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Review Article

Priorities in Movement Disorders Research

Abstract

Objectives: To analyze the patterns of movement disorders prospectively using the registry of movement disorders in our institution and to identify some research priorities.

Background and purpose: Movement disorders are common reasons for consultation and referrals in our hospital. They are often thought to affect movement only. However, most patients also experience psychiatric, cognitive, and other non-motor symptoms, either from the disease itself, or as a side-effect of medications. No data has been obtained regarding movement disorders in our institution. With the use of our registry, we aim to document findings prospectively, for use as data mining to support a variety of researches in the future, and to guide us as to priorities in services, teaching and research.

Methods: Starting April 2014, all adult patients seen at the Department of Neurology and the Department of Behavioral Medicine both inpatients and outpatients, presenting with movement disorders, were included in our IRB-approved Movement Disorder Registry. With signed consent from these patients, the motor manifestations were documented by recording with a video camera. All verified movement disorders were included in this registry. These patients were then characterized as to their demographic and clinical profile, and were reviewed as to the pattern of movement disorders.

Discussion: Since April 2014, we have registered about 41 patients, with a mean age of 51 years for male and 67 years for female. The most commonly seen movement disorder was Parkinson's disease (70%). Other movement disorders were dystonia, hemichorea, hemifacial spasm, tardive dyskinesia, and tic disorder. This was in keeping with other studies in Asian countries. As a national health institution, and the second institution locally with a registry of movement disorders, we hope to continue this registry so that we could obtain a substantial data for future researches, to establish a hospital prevalence and incidence of common movement disorders, and to be able to answer the possible natural course of movement disorders.

Conclusion: Creating a registry of movement disorders is beneficial to be able to document findings from a prospective analysis the patterns of movement disorders in our institution and to help us construct research questions following research priorities in movement disorders. Among patients registered, Parkinson's disease remains the most common disease seen in our institution.

Introduction

Movement disorders are neurological motor disorders which manifest with slowness or paucity of movement at one end of the spectrum, and abnormal involuntary movements at the other end [1]. They may be classified into two types of movement: hyperkinetic movement and hypokinetic movement. Hyperkinetic movement disorders are characterized by a significant and excessive amount of motor activity. Hypokinetic movement disorders are those in which there is reduced amount of intentional motor activity.

Hyperkinetic movement disorders are characterized by two types of pattern. It may be rhythmical e.g. tremors, or irregular e.g. tics, chorea, hemiballismus, and myoclonus. The three most common forms are ballismus, choreiform movements, and athetoid movements [2]. Ballismus is most typically seen as hemiballismus because it occurs on one side and it consists of uncontrolled flinging movements of an upper or lower extremity. Choreiform movements are generalized irregular dance-like movements of the limbs. Finally, athetoid movements are a continuous writhing of distal portions of the extremity [2,3].

The symptoms of hypokinetic movement disorders include a rigid, stone-like face; decreased limb motion during walking; and stiff turning movements. These features are classified as bradykinesia or akinesia. The most common type of hypokinetic movement disorder is Parkinson's disease, caused by the loss of neurons containing dopamine in the area of the brain called the substantia nigra pars compacta. The loss of these neurons is a part of the alteration of vital motor circuits in the brain that leads to a slowing of intentional movements [2]. Literature states that tremor/rigidity (as a reflection of Parkinson's disease and related disorders) has become a major symptom among neurological outpatients from the developing countries during the past years [4].

There are also non-motor manifestations seen in Parkinson's disease (PD) which are now receiving increasing attention in both clinical practice and research. Some common non-motor PD features such as memory disorder, constipation, postural hypotension, and REM sleep disorder may provide a window of opportunity to identify cases of PD in the presymptomatic (non-motor) phase [5].

Information on the nature and relative frequency of diagnoses

made in referrals to neurology outpatient clinics is an important guide to priorities in services, teaching and research. According to Stone, et al, Parkinson's disease and movement disorders are among the most common categories referred to neurology clinics [6]. However, most of these movement disorders including Parkinson's disease still need an improvement to current strategies for treating these symptoms [7]. Because previous studies of this topic have been limited by being of only single centers or lacking in detail, and treatments that provide neuroprotection and/or disease-modifying effects remain an urgent unmet clinical need, our team created a registry of movement disorders to address these concerns.

Methods

Starting April 2014, all patients seen at the Department of Neurology and the Department of Behavioral Medicine both inpatients and outpatients of our institution, presenting with movement disorders, were included in a registry. With consent from these patients, the motor manifestations were documented by recording with a video camera.

All verified movement disorders were registered in our Movement Disorder Registry. The registry was approved by the Institutional Review Boards. Data collected were characterized as to their demographic and clinical profile using a spreadsheet and saving to an external drive. This served as the database. The patterns of movement disorders were then reviewed, and up until this paper was written, the team is continuously listing movement disorder patients.

Discussion

Since this registry was started, it has presented a dynamic pattern of movement disorders. By far, the study team has registered about 41 patients, with a mean age of 51 years for male and 67 years for female. The most commonly seen was Parkinson's disease (n=29, 70%) followed by dystonia (n=5, 12.1%) including cervical dystonia and a case of X-linked dystonia parkinsonism, hemi chorea (n=3, 7.3%), hemi facial spasm (n=2, 4.8%), tardive dyskinesia secondary to antipsychotic medication (n=1, 2.4%), and tic disorder (n=1, 2.4%). We reviewed other articles from other Asian countries as to the types of movement disorders commonly seen.

Our results are in keeping with a previous study done locally in 2012 at St. Luke's Medical Center, a private tertiary hospital. They analyzed records of movement disorders in over 7 years in their Movement Disorder Center. A total of 1039 patients were included in their study and it revealed that among pediatric patients, tic is the most common disorder seen while among adults, Parkinson's was the most common [8]. In our institution, the pediatric department sees patients 12 years old and below, and tics are also commonly seen among these patients.

Muangpaisan et al. 2009, conducted a systematic search of studies published from 1965 to October 2008. The prevalence of Parkinson's disease in Asian countries was slightly lower than that in Western countries. However, comparison of incidence was difficult because of

the small number of studies [9], and methodological differences in gathering data.

Movement disorders associated with infections remain an important debilitating disorder in the Asian countries. In 2014, [Jhunjunwala et al. \[10\]](#), reported the clinical and imaging profile of a large cohort of patients with movement disorders probably associated with infection. Those movement disorders associated with infection were most often post-encephalitic. Dystonia was the most common presentation [10]. In our institution, we only have encountered one patient with infection of the nervous system responsible for the occurrence of a movement disorder, and it was presented as a case report. The patient was a 36-year-old male diagnosed with HIV presenting with a writhing dance-like pattern of the right extremities [11]. Hemichorea in our institution were mostly secondary to an infarct on the basal ganglia, while dystonia cases were either congenital, or hereditary (e.g. X-linked Dystonia-Parkinsonism).

Movement disorder is still a quite a new subspecialty in the Philippines. While this paper has the potential weakness of having been done in a short time with only a few patients up to date, to our knowledge, there are only 2 institutions known to have a registry of movement disorders in our country, one coming from a private hospital. As a national health institution, we hope to continue this registry so that we could obtain a substantial data for future researches e.g clinical trials on treatment of movement disorders, proper allocation of resources, and development of health campaigns, etc.

With a small data, however, we have not yet established the hospital prevalence and incidence of common movement disorders but continuing the registry will aid us to accomplish this in the future. The highest priority is to characterize the movement disorders and identify the risk factors that may contribute to the onset. Furthermore, understanding these movement disorders can answer their possible natural course.

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