TARDIVE DYSKINESIA AND DEVELOPMENTAL DISABILITIES: AN EXAMINATION OF DEMOGRAPHICS AND TOPOGRAPHY IN PERSONS WITH DUAL DIAGNOSIS

J. L. Matson, J. W. Bamburg, E. A. Mayville and J. R. Logan

Introduction

Tardive Dyskinesia (TD) is a movement disorder characterised by frequent, repetitive involuntary movements of the lips, tongue, jaw, face, trunk and/or limbs (Wilson et al., 1998). The prevalence rate of TD among general psychiatric patients receiving antipsychotic medications is approximately 24 percent. This percentage may be low given that antipsychotic use often masks the presence of symptoms (Jeste and Caliguiri, 1993).

Tardive dyskinesia is often a significant problem for persons with mental retardation. Many of these individuals receive antipsychotic medications for severe behaviour problems, although they are of unproven value for this purpose (Cohen et al., 1991). There is also a high rate of psychopathology in this population. While prevalence estimates vary, most agree that psychiatric conditions are at least four times more prevalent in persons with mental retardation than those without the condition (Borthwick-Duffy, 1994). As a result, as many as 60% of individuals living in primary care facilities receive antipsychotic medications for conditions that may or may not be responsive to this intervention (Rinck, 1998). Therefore, many individuals with mental retardation are at risk for developing TD.

A number of risk factors have been proposed for tardive dyskinesia in the general psychiatric population. Age appears to be

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the greatest risk factor for TD, as patients over 40 are three times as likely to develop this condition as patients younger than 40 (Jeste and Wyatt, 1982). The prevalence of TD has also been identified as greater in women (26.6% vs. 21.6% in males), and women have been found to experience more severe symptoms than men (Yassa and Jeste, 1992). Psychiatric diagnosis has also been investigated as a factor affecting the development of TD. Several reports have indicated that patients with schizophrenia may be less likely to develop TD than patients with other psychiatric disorders (Casey and Keepers, 1998; Kane et al., 1985). Additionally, patients with such mood disorders as major depression and bipolar disorders have been found to be at greater risk for developing TD (Davies et al., 1976; Mukherjee et al., 1986; Rosenbaum et al., 1977; Yassa et al., 1984). Other factors that have been investigated but have proven less predictive include ethnicity (Sramek et al., 1991), smoking (Menza et al., 1991) and type of antipsychotic agent (Jeste and Caligiuri, 1993).

Substantially less research has been conducted on the nature and course of tardive dyskinesia in persons with mental retardation (Kalachnik, 1983). Existing studies indicate that several of the characteristics of TD are similar for general psychiatric and developmentally disabled populations (Cohen et al., 1991). For example, prevalence estimates ranging from 17% to 36% have been given for rates of TD in persons with mental retardation taking antipsychotic medication (Cohen et al., 1991; Kalachnik, 1983). Additionally, some of the same risk factors have been identified for this population, including increasing age, female gender, and lower cognitive functioning (Richardson et al., 1986). However, differences in TD presentation between general psychiatric and developmentally disabled populations have been identified, with persons with mental retardation showing more orofacial dyskinesias than persons with schizophrenia (Cohen et al., 1991). A variable that has yet to be investigated in the development and course of TD in persons with mental retardation is psychiatric disorders. Researchers have found an increased risk of dyskinetic movement with certain psychiatric diagnoses in the general population (Fenton et al., 1994). Psychiatric diagnosis may also prove to be a relevant factor in TD in persons with mental retardation, allowing researchers and professionals working with this population to better identify individuals that may be more likely to develop this condition.

We conducted a two-experiment study to examine the incidence of tardive dyskinesia in persons with psychiatric diagnoses and mental retardation. In Experiment 1, we examined demographic features and TD symptomatology of 90 individuals diagnosed with Axis I disorder and mental retardation. In Experiment 2, we compared DISCUS scores of 15 dually diagnosed individuals and 15 individuals with mental retardation but no Axis I diagnosis. Participants were matched on the variables of age, sex, level of MR, and antipsychotic dose. Analyses were conducted to identify differences in incidence and topography of TD between the two groups, two variables important in identification of TD and persons most at risk for developing this condition.
Phase 1

Experiment 1 examined demographic variables and TD symptomatology for 90 individuals. Each participant was diagnosed with a DSM-IV Axis I disorder and mental retardation.

Method

Participants

A total of 90 individuals residing at a large developmental centre in central Louisiana participated in the study. The centre provides services to approximately 800 individuals, the majority of whom fall in the severe and profound ranges of mental retardation. Subjects had been diagnosed with an Axis I disorder and mental retardation by either a licenced Ph.D. psychologist or a board certified psychiatrist. Participants belonged to 1 of 6 diagnostic groups, including Autism or Pervasive Developmental Disorder (n = 16), Bipolar Disorder (n = 13), Depression or Mood Disorder NOS (n = 6), Impulse Control Disorder (n = 10), Schizophrenia or Psychotic Disorder NOS (n = 13), and Stereotypic Movement Disorder (n = 32). Diagnoses of mental retardation were based on DSM-IV criteria, including deficits in intellectual and adaptive functioning before 18 years of age (APA, 1994). All participants were actively taking an antipsychotic psychotropic medication. As displayed in TABLE I, participants were predominantly male, between the ages of 35 and 60, profoundly mentally retarded, and taking one traditional antipsychotic.

Of the 19 participants meeting criteria for probable or persistent tardive dyskinesia, the majority were male, profoundly mentally retarded, and had a diagnosis of Stereotypic Movement Disorder. Demographic and diagnostic information for participants meeting criteria for probable or persistent TD is presented in TABLE II.

Materials

Participants were evaluated with the DISCUS, a standardised measure of tardive dyskinesia (Sprague and Kalachnik, 1991), as part of a routine screening for TD given to all residents who were taking antipsychotic medication. The DISCUS is a 15 item rating scale designed to identify dyskinetic movements in 7 bodily areas: the face, eyes, oral (jaw, lips), lingual (tongue), head, upper limbs, and lower limbs. Each item is a symptom (e.g. blinking, tongue tremor, pill rolling) that is rated on a five-point severity scale, with a score of zero indicating the symptom is not present and a score of 4 indicating the symptom is severe. Rankings of 1 through 3 reflect severity of minimal, mild, and moderate, respectively. A total score of 5 or greater indicates either probable or persistent TD, depending on the previous DISCUS score. Normative data for persons with mental retardation is available for this scale, and the DISCUS has also proven reliable and valid with this population (Sprague and Kalachnik, 1991).

Procedure

The DISCUS was administered by one of four trained raters, all of whom were graduate students in a Ph.D. clinical psychology training programme and had been employed at the developmental centre for at least 1 year. Raters received initial training in DISCUS administration and scoring from viewing the DISCUS training videotape and from individual instruction from a senior Ph.D. student who received DISCUS training from a board-certified...
# TABLE I
Participant Demographics and Medication Information for Dual Diagnosis Group

<table>
<thead>
<tr>
<th>Dual diagnosis group demographics (n = 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
</tr>
<tr>
<td>M = 47.5</td>
</tr>
<tr>
<td>SD = 12.56</td>
</tr>
<tr>
<td>Range = 24-72</td>
</tr>
<tr>
<td>GENDER</td>
</tr>
<tr>
<td>Male 60.0%</td>
</tr>
<tr>
<td>Female 40.0%</td>
</tr>
<tr>
<td>LEVEL OF MR</td>
</tr>
<tr>
<td>Mild 1.0%</td>
</tr>
<tr>
<td>Moderate 6.6%</td>
</tr>
<tr>
<td>Severe 14.4%</td>
</tr>
<tr>
<td>Profound 60.0%</td>
</tr>
<tr>
<td>Unspecified 7.0%</td>
</tr>
<tr>
<td>Antipsychotic Dose (CPZ equiv.)</td>
</tr>
<tr>
<td>Mean 312.61mg</td>
</tr>
<tr>
<td>SD 334.30mg</td>
</tr>
<tr>
<td>Range 10-2000mg</td>
</tr>
<tr>
<td>Type of Antipsychotic</td>
</tr>
<tr>
<td>Risperidone 15.5%</td>
</tr>
<tr>
<td>Olanzapine 8.9%</td>
</tr>
<tr>
<td>Thioridazine 46.7%</td>
</tr>
<tr>
<td>Chlorpromazine 12.2%</td>
</tr>
<tr>
<td>Haloperidol 16.7%</td>
</tr>
<tr>
<td>Concurrent Psychotropics</td>
</tr>
<tr>
<td>Anxiolytics 13.3%</td>
</tr>
<tr>
<td>Antidepressants 4.4%</td>
</tr>
<tr>
<td>Anti-Convulsants 42.0%</td>
</tr>
<tr>
<td>Beta-Blockers 4.4%</td>
</tr>
<tr>
<td>Anticholinergics 3.0%</td>
</tr>
<tr>
<td>Number of Psychotropic Meds Taken</td>
</tr>
<tr>
<td>1 40%</td>
</tr>
<tr>
<td>2 31%</td>
</tr>
<tr>
<td>3+ 29%</td>
</tr>
<tr>
<td>Length of Time on Atypical/Typical</td>
</tr>
<tr>
<td>Antipsychotics 1 M = 4.1 years</td>
</tr>
</tbody>
</table>

1 Number is a conservative estimate based on limited history of available records (many records included only 5 previous years of psychotropic use).
TABLE II
Demographic, Medication and Diagnostic Information for TD and no TD Groups for Individuals who were Dually Diagnosed

<table>
<thead>
<tr>
<th></th>
<th>TD (n = 19)</th>
<th>No TD (n = 71)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M = 49.53</td>
<td>M = 47.03</td>
<td></td>
</tr>
<tr>
<td>SD = 12.37</td>
<td>SD = 12.64</td>
<td></td>
</tr>
<tr>
<td>Range = 35-81</td>
<td>Range = 20-82</td>
<td></td>
</tr>
<tr>
<td><strong>GENDER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>58.0%</td>
<td>60.6%</td>
</tr>
<tr>
<td>Female</td>
<td>42.0%</td>
<td>39.4%</td>
</tr>
<tr>
<td><strong>LEVEL OF MR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>0.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Moderate</td>
<td>5.3%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Severe</td>
<td>21.1%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Profound</td>
<td>57.9%</td>
<td>73.2%</td>
</tr>
<tr>
<td>Unspecified</td>
<td>15.8%</td>
<td>5.6%</td>
</tr>
<tr>
<td><strong>Antipsychotic Dose (CPZ equiv.)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>267.63mg</td>
<td>324.65mg</td>
</tr>
<tr>
<td>SD</td>
<td>296.16mg</td>
<td>344.74mg</td>
</tr>
<tr>
<td>Range</td>
<td>10-1100mg</td>
<td>20-2000mg</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autism/PDD</td>
<td>21.1%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Bipolar Disorder</td>
<td>15.8%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Depression/Mood Disorder NOS</td>
<td>15.8%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Impulse Control Disorder</td>
<td>0.0%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Schizophrenia/Psychotic Disorder NOS</td>
<td>5.3%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Stereotypic Movement Disorder</td>
<td>42.1%</td>
<td>33.8%</td>
</tr>
</tbody>
</table>

psychiatrist. Maintenance training was conducted approximately twice yearly through subsequent showings of the videotape. Participants were evaluated with the DISCUS as part of a routine quarterly examination for psychotropic medication side-effects established by the development centre. Evaluations were conducted in a quiet setting at the participant’s home or training facility. Administration and scoring time averaged 7 minutes per client.

**Results**

We conducted analyses to determine differences among the dual diagnosis group for several pertinent variables. Separate one-way analyses of variance using DISCUS total score as the dependent variable yielded no significant differences for the independent variables of psychiatric diagnoses [F(6,83) = 1.07, p = .38], age [F(4,85) = .93, p = .43], sex [F(1, 88) = .09, p = .76] or length of time taking antipsychotic medication [F(5, 84) = 1.00, p = .41]. (see TABLE III)
Finally, we conducted analyses of DISCUS items to ascertain which were the most frequently endorsed by the sample. Items most frequently endorsed included “puckering/sucking/thrusting lower lip” (22.1%), “chewing/lip smacking” (21.1%), “tongue thrusting/tongue in cheek” (16.6%), “pill rolling” (13.3%), and “athetoid/myokymic/lateral tongue” (12.2%). These items represented the larger DISCUS categories of oral, lingual and upper limb movements. The complete items analysis is completed in TABLE IV.

Discussion

The examination of demographics for a sample of 90 individuals with mental retardation, psychiatric diagnosis, and antipsychotic medication yielded interesting findings. When comparing DISCUS scores for a number of subgroups, we failed to find significant differences for the variables of psychiatric diagnoses, age, sex or length of time on antipsychotic medication. Age and gender are significant predictors of tardive dyskinesia in a general psychiatric population (Jeste and Caliguri, 1993; Yassa and Jeste, 1992), but the present research with persons with mental retardation and psychiatric conditions did not yield similar findings.

Past research with traditional psychiatric populations had indicated that certain diagnoses (psychoses, mood disorders), may be more predictive of the presence or absence of tardive dyskinesia than other psychiatric diagnoses (McCreadie and Ohaeri, 1994). Our analyses, which included 6 frequently encountered diagnostic categories for persons with mental retardation, failed to indicate psychiatric diagnoses as a predictor of tardive dyskinesia. However, upon visual inspection of TABLE II, several trends were apparent.

### TABLE III
Mean DISCUS Scores for Dual Diagnosis Group by Length of Time, Antipsychotic Dose and Diagnosis

<table>
<thead>
<tr>
<th>% of participants</th>
<th>Mean DISCUS Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Years of antipsychotic use</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>3</td>
<td>16.8</td>
</tr>
<tr>
<td>4</td>
<td>30.5</td>
</tr>
<tr>
<td>5+</td>
<td>43.2</td>
</tr>
<tr>
<td><strong>Dose Amount (CPZ equiv.)</strong></td>
<td></td>
</tr>
<tr>
<td>100-300mg</td>
<td>71.1</td>
</tr>
<tr>
<td>400-700mg</td>
<td>16.7</td>
</tr>
<tr>
<td>800+</td>
<td>12.2</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>Autism/PDD</td>
<td>17.8</td>
</tr>
<tr>
<td>Bipolar Disorder</td>
<td>14.4</td>
</tr>
<tr>
<td>Depression/Mood Disorder NOS</td>
<td>6.7</td>
</tr>
<tr>
<td>Impulse Control Disorder</td>
<td>11.1</td>
</tr>
<tr>
<td>Schizophrenia/Psychotic Disorder NOS</td>
<td>14.4</td>
</tr>
<tr>
<td>Stereotypic Movement Disorder</td>
<td>35.6</td>
</tr>
</tbody>
</table>
First, a greater percentage of participants in the TD group had a diagnosis of either depression or mood disorder NOS than the no TD group (15.8% vs. 4.2%). Second, a lesser percentage of participants in the TD group had a diagnoses of schizophrenia or psychotic disorder NOS than the no TD. These results are consistent with findings in the general psychiatric population in that persons with mood disorders may be more likely to develop TD while persons with schizophrenia may be less likely to develop this condition (Casey and Keepers, 1998; Davis et al., 1976).

Item analyses indicated that the largest number of symptoms, per DISCUS administration, involved movements in the mouth, tongue or lower limb (pill rolling). This finding is similar to those of past research with persons with mental retardation that indicated the largest number of dyskinetic movements in the tongue, jaw and perioral muscles (Cohen et al., 1991).

### TABLE IV

<table>
<thead>
<tr>
<th>Category and Item</th>
<th>Frequency of Endorsement</th>
<th>Percentage of sample endorsing item</th>
<th>Mean Score</th>
<th>% assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tics (item 1)</td>
<td>8</td>
<td>8.8</td>
<td>.20</td>
<td>100</td>
</tr>
<tr>
<td>Grimaces (item 2)</td>
<td>5</td>
<td>5.5</td>
<td>.11</td>
<td>100</td>
</tr>
<tr>
<td><strong>Eyes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blinking (item 3)</td>
<td>2</td>
<td>2.2</td>
<td>.02</td>
<td>100</td>
</tr>
<tr>
<td><strong>Oral</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chewing/lip smacking (item 4)</td>
<td>19</td>
<td>21.1</td>
<td>.50</td>
<td>100</td>
</tr>
<tr>
<td>Puckering/sucking/thrusting lower lip (item 5)</td>
<td>20</td>
<td>22.2</td>
<td>.37</td>
<td>100</td>
</tr>
<tr>
<td><strong>Lingual</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tongue thrusting/tongue in cheek (item 6)</td>
<td>15</td>
<td>16.6</td>
<td>.34</td>
<td>96.7</td>
</tr>
<tr>
<td>Tonic tongue (item 7)</td>
<td>5</td>
<td>5.5</td>
<td>.13</td>
<td>76.7</td>
</tr>
<tr>
<td>Tongue tremor (item 8)</td>
<td>5</td>
<td>5.5</td>
<td>.12</td>
<td>74.4</td>
</tr>
<tr>
<td>Athetoid/myokymic lateral tongue (item 9)</td>
<td>11</td>
<td>12.2</td>
<td>.42</td>
<td>73.3</td>
</tr>
<tr>
<td><strong>Head/Neck/Trunk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retrocollis/torticollis (item 10)</td>
<td>2</td>
<td>2.2</td>
<td>.02</td>
<td>100</td>
</tr>
<tr>
<td>Shoulder/hip torsion (item 11)</td>
<td>2</td>
<td>2.2</td>
<td>.02</td>
<td>100</td>
</tr>
<tr>
<td><strong>Upper limb</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athetoid/myokymic finger-wrist-arm (item 12)</td>
<td>5</td>
<td>5.5</td>
<td>.02</td>
<td>100</td>
</tr>
<tr>
<td>Pill rolling (item 13)</td>
<td>12</td>
<td>13.3</td>
<td>.27</td>
<td>100</td>
</tr>
<tr>
<td><strong>Lower limb</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ankle flexion/foot tapping (item 14)</td>
<td>6</td>
<td>6.6</td>
<td>.12</td>
<td>94.4</td>
</tr>
<tr>
<td>Toe movement (item 15)</td>
<td>2</td>
<td>2.2</td>
<td>.02</td>
<td>53.3</td>
</tr>
</tbody>
</table>
Phase 2

In experiment 2 we compared DISCUS scores of persons with mental retardation and an Axis I diagnosis and persons diagnosed with mental retardation without another psychiatric diagnosis. Item analyses were conducted to ascertain the items most frequently endorsed by group.

Participants

Thirty individuals (Group 1 = 15; Group 2 = 15) from a large developmental centre in central Louisiana participated. Participants were matched on age, gender, level of mental retardation, and chlorpromazine equivalent dose. Group 1, the no diagnosis group, consisted of 15 individuals diagnosed with mental retardation by a licenced Ph.D. psychologist or board certified psychiatrist. The group was comprised of 6 males and 9 females with a mean age of 51.46 (SD = 10.68). Seventy three percent of Group 1 functioned in the profound range of mental retardation, and 27% functioned in the severe range. Group members were taking a traditional or atypical antipsychotic medication, and the mean chlorpromazine equivalent dose for the group was 147mg. Group 2 consisted of 15 individuals diagnosed with mental retardation and an Axis I psychiatric disorder given by either a licenced Ph.D. psychologist or a board certified psychiatrist. Participants in Group 2 belonged to 1 of 4 diagnostic groups, including Autism/Pervasive Developmental Disorder, Bipolar Disorder, Depression or Mood Disorder NOS, and Stereotypic Movement Disorder. Group 2 consisted of 6 males and 9 females who functioned predominantly in the profound range of mental retardation (87%), and had a mean age of 53.53 years (SD = 13.32). The mean chlorpromazine dose for Group 2 was 203.33mg. Demographics for the 2 groups are presented in TABLE V.

Procedure

DISCUS scores were obtained as part of a routine quarterly examination for psychotropic medication side-effects. Administration and scoring time averaged 7 minutes per client. Once participants were matched and DISCUS scores were compiled, various statistical analyses were conducted.

Results

We conducted a one-way ANOVA utilising group membership as the independent variable and total DISCUS score as the dependent variable. Results of this ANOVA were not significant \[ F (1, 28) = .92, p = .35 \]. Thus, individuals with and without psychiatric diagnoses did not differ in total number of dyskinetic symptoms. Next, we conducted an item analysis of the DISCUS for the two groups. Items most frequently endorsed by Group 1, the no diagnosis group, included “chewing/lip smacking” (60%), “tongue thrusting/tongue in cheek” (46.7%), and “puckering/sucking/thrusting lower lip” (40%). For Group 2, the psychiatric diagnosis group, the most frequently endorsed items included “pill rolling” (33.3%), “chewing/lip smacking” (26.7%), and “tongue thrusting/tongue in cheek” (26.7%). The complete item analysis for groups 1 and 2 is presented in TABLE VI.

Discussion

The presence of emotional disorders has been hypothesised to be a significant predictor of dyskinetic symptoms (Fenton...
Interestingly, the present research did not replicate this finding, as a comparison between a group of dually diagnosed individuals and a group of individuals diagnosed with mental retardation alone failed to yield significant results. This is significant in that TD would appear to be caused, based on these data, by the antipsychotic drug and not the mental health disorder. However, an inspection of overall DISCUS scores reveals a trend in which persons without psychiatric diagnoses scored higher than individuals who were dually diagnosed (5.4 vs 4.0). While this difference was not statistically significant, it is of clinical interest in that scores of 5 or higher indicate the presence of either probable or persistent tardive dyskinesia.

### TABLE V
Participant Demographics and Medication Information for Dual Diagnosis Group

<table>
<thead>
<tr>
<th>Dual diagnosis and no diagnosis group demographics (n = 30)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AGE</strong></td>
</tr>
<tr>
<td>Dual Diagnosis</td>
</tr>
<tr>
<td>M = 53.53</td>
</tr>
<tr>
<td>SD = 13.32</td>
</tr>
<tr>
<td>Range = 33-81</td>
</tr>
<tr>
<td>No Diagnosis</td>
</tr>
<tr>
<td>M = 51.46</td>
</tr>
<tr>
<td>SD = 10.68</td>
</tr>
<tr>
<td>Range = 34-66</td>
</tr>
<tr>
<td><strong>GENDER</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>40.0%</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>60.0%</td>
</tr>
<tr>
<td><strong>LEVEL OF MR</strong></td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>0.0%</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>0.0%</td>
</tr>
<tr>
<td>Severe</td>
</tr>
<tr>
<td>13.3%</td>
</tr>
<tr>
<td>Profound</td>
</tr>
<tr>
<td>86.7%</td>
</tr>
<tr>
<td>Unspecified</td>
</tr>
<tr>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Antipsychotic Dose</strong> (CPZ equiv.)</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>203.33mg</td>
</tr>
<tr>
<td>SD</td>
</tr>
<tr>
<td>219.16mg</td>
</tr>
<tr>
<td>Concurrent Psychotropics</td>
</tr>
<tr>
<td>Anxiolytics</td>
</tr>
<tr>
<td>13.3%</td>
</tr>
<tr>
<td>Antidepressants</td>
</tr>
<tr>
<td>0.0%</td>
</tr>
<tr>
<td>Anti-Convulsants</td>
</tr>
<tr>
<td>46.6%</td>
</tr>
<tr>
<td>Beta-Blockers</td>
</tr>
<tr>
<td>4.4%</td>
</tr>
<tr>
<td>Anticholinergics</td>
</tr>
<tr>
<td>6.7%</td>
</tr>
<tr>
<td><strong>Number of Psychotropic Meds Taken</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>26.7%</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>53.3%</td>
</tr>
<tr>
<td>3+</td>
</tr>
<tr>
<td>20.0%</td>
</tr>
<tr>
<td><strong>Length of Time on Atypical/Typical Antipsychotics</strong></td>
</tr>
<tr>
<td>M = 4.1 years</td>
</tr>
<tr>
<td>M = 4.0 years</td>
</tr>
</tbody>
</table>

1 Number is a conservative estimate based on limited history of available records (many records included only 5 previous years of psychotropic use).
(Sprague and Kalachnik, 1991). Therefore, further investigation is warranted to expound upon our results.

Item analyses for the two groups were similar with the exception of one area. The most frequently endorsed item for the group with psychiatric diagnoses was "pill rolling", and this item was not one of the more frequently endorsed items by Group 1. However, 66.7% of Group 2 was comprised of individuals with a diagnosis of Stereotypic Movement Disorder. Given the sometimes similar symptom presentation between some TD symptoms and conditions such as Stereotypic Movement Disorder, the endorsement of this item could be a by-product of the movements associated with the psychiatric condition. Thus, it is important to consider other diagnostic conditions when assessing for tardive dyskinesia in persons with mental retardation.

**General Discussion**

This study sought to investigate the relationship between psychiatric disorder and tardive dyskinesia in persons with developmental disabilities. Our analyses did not replicate previous findings in the general psychiatric population indicating that psychiatric diagnosis is a significant

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**TABLE VI**

Total mean score, frequency of endorsement and mean score of individual items for dual diagnosis and no diagnosis groups

<table>
<thead>
<tr>
<th>Category and Item</th>
<th>Dual Diagnosis Group</th>
<th>No Diagnosis Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Tics (item 1)</td>
<td>0.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Grimaces (item 2)</td>
<td>6.7</td>
<td>26.7</td>
</tr>
<tr>
<td>Eyes</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Blinking (item 3)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Oral</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Chewing/lip smacking (item 4)</td>
<td>26.7</td>
<td>60.0</td>
</tr>
<tr>
<td>Puckering/sucking/thrusting lower lip (item 5)</td>
<td>20.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Lingual</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Tongue trusting/tongue in cheek (item 6)</td>
<td>26.7</td>
<td>46.7</td>
</tr>
<tr>
<td>Tonic tongue (item 7)</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Tongue tremor (item 8)</td>
<td>0.0</td>
<td>13.4</td>
</tr>
<tr>
<td>Athetoid/myokymic lateral tongue (item 9)</td>
<td>20.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Head/Neck/Trunk</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Retrocollis/torticollis (item 10)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Shoulder/hip torsion (item 11)</td>
<td>0.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Upper limb</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Athetoid/myokymic finger-wrist-arm (item 12)</td>
<td>13.3</td>
<td>13.4</td>
</tr>
<tr>
<td>Pill rolling (item 13)</td>
<td>33.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Lower Limb</td>
<td>Percentage of sample</td>
<td>Percentage of sample</td>
</tr>
<tr>
<td>Ankle flexion/foot tapping (item 14)</td>
<td>13.3</td>
<td>6.7</td>
</tr>
<tr>
<td>Toe movement (item 15)</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
predictor of tardive dyskinesia. Other factors found to be predictors of TD in the general population as well as in persons with mental retardation (e.g. age, sex, antipsychotic dose) were also not found to be significant predictors in this study. Further, 23 percent of our total sample met DISCUS criteria for either probable or persistent TD, a figure consistent with previous prevalence estimates in persons with retardation. Thus, our findings replicated those of previous studies regarding overall prevalence of TD but did not replicate findings regarding risk factors.

Several factors should be considered in interpreting these results. First, the number of participants in Experiment 2 was somewhat small which may have obscured differences that may have existed in these two populations. Second, antipsychotic dosages were low in all groups in both experiments which may have affected the presentation of dyskinetic symptoms. To better investigate factors related to TD, future research should focus on populations in which dosages are somewhat higher. Third, all participants were residents at a facility that actively assesses for and attempts to alleviate symptoms of tardive dyskinesia. Participants who had been previously identified as suffering from such effects may have received adjustments in dosage which may have reduced the occurrence of symptoms of tardive dyskinesia.

Summary

We conducted a two-phase study examining the demographics and diagnostic differences of 90 individuals with mental retardation who received a conventional or atypical antipsychotic medication. Each participant was evaluated with the Dyskinesia Identification System Condensed User Scale (DISCUS) (Sprague and Kalachnick, 1991). Experiment 1 showed that those displaying tardive dyskinesia were predominantly white, male and had been taking medication an average of 3 years. Significant differences in DISCUS scores were not found for specific Axis I conditions, age of participant, or chlorpromazine equivalent dose. An item analyses of DISCUS scores for the sample indicated that “puckering/sucking/thrusting lower lip” (22.2%) and “chewing/lip smacking” (21.1%) were the most frequently endorsed items. Experiment 2 compared DISCUS total scores of two groups of persons with mental retardation matched on the variables of age, sex, level of mental retardation and antipsychotic dose. Group 1 consisted of persons who were dually diagnosed (mental retardation and a psychiatric condition), and Group 2 consisted of persons with a diagnosis of mental retardation but no other psychiatric condition. No significant differences in DISCUS scores were discovered between the two groups. Item analyses indicated that the groups differed on the items most frequently endorsed. Implications for the findings are discussed.

References


