Recognizing movement disorders: Reviving old practices

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Movement disorders have many different presentations and are defined as a group of syndromes that affect the ability for one to control movement in a given muscle or muscle group. Many of the medications we use to treat psychiatric illness (antipsychotics, lithium, and valproic acid) have the potential to cause movement disorders, often referred to as extrapyramidal side effects, though predictability is lacking. Antipsychotic-induced dopamine blockade can lead to acute dystonia, akathisia, and Parkinsonism, all of which are generally reversible if treatment is discontinued. A neuroleptic-induced movement disorder that may be irreversible is tardive dyskinesia. Both lithium and valproic acid may cause tremor, the presentation of which will be explored in this issue of the Mental Health Clinician. Less often, our antidepressants may induce movement disorders similar to those caused by antipsychotics. In 2009, the U.S. Food and Drug Association placed a black box warning on the medication metoclopramide, a gastrointestinal motility agent that has some dopamine blockade effects, warning of its risk of causing tardive dyskinesia. This prompted a slew of lawsuits against manufacturers of this medication and the doctors who prescribed it without informing their patients or monitoring for this known side effect.

Knowledge about medication-induced movement disorders has existed since the 1950s, with growing publications regarding epidemiology, etiology, and treatment through the early 1990s.[1] In fact, there was a time in the 1980s where practitioners across the nation were contemplating and developing clinics purely for the assessment and treatment of antipsychotic-induced movement disorders, particularly tardive dyskinesia. In the early 1980s, the prevalence of psychiatric inpatients treated with neuroleptics reached 25% according to Jeste and colleagues.[2] The year 1994 saw the approval of Risperdal® (risperidone) for the treatment of schizophrenia and changed the landscape of psychiatric treatment. The dawn of a new age with second generation antipsychotics, allowed tardive dyskinesia and other movement disorders to become much less common in the treatment of the mentally ill – subsequently research of movement disorders declined.

Properties of the second generation antipsychotics vary greatly; however, in general, most of the newer agents have low or moderate affinity for or more rapidly dissociate from the dopamine (D_2) receptor. Antagonism of serotonin ($5\text{-}HT_{2a}$) receptors also contributes to the decline in movement disorders by reducing dopamine blockade in the nigrostriatal pathway. These properties are believed to explain the decrease in extrapyramidal side effects with second generation antipsychotics. Nevertheless, some newer agents still possess the risk of EPS similar to their older, typical counterparts. The second generation antipsychotics (e.g., risperidone, olanzapine, quetiapine) cause tardive dyskinesia $1/5^{th}$ to $1/10^{th}$ less frequently than that of older, first generation antipsychotics (e.g., haloperidol, fluphenazine).[3] Many patients on second generation agents have previously been treated with a first generation antipsychotic, confounding a causative factor if tardive dyskinesia develops.

As the foundation of treatment for schizophrenia has shifted from first to second generation antipsychotics (many are also approved for bipolar disorder, and some are approved in adjunctive treatment of major depressive disorder), our vigilance for recognizing extrapyramidal symptoms has waned. Furthermore, we have not trained our new practitioners as well as was done in the past. Without as many cases of tardive dyskinesia or acute dystonia, training relies upon older videos of rather poor quality by today's standards. Most of these videos only review assessments for tardive dyskinesia, while others do not teach formal assessment but merely recognition of symptoms. Unless a practitioner is involved in funded research, further training is often lacking.

As a resident who trained and then practiced at a state psychiatric facility, I was aware of movement disorders though very few patients actually had tardive dyskinesia. Only blatant cases of tardive dyskinesia were then formally assessed by a psychiatric pharmacist. Due to staffing constraints, we were not monitoring patients on a regular basis, instead that duty was given to nurses who neither had the time nor training to perform an accurate assessment. Throughout my early career there, we were able to move the responsibility of movement disorder

assessment from nursing to physician; however, issues of time and training existed. We settled on an Abnormal Involuntary Movement Scale (AIMS) video that assessed only two patients with tardive dyskinesia. No training videos existed for performing a Barnes Akathisia Scale or Simpson-Angus Scale. The available videos were VHS and required conversion to the DVD format.

I believe we, as psychiatric pharmacists, are in a unique position to bring movement disorder training back as a part of the curriculum for psychiatric practitioners. Our specialized knowledge of the causative medications and pathophysiology of movement disorders allows us to not only thoroughly assess for a disorder but also aid in modification of the treatment regimen to reduce the burden of the disorder. Dr. Stoner and colleagues designed a systematic approach for assessing antipsychotic-induced movement disorders using the Modified Simpson-Angus Scale, Dyskinesia Identification System – Condensed User Scale (DISCUS), and AIMS assessments for each patient in a state psychiatric facility.[4] They successfully implemented a care plan to manage any existing movement disorders. Further, a survey that evaluated psychiatrists' perception of the drug-related movement disorder training they had received clearly implied a paucity of structured clinical training.[5] Most of these psychiatrists responded that more training would certainly enhance the clinical care they provide.

CPNP is responding to this need for additional movement disorder assessment training with the release of a training DVD developed by CPNP's Publications and Online Products committee under the guidance of Chair Leigh Anne Nelson, PharmD, BCPP, and spearheaded by Project Leader Ellie Elliott, PharmD, BCPP. This DVD training program will enable hospitals, clinics, and training programs to teach assessment with publically available tools. More information on this DVD is available on the CPNP web site.

This issue contains a thorough review of antipsychotic-induced movement disorders from Jack Chen, PharmD. John Kalachnik, M.Ed., a movement disorder pioneer, co-creator of the DISCUS, and featured 2012 Annual Meeting speaker on this topic, provides us with his historical perspective on the evolvement of movement disorders and their assessments. Tara Purvis, PharmD, reprises a case where Parkinsonism and tardive dyskinesia were mistaken for lithium toxicity, resulting in a delay of appropriate treatment. Jacque Canning, PharmD, Stephanie Burton, PharmD candidate, and Beth Hall, PharmD, BCPP, provide a concise review of tremors caused by valproic acid and lithium. Finally, we have a practitioner, O. Greg Deardorff, PharmD, describing his movement disorder assessment practice.

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