7% (30/35) and 88.2% (30/34) respectively. For progressive supranuclear palsy the values were 80% (16/20) and 84.2% (16/19) respectively. In general the positive predictive value of the atypical Parkinson syndromes was 71.4%

DISCUSSION

There is some debate as to whether the move toward specialists is warranted, but the data in the literature supports the referral of patients with suspected movement disorders to neurologists and within the neurology community to movement disorders specialists. Neurologists in general seem to treat Parkinson disease well, but the identification of some of the nontraditional (i.e., non-motor) symptoms seems to be more

quickly identified and treated by movement disorders specialists. In the cases of patients with atypical Parkinson disease patients, the differences in diagnosis and treatment are even more pronounced between generalists and specialists. A reasonable strategy would be to have any patient with suspected Parkinsonism see a neurologist. A generalist is acceptable if there is no specialist available, but in areas where a movement disorders specialist is available, the patient should be seen in this specialty clinic. In those areas that are isolated or in which there are few movement disorders specialists, a solution might be to have the patient see the specialist initially for diagnosis and perhaps infrequently after the initial visit, with the patient's home neurologist managing his disease on a "day-to-day" basis. These suggestions would allow a quicker and more accurate diagnosis, eliminating the prescribing of unnecessary medications and diagnostic testing, while allowing the patient to obtain more quickly the appropriate treatments. This would benefit the patient directly and likely the health system in general with lower costs but better care.

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