Catatonia in Residential Psychiatry
Results from 53 Cases
Translational Psychiatry

- Neuroscience and Clinical Treatment
- Brain and Mind Monism
- Psychiatric Disorders are Brain Disorders
- Hopes to Improve Treatment
## A Comparison

<table>
<thead>
<tr>
<th>Neurology</th>
<th>Psychiatry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesions</td>
<td>Behavioral</td>
</tr>
<tr>
<td>Biomarkers</td>
<td>Functional</td>
</tr>
<tr>
<td>Structural</td>
<td>Experiential</td>
</tr>
<tr>
<td>Diagnostic Tests</td>
<td>Lack of Lesions</td>
</tr>
<tr>
<td>Physical Examination</td>
<td>Lack of Biomarkers</td>
</tr>
<tr>
<td></td>
<td>Lack of Diagnostic Tests</td>
</tr>
</tbody>
</table>
Brain

- Structural/Physical/Dynamical
- Complexity
- Emergence
- Small World Network
- Hub Neurons and Connector Hubs Between and Within Cortical Regions (increased vulnerability with increased efficiency; higher metabolism)
Primary Goals of Residential Psychiatry

- Help clients to safely and sustainably transition to less supported or independent community placements
- Improve healthcare outcomes
- Safety!
Other Goals

- Build integrative care teams
- Build a Database
Some Observed Challenges

- Aggression
- Impulsivity
- Agitation
- Poor Self-care
- Cognitive Deficits; Working Memory, Verbal Learning
- Lack of Social Judgment/Potential Victimization
- Self Harm
- Lack of Insight
Treatment Resistant Schizophrenia

- No clear consensus exists for a single definition for use across populations and settings.
- Existing definitions do not clearly distinguish treatment resistance from terms indicating other levels of response, such as partial response, lack of remission, or failure to prevent relapse.
- Treatment resistance is an inadequate response to at least two antipsychotic drugs at the maximally tolerated dose within the recommended therapeutic range, in trials lasting six weeks or more.

(Kane et al, 2016)
Additional Challenges

- Medication Adherence
- Withdrawal/Negative Symptoms
- Etoh/Street Drugs
- Smoking
- Chronic Medical Concerns
- Poor Socialization
- Poor Reporting
- Poor Wellness Choices
- Under Eating (low caloric intake)
- Over Eating
- Caffeine Sensitivity
Additional Challenges

- Polypharmacy
- Underdosing/Overdosing
- Poor Management of Chronic Medical Illnesses
- Diagnostic Diversity/Confusion
- Incomplete/Conflicting/Incorrect/Absent Documentation
End Result

- Frequent Hospitalizations
- Unsafe Community Navigation
- Few Transitions to Less Supported Community Placements
- Frequent Failures of Community Placements
Polypharmacy

- Multiple antipsychotics in varying dosages
- Multiple augmentation strategies
  - lithium, anticonvulsants, benzodiazepines, antidepressants, acetylcholinesterase inhibitors, marinol (!?), ritalin (!?)
Limited Treatment Choices

- Transition to monotherapy with antipsychotics
- Transition to clozapine monotherapy if needed, when possible
- Some Successes
A Problem Case

- Agranulocytosis
- Need for rapid treatment change
- Concern for rapid onset psychosis/cholinergic rebound/hospitalization
- Neupogen, Hematology Consultation
A Problem Case

- Full hematological recovery
- Significant Response to Olanzapine
- Cognitive Improvement
- Generalizable?
Olanzapine

- Less effective than Clozapine, more effective than other antipsychotics
- Often can be used as a bridging medication to Clozapine
Clozapine Resistance

- Several cases
- Possible Augmentation?
Augmentation Strategies

- Antipsychotics
- Mood Stabilizers/Lithium
- Antidepressants
Lamotrigine

- Initial Cases
- Generalizable?
Challenges with Clozapine/Olanzapine/Lamotrigine

- Side Effects
- Dosing Schedule
- Monitoring
- Blood Levels
- Smoking
Initial Cases of Catatonia

- A problem in the courtyard
- A recent discharge
- A significant improvement in the hospital
Catatonia

- Definition
- A Parallel Concern
- Multiple Causes
- A Great Mimic
- Acute and Chronic Forms
- Clinical Diagnosis
- Episodic
- Neuroleptic Malignant Syndrome
- GABA
- Generalizable?
## Bush-Francis Catatonia Scale

### BUSH-FRANCIS CATATONIA RATING SCALE

*Use presence or absence of items 1-14 for screening.*

*Use the 0-3 scale for items 1-23 to rate severity.*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excitement:</td>
<td>Extreme hyperactivity; constant motor unwaveringly repetitive. Not to be attributed to delirium or goal-directed agitation.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>2. Immobility/sterility:</td>
<td>Extreme hypoactivity; immobile, minimally responsive to stimuli.</td>
<td>0 = Absent, 1 = Sluggish, 2 = Faintly reactive, 3 = Markedly responsive</td>
</tr>
<tr>
<td>3. Mutism:</td>
<td>Verbally unresponsive or minimally responsive.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>4. Staring:</td>
<td>Fixed gaze, little or no visual scanning of environment, decreased blinking.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>5. Posturing/catalepsy:</td>
<td>Spontaneous maintenance of posture(s), including mandane (e.g., sitting or standing for long periods without reacting).</td>
<td>0 = Absent, 1 = Less than 5 minutes, 2 = Greater than 1 minute but less than 15 minutes, 3 = Maze-like posture, or mandane maintained more than 15 minutes</td>
</tr>
<tr>
<td>6. Grinning:</td>
<td>Maintenance of odd facial expressions.</td>
<td>0 = Absent, 1 = Less than 10 seconds, 2 = Less than 1 minute, 3 = Mirage expression(s) or maintained more than 1 minute</td>
</tr>
<tr>
<td>7. Echopraxia/echolalia:</td>
<td>Mimicking of examiner’s movements/speech.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>8. Stereotypy:</td>
<td>Repetitive, non-goal-directed motor activity (e.g., grooming, repeatedly touching, patting or rubbing skin), abnormally not inherent in act but at frequency.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>9. Motorisms:</td>
<td>Odd, purposeful movements (bopping or walking alone, volitionally passing-by or exogenously) caricatures of mundane movements, abnormally inherent in act itself.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>10. Rigidity:</td>
<td>Maintenance of a rigid position despite efforts to be moved, exclude if cog-wheeling or tautness present.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>11. Waxy Flexibility:</td>
<td>During repatterning of patient, patient offers initial resistance before allowing himself to be repositioned, similar to that of a bonding candle.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>12. Negativism:</td>
<td>Apparent indifference to instructions or attempts to converse/examine patient. Contrary behavior, does exact opposite of instruction.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
<tr>
<td>13. Withdrawal:</td>
<td>Refusal to eat, drink and/or micturate.</td>
<td>0 = Absent, 1 = Severe, 2 = Marked, 3 = Moderate, 4 = Mild</td>
</tr>
</tbody>
</table>

*Items 1-14 are used for screening.*

*Items 1-23 are used for rating severity.*
## BUSH-FRANCIS CATATONIA RATING SCALE (CONT.)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Absent</td>
</tr>
<tr>
<td>1</td>
<td>Occasional</td>
</tr>
<tr>
<td>2</td>
<td>Frequent</td>
</tr>
<tr>
<td>3</td>
<td>Constant</td>
</tr>
</tbody>
</table>

### 15. Impulsivity:
Patient readily engages in inappropriate behavior (e.g., strenuous household, starts screaming at tasks of others) without provocation. Affirmative can give no, or only a facile explanation.

### 16. Automatic obedience:
Egocentric or passive cooperation with examiner’s request or spontaneous continuation of movement requested.

### 17. Rigidity:
"Angulated" (neck) arm moving in response to light pressure of finger, despite instruction to the contrary.

### 18. Gegenhalten:
Resistance to passive movement which is proportional to strength of the stimulus, appears automatic rather than willful.

### 19. Ambidexterity:
Patient appears motorically "clumsy" in indolent, hesitant movement.

### 20. Grasp reflex:
For neurological exam

### 21. Perserveration:
Repetitively returns to some topic or persists with movement.

### 22. Combustiveness:
Unusually in an unmediated manner, with no, or only a facile explanation, manoeuvring.

### 23. Autonomic abnormality:
Circle: temperature, BP, pulse, respiratory rate, diaphoresis.

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>Absent</td>
</tr>
<tr>
<td>1</td>
<td>Abnormality of one parameter (excluding pre-existing hypertension)</td>
</tr>
<tr>
<td>2</td>
<td>Abnormality of two parameters</td>
</tr>
<tr>
<td>3</td>
<td>Abnormality of three or more parameters</td>
</tr>
</tbody>
</table>

| TOTAL: |           |
Augmentation Revisited

- Benzodiazepines (Lorazepam)
- Generalizable?
Dosing

- Clozapine blood levels > 426 ng/dl; clinically tolerated
- Olanzapine blood levels higher end of reference range/clinically tolerated
- Lamotrigine levels within reference range, clinically tolerated; sertraline?
- Benzodiazepines, clinically tolerated
Clinical Improvement

- Cognition
- Socialization
- Verbal Fluency
- Judgment
- Grooming
- Hygiene
- Physical Health
Additional Challenges

- Infection?
- Smoking?
- Medication Adherence (crushing medications)?
- Polydipsia
- Constipation
- Continue to monitor
\[
\begin{align*}
\frac{dx_0}{dt} &= -x_0 + F(w_{00}x_0 + w_{01}x_1 + I_0) \\
\frac{dx_1}{dt} &= -x_1 + F(w_{10}x_0 + w_{11}x_1 + I_1) \\
F(x) &= \frac{1}{1 + e^{-\mu(x-\theta)}}
\end{align*}
\]