

# MOVEMENT DISORDERS AND TARDIVE DYSKINESIA

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*Changes in our health care reimbursement system may put physicians into the position of having to prescribe a first-generation antipsychotic medication rather than an atypical antipsychotic for their patients with schizophrenia. Patients taking conventional antipsychotic agents are at especially increased risk for extrapyramidal and tardive effects, including parkinsonian effects, akathisia, myoclonus, and tardive dyskinesia (TD). TD is especially distressing because it can occur years after initial exposure to a neuroleptic agent, and it can be irreversible. The best management approach for TD is prevention. Toward that end, patients taking conventional antipsychotic medications need to be monitored closely.*

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**Key words:** Schizophrenia • Tardive dyskinesia • Movement disorders

**T**he results of the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) study, as well as changes in the Medicare program with the introduction of Medicare Part D, are causing physicians to reexamine issues inherent in prescribing antipsychotic medications.<sup>1</sup>

Tardive dyskinesia (TD) has been shown to be a significant risk for patients taking the older antipsychotic medications and was the focus of much discussion in the past. The atypical antipsychotics are not without side effects of their own. Although it has been seen less frequently, TD has been known to occur with atypical antipsychotics.

## **TARDIVE DYSKINESIA**

TD is an involuntary movement disorder, associated with the use of antipsychotic drugs (Table 1).<sup>2-4</sup> TD is disabling; it can be debilitating

and disfiguring, and it is potentially irreversible.

Persons with TD may present with chewing and blinking, sticking their tongue out, twirling, and/or moving their arms or legs—but may be unaware of these movements. These behaviors can be embarrassing and debilitating and may affect the person's ability to breathe, eat, and walk. They may also jeopardize social and employment opportunities and cause the patient to be stigmatized.<sup>5</sup>

*Cause of TD.* The cause of TD is not completely understood but may be related to supersensitivity of dopamine receptors.<sup>6</sup> Conventional agents as a class seem to bind more tightly than atypical drugs to dopamine D<sub>2</sub> receptors, not only in the cerebral cortex—which is helpful in persons with schizophrenia—but also in the striatum and limbic regions.<sup>6</sup> These are the basal ganglia that control fine motor movements. The atypical antipsychotic drugs do not bind as fixedly, which may allow for rapid normal dopamine neurotransmission. This could explain why the atypicals may

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**Table 1**  
**Tardive Dyskinesia**

- Abnormal involuntary motor disorder most often associated with the use of typical, or conventional, neuroleptics
- Potentially irreversible
- Potentially disabling, debilitating, and disfiguring
- Patients may grimace; protrude their tongue; smack, pucker, or purse their lips; and blink their eyes rapidly
- Rapid movements of the arms, legs, and trunk are possible
- Involuntary finger movements may make the patient appear to be playing an invisible guitar or piano

be associated with fewer cases of TD symptoms than conventional antipsychotic medications.<sup>6,7</sup>

*Incidence and risk factors.* Studies suggest the 1-year risk of developing TD with typicals is approximately 4-8%.<sup>6</sup> While the incidence of TD is greatest during the first 5 years of neuroleptic treatment, new persistent cases continue to occur many years after first exposure.<sup>8</sup> Studies of atypical antipsychotic medications suggest a lower risk for development of TD.<sup>9</sup>

The risk is higher in nonwhites, women, persons with affective illness, and older persons.<sup>6</sup> While the potential for TD increases with age, young persons are not exempt: the annual cumulative incidence of TD among younger adults taking conventional antipsychotics is 4% to 5%.<sup>9</sup> African Americans are at high risk for TD during treatment with typical antipsychotic drugs, and this class of medications is prescribed for a higher percentage of African Americans in

low-income areas.<sup>10-11</sup>

Drug-related effects encompass more than just TD. They include:

- Parkinsonian effects (tremor, rigidity).
- Anticholinergic effects (constipation, weight gain, dry mouth, delirium) related to the use of anti-parkinsonian agents.
- Akathisia (internal sense of agitation that drives patients to move constantly).
- Dystonia (muscle tightness causing the head to move and the eyes to roll up in the head).
- Chorea (brief involuntary irregular contractions that appear to flow from one muscle to the next).
- Myoclonus (a sudden, involuntary jerking of a muscle or group of muscles).

Compounding the issue of drug-related movement disorders is the nature of schizophrenia itself. Schizophrenia patients typically have executive dysfunction and impaired problem-solving skills. They may also have dyskinetic movements unrelated to medication exposure.<sup>12</sup> These issues probably stem from problems in the dopamine system, which is active in the basal ganglia and the striatum and helps to control motor movements.<sup>13</sup>

## DRUG-INDUCED MOVEMENT DISORDERS

There are several categories of drug-induced movement disorders. These are summarized in Table 2.<sup>14</sup> The tardive effects are perhaps the most distressing, because they appear late and may worsen after the drug is discontinued. It is not possible to reliably predict which patients will develop the disorder and how severe it might be. However, some data suggest that there is an association between acute extrapyramidal side effects (EPS) and the later development of TD.<sup>9</sup> A

**Table 2**  
**Drug-Induced Movement Disorders**

Disorder	Characteristics
Reversible	Occur shortly after drug exposure; involve acute dystonic reactions; akathisia an example
Persistent	Examples include: buccolingual dyskinesia; choreoathetoid dyskinesia; nonacute dystonia
Tardive	Appear after drug discontinuation; can resolve or persist; tardive dyskinesia, tardive akathisia, and tardive dystonia are examples; tardive dystonia is rare but persists in about 85% of cases and is very distressing for patients

Chouinard G. *J Clin Psychiatry*. 2004.<sup>14</sup>

tardive effect can make a patient reluctant to resume treatment with any medication at all.

EPS can also contribute to TD and make a patient unwilling to take a medication.<sup>8</sup> They can detract from the patient's energy and spontaneity and contribute to diminished effect.

### MANAGING TD

There are no medications that have FDA approval for eliminating or reducing TD. Prevention remains the best option, by stopping or minimizing the use of neuroleptic medications and/or switching to other types of agents. This, however, may not be an

option for patients with severe underlying illness or for whom cost is a significant barrier.<sup>3</sup>

There are policy and clinical considerations associated with the management of TD. The American Academy of Psychiatry and the Law has long supported a shift to atypicals as

## MULTIDISCIPLINARY COMMENTARY AND DISCUSSION

### MANAGED CARE SETTING

**Dr Nash:** With increased use of first-generation antipsychotics, physicians may see a higher frequency of tardive dyskinesia (TD) that Dr Pomerantz discussed. It is important to look at each individual patient's profile and select the agent that is most appropriate for his or her needs.

**Dr Cohen:** Persons without schizophrenia but with mood disorders or certain medical conditions appear to be at greater risk for developing movement disorders associated with use of antipsychotic medications.

TD can lead to other problems as well. For example, persistent oral-buccal-lingual movements can cause bruxism. These patients chew constantly and can break teeth or wear through their enamel and require costly and extensive dental procedures later on. This is a serious issue, considering the often limited financial resources typical of this population.

### EMERGENCY SETTING

**Dr Glick:** In the emergency setting, we are more concerned about acute

dystonia and akathisia than TD (Table 4).<sup>17</sup> These are frightening adverse effects. The number of patients who tell me that they are "allergic" to a medication because of a previous dystonic reaction is really amazing.

There is also an issue of trust. Patients need to learn to trust us and be willing to work with us in order to keep their disease under control. If we give them a medicine that makes them uncomfortable and causes a dystonic reaction, we have gone backwards in working

with that patient. The most recent consensus guidelines indicate that most physicians still use a combination of haloperidol and lorazepam when treating acute agitation in persons with schizophrenia or bipolar disorder.<sup>18</sup> However, the emergency psychiatrists worry about causing movement problems and increasingly there is a shift toward greater use of atypical agents, even in the emergency setting where medication is frequently given intramuscularly.

**Table 4**  
**Movement Disorders and TD: Multidisciplinary Concerns**

#### Managed care setting

- Monitoring for at-risk patients

#### Emergency setting

- TD not a major concern in emergency setting, but acute dystonia occurs
- Dystonia in emergency setting may indicate predisposition to TD
- Dystonia is frightening and may decrease adherence and patient trust in physician
- Experts consider this when deciding what medication to give

TD, tardive dyskinesia.

# MOVEMENT DISORDERS

Facility Name	Resident Name	RM#	ID#
<b>Current Psychotropics/ Anticholinergic and Total mg/Day</b> (See instructions on the other side)		mg	mg
		mg	mg
<b>ABNORMAL INVOLUNTARY MOVEMENT SCALE (AIMS)</b>		<b>COOPERATION</b>	
<b>INSTRUCTIONS:</b> Complete Examination Procedure (reverse side) before making ratings. MOVEMENT RATINGS: Rate highest severity observed.*		(check on per Exam Date)	
		1. None <input type="checkbox"/> 2. Partial <input type="checkbox"/> 3. Full <input type="checkbox"/>	

  

<b>Facial and Oral Movements</b>	None normal	Minimal (may be extreme normal)	Mild	Moderate	Severe
1. Muscles of Facial Expression eg, movements of forehead, eyebrows, periorbital(?) area, cheeks; include frowning, blinking, smiling, grimacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Lips and Perioral (?) Area eg, puckering, pouting, smacking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jaw eg, biting, clenching, chewing, mouth opening, lateral movement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Tongue Rate only increases in movement both in and out of mouth, NOT inability to sustain movement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Extremity Movements</b>					
5. Upper (arms, wrists, hands, fingers) Include choreic (?) movements (ie, rapid, objectively purposeless, irregular, spontaneous); athetoid (?) movements (ie, slow, irregular, complex, serpentine). DO NOT include tremor (ie, repetitive, regular, rhythmic).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Lower (legs, knees, ankles, toes) eg, lateral knee movement, foot tapping, heel dropping, foot squirming, inversion and eversion (?) of foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Trunk Movements</b>					
7. Neck, shoulders, hips eg, rocking, twisting, squirming, pelvic gyrations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Severity of abnormal movements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Incapacitation due to abnormal movements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Patient's awareness of abnormal movements (rate only patient's report)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Dental Status</b>					
11. Current problems with teeth and/or dentures?	<input type="checkbox"/>	<input type="checkbox"/>			
12. Does patient usually wear dentures?	<input type="checkbox"/>	<input type="checkbox"/>			
Comments:					
Rater Signature and Title				Next Exam Date	

## AIMS EXAMINATION PROCEDURE

Either before or after completing the Examination Procedure, observe the patient unobtrusively at rest (eg, in waiting room).

The chair to be used in this examination should be a hard, firm one without arms.

1. Ask patient whether there is anything in his/her mouth (ie, gum, candy, etc) and if there is, to remove it.
2. Ask patient about the current condition of his/her teeth. Ask patient if he/she wears dentures. Do teeth or dentures bother patient now?
3. Ask patient whether he/she notices any movements in mouth, face, hands, or feet. If yes, ask to describe and to what extent they currently bother patient or interfere with his/her activities.
4. Have patient sit in chair with hands on knees, legs slightly apart, and feet flat on floor. (Look at entire body for movements while in this position).
5. Ask patient to sit with hands hanging unsupported. If male, between legs, if female, and wearing a dress, hanging over knees. (Observe hands and other body areas.)
6. Ask patient to open mouth. (Observe tongue at rest within mouth.) Do this twice.
7. Ask patient to protrude tongue. (Observe abnormalities of tongue movement.)
8. Ask patient to tap thumb, with each finger, as rapidly as possible for 10-15 seconds: separately with right hand, then with left hand. (Observe facial and leg movements.)
9. Flex and extend patient's left and right arms, one at a time. (Note any rigidity and rate it.)
- \*10. Ask patient to stand up. (Observe in profile. Observe all body areas again, hips included.)
- \*11. Ask patient to extend both arms outstretched in front with palms down. (Observe trunk, legs, and mouth.)
- \*12. Have patient walk a few paces, turn, and walk back to chair. (Observe hands and gait.) Do this twice.

\*Activated movements.

**Figure.** *The Abnormal Involuntary Movement Scale (AIMS) is a simple checklist that can be used to evaluate tardive dyskinesia. It uses a 5-point rating scale and records scores for 7 body areas: face, lips, jaw, tongue, upper extremities, lower extremities, and trunk. AIMS takes only about 5 to 10 minutes to complete.*

**Table 3**  
**Consensus Recommendations for Monitoring Health of Patients With Schizophrenia: Movement Disorders**

- Monitor patients for extrapyramidal side effects (including akathisia) weekly during acute treatment and until their medication dosage is stabilized for at least 2 weeks
- Monitor for TD every 6 months if the patient is taking a first-generation antipsychotic drug and every 12 months if he or she is taking an atypical medication
- If the patient is at high risk (elderly, has clinically significant Parkinson disease and/or akathisia), monitor for TD twice as often: every 3 months during treatment with a conventional antipsychotic, every 6 months of treatment with an atypical

TD, tardive dyskinesia.

From Marder SR et al. *Am J Psychiatry*. 2004.<sup>16</sup>

the standard of care when prescribing antipsychotics.<sup>15</sup>

## MONITORING PATIENTS

Persons taking any kind of antipsychotic medication need to be monitored for movement disorders (Table 3).<sup>16</sup>

One effective way to monitor patients is with the Abnormal Involuntary Movement Scale (AIMS). The AIMS uses a 5-point rating scale and records scores for 7 body areas: face, lips, jaw, tongue, upper extremities, lower extremities, and trunk (Figure). This simple checklist takes only about 5 to 10 minutes to complete.

## COMMENT

A return to conventional antipsychotic medications may be helpful for some, but it may expose patients to an increased risk of TD. Although there is a risk of TD with any antipsychotic, this adverse event is more frequent and commonly associated with typicals. Physicians will have to refamiliarize (or familiarize, in the case of younger doctors) themselves with these medications, examine the cost/benefit issues, and consider how the risk of incurring potentially perma-

nent adverse effects will influence patient adherence and outcome. ●

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