ABSTRACT

Objective: Telephone medicine is part of clinical practice, but there are no published data on the volume, nature, and time allocation of patient-related telephone calls received in a movement disorders center. Such data might provide insights which augment patient care, and may be instructive regarding medical education, since patient-related telephone calls are often addressed by physicians-in-training.

Methods: Characteristics of patient-related calls to a movement disorders center were prospectively recorded during a 2-month period.

Results: A total of 633 calls were generated by 397 patients. The average time per call was 6.6 ± 4.7 minutes. Disease-related questions (35.1%), treatment-related questions (21.3%), and side effect reports (15.3%) represented the majority of calls. Patients with Parkinson disease, Tourette syndrome (TS), and atypical parkinsonism (AP) called more frequently, while patients with dystonia and tremor called less frequently.

Conclusion: Patient telephone calls contribute substantially to the patient care in a movement disorders center and represent an important aspect of training, providing an opportunity for movement disorders fellows to develop independent decision-making skills and monitor effectiveness of their physician-patient counseling. Parkinson disease, Tourette syndrome (TS), and atypical parkinsonism (AP) contribute disproportionately to the total patient telephone volume, possibly due to coexisting obsessive-compulsive and impulse-control comorbidities in patients with TS, and complications or a change of diagnosis and prognosis in patients with AP. Emphasis on the management of these specific diagnostic groups early in fellowship training may be warranted.

GLOSSARY

AP = atypical parkinsonism; ED = emergency department; ET = essential tremor; PD = Parkinson disease; PDCMDC = Parkinson’s Disease Center and Movement Disorders Clinic; RLS = restless legs syndrome; TS = Tourette syndrome.

Medical care provided by physicians extends beyond a patient’s office visit, and returning patient telephone calls in a timely manner is part of good clinical practice. Telephone medicine is also part of fellowship and residency training programs.1-4

The movement disorders fellows at the Parkinson’s Disease Center and Movement Disorders Clinic (PDCMDC) at Baylor College of Medicine often serve as the primary contact for patients calling with questions after their clinic visit. Although the attending physicians are available for consultation, call-backs provide an opportunity for the fellows to practice independent decision making and develop confidence in patient management. Call-backs may also inform fellows regarding issues that warrant additional counseling in clinic and may provide a means of gauging the efficacy of such counseling. The primary objective of this study is to analyze the nature, volume, and time allocation of patient-related telephone calls in a movement disorders center.

METHODS Patient telephone calls that were received by 4 movement disorders fellows and 3 faculty physicians at the PDCMDC during office hours were recorded over a period of 2 months (August 6, 2007–October 6, 2007). The telephone calls that did not
Two-sample Disease Center and Movement Disorders Clinic during the same 2-month period that call-back patients were defined as any new or established patient evaluated at the Parkinson’s Disease Center (PDCMDC) and outcome of the encounter. Only calls that were answered by the fellows were timed. The diagnoses were grouped in several diagnostic categories: Parkinson disease (PD), atypical parkinsonism (AP) (multiple system atrophy, dementia with Lewy bodies, corticobasal degeneration, progressive supranuclear palsy), other parkinsonism (vascular parkinsonism, drug-induced parkinsonism, normal pressure hydrocephalus), Tourette syndrome (TS), dystonia, essential tremor (ET), chorea (majority: Huntington disease), myoclonus, ataxia, tardive syndromes, psychogenic movement disorders, restless legs syndrome (RLS), and other disorders. The reasons for calling were grouped as follows: disease-related questions (general inquires, complications, worsening of symptoms), treatment-related questions, side effects, test results, feedback call (following a visit or a previous telephone call), and other. Likewise, the call outcome was grouped into several categories: medication changes, earlier appointment rescheduling, counseling, test result reporting, additional testing, emergency department (ED) referral, and other. The distribution of diagnoses in the patient callback sample was compared to the clinic patient population that was evaluated during the same period.

RESULTS During the 2-month period, 633 patient telephone calls were generated by 397 patients. Only the telephone calls answered by the fellows (73%) were timed, the average time per call being 6.6 ± 4.7 minutes (0–40 minutes). The average time/day spent by fellows answering patient telephone calls totaled 64.8 ± 27.9 minutes (7–141 minutes). Patients placed 48.8% of the calls, with the remaining made by their spouse (20.2%), parent (12%), child or sibling (9.3%), health care provider (3%), and other (6.2%). Disease-related (35.1%) and treatment-related (21.3%) questions and side effect reports (15.3%) constituted the main reasons for calling. Most calls resulted in medication changes (42.5%) or consisted of counseling (21%). Only a minority of calls resulted in rescheduling of an earlier appointment (2.5%) and ED referral (1.26%).

Compared with the clinic patient population evaluated during the same period, patients with PD and AP called more often, and patients with ET and dystonia called less often than their equivalent clinic visit frequency (table). There was a nonsignificant trend for patients with TS to call more often than their equivalent clinic visit frequency. The diagnosis changed from the initial evaluation to the last follow-up visit in 6.6% of patient callers, the most common confusion involving AP, which was misdiagnosed initially as PD.

DISCUSSION This study confirms that telephone communication with patients is a vital aspect of medical practice. In academic institutions, such management is often provided by residents and fellows. Fellows at the PDCMDC spend on average nearly the equivalent of a continuity clinic every 3-week period providing patient care by telephone. The bias of such a “clinic” is that mostly patients with problems call, with only a small percentage (3%) of calls constituting “feedback.” The patient telephone call length by Baylor fellows is comparable to the call duration by other physicians-in-training (86% of calls by gastroenterology fellows lasted less than 10 minutes1; the average call by family medicine residents is 4.6 minutes).5 There are very limited data that analyze whether training impacts the performance of telephone medicine.6 Certain specialties such as pediatrics3 and family practice7 put more emphasis on telemedicine training than others, such as internal medicine.4 Training in telephone medicine should be studied for its effectiveness, either through direct patient feedback in the form of surveys or through standardized patient encounters.

Almost half (42%) of the telephone calls were placed by a family member. The initiative was taken by the parent of patients with TS, given their age, and by the spouse or the child of the adult patients, probably because direct communication was hindered by motor, speech, or cognitive impairments. Accordingly, it seems advisable that our patient population be accompanied to the clinic by their family when feasible.

Counseling represented a sizable portion of our calls. There is evidence that effective physician-patient communication has been linked to improved patient understanding, adherence, symptom

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Call-back patients</th>
<th>Clinic patients*</th>
<th>p Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage</td>
<td>Number</td>
</tr>
<tr>
<td>Parkinson disease</td>
<td>191</td>
<td>48.1</td>
<td>450</td>
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<tr>
<td>Atypical parkinsonism</td>
<td>21</td>
<td>5.3</td>
<td>27</td>
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<tr>
<td>Tourette syndrome</td>
<td>50</td>
<td>12.6</td>
<td>110</td>
</tr>
<tr>
<td>Dystonia</td>
<td>33</td>
<td>8.3</td>
<td>243</td>
</tr>
<tr>
<td>Essential tremor</td>
<td>27</td>
<td>6.6</td>
<td>126</td>
</tr>
<tr>
<td>Other parkinsonism</td>
<td>9</td>
<td>2.3</td>
<td>25</td>
</tr>
<tr>
<td>Chorea</td>
<td>11</td>
<td>2.8</td>
<td>39</td>
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<tr>
<td>Tardive syndromes</td>
<td>15</td>
<td>3.8</td>
<td>37</td>
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<tr>
<td>Psychogenic</td>
<td>6</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td>Restless legs syndrome</td>
<td>11</td>
<td>2.8</td>
<td>28</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td>5.8</td>
<td>63</td>
</tr>
<tr>
<td>Total</td>
<td>397</td>
<td>100</td>
<td>1153</td>
</tr>
</tbody>
</table>

*Clinic patients were defined as any new or established patient evaluated at the Parkinson’s Disease Center and Movement Disorders Clinic during the same 2-month period that call-back data were obtained.

*Two-sample t test.
resolution, and satisfaction. The effectiveness of physician-patient communication, however, is difficult to quantify, especially outside the confines of a dedicated study. Monitoring the frequency and nature of patient callbacks may help physicians better identify deficiencies in patient counseling and provide physician trainees a means of quantifying improvements in interpersonal and communication skills.

Patients with PD, AP, and TS required more telephone management. These findings may be explained by the complexity of medical management in advanced PD. We suspect that the inadequacy of available treatments and accelerated decline in AP necessitated more calls. The high incidence of behavioral comorbidities in TS and the higher frequency of obsessive compulsive behaviors in the parents of patients with TS may explain the frequent calls in that population, as the majority was initiated by a parent. Patients carrying a diagnosis of dystonia and ET had a tendency to place fewer calls, probably explained by the availability of effective treatments (e.g., botulinum toxin).

Side effects and disease-related and treatment-related complications were almost entirely amenable to telephone management; only a small percentage of calls resulted in referral to the ED or an earlier clinic appointment.

Our findings may not be generalizable to other clinics, as the Baylor PDCMDC is a tertiary referral center. The patients often have more severe and chronic degenerative conditions, are on multiple medications, and the emphasis is on symptomatic rather than curative treatment. Our study recorded patient telephone calls over only 2 consecutive months; therefore, it did not control for seasonal biases (for example, patients with TS and their parents have a tendency to generate more telephone calls before or at the beginning of the academic year). Other noncyclical biases include drug marketing or media events that may influence the volume and nature of the telephone calls received from a specific patient population. However, no such events were identified during the period recorded. A longer longitudinal study, capturing a larger sample, would have been more accurate, but for practical reasons we limited this exploratory study to 2 months.

DISCLOSURE
Dr. Adam, Dr. Ferrara, Dr. Aguilar Taboara, Dr. Nashatizadeh, and Dr. Negoita report no disclosures. Dr. Jankovic serves on advisory boards for Allergan, Inc., Merz Pharmaceuticals, Teva, and WEMOVE; receives royalties from publishing Fahn S, Jankovic J. Principles and Practice of Movement Disorders (Elsevier, 2007); Bradley WG, Daroff RB, Fenichel GM, Jankovic J, eds. Neurology in Clinical Practice, 5th Edition (Elsevier, 2008); and Jankovic J, Tolosa E, eds. Parkinson’s Disease and Movement Disorders, 5th edition (Wolters Kluwer Health, 2007); has received honoraria from Allergan, Inc., Michael J. Fox Foundation for Parkinson Research, Lundbeck, Inc., Merz Pharmaceuticals, and Teva; and receives research support from Advanced Neuromodulation Systems, Allergan, Inc., Boehringer-Ingelheim, Ceregene, Inc., Chitern International, Helis Foundation, Huntington’s Disease Society of America, Impact Pharmaceuticals, Ipsen Limited, Medtronic, Merz Pharmaceuticals, National Parkinson Foundation, Novartis, Ortho-McNeil, Teva, the Parkinson Study Group, and the Michael J. Fox Foundation for Parkinson Research.

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