ECT in Catatonia: A Successful Synergy

*Max Fink, M.D.*

UK ECT Meeting
November 27, 2020

*Conflicts of Interest: None*
Catatonia is an identifiable, verifiable, treatable *systemic* motor syndrome

Akin to epilepsy, delirium, melancholia
Usually acute in onset
Chronic, if inadequately treated
Does not leave residua with relief

Is Relieved by repeated GM seizures
The Story Begins:
Catatonia is Recognized and Lost

1871: Hebephrenia described by Ewald Hecker (6 cases)
1874: Catatonia described by Karl Kahlbaum. (26 cases)

1893: Both co-opted by Emil Kraepelin as part of his imagined syndrome of dementia praecox.
1910: Incorporated in Eugen Bleuler’s schizophrenia

1952: DSM Catatonia only as schizophrenia type
And remains so incorporated (buried, hidden) until 1994 (DSM-IV)
Inducing Seizures in Humans?

1917: Nobelist Wagner-Jauregg offers fever therapy for neurosyphilis: the disease antagonism theory

1928-32: Ladislas Meduna finds decreased glia in schizophrenic brains and excess in epilepsy

1934: First chemical induction of seizures in “schizophrenic” patients

1937: Reports 50% remission rates in 110 patients

Of the first 11 “schizophrenic” patients selected by Meduna for trial, 9 were catatonic with 6 requiring tube-feeding !!
Catatonia Disappears

1930: Amytal Sodium effectively relieves stupor, mutism

1934: Chemically induced (Metrazole) seizures effective

1937: Electricity induced seizures are more efficient

1940s to 1980s: Catatonia disappears with effective treatments and its mis-classification (burial) within schizophrenia
Recovery: Which Pill for Which Patient?

1972  Guze & Robins develop Research Diagnostic Criteria at Washington U St Louis

1973  Morrison- 10% patients met Catatonia criteria in Iowa 500 study

1976  Abrams, Taylor- RDC Criteria: of 55 Catatonia cases, only 2 met SCZ, 2/3 met Mood Disorders criteria

1977  Gelenberg- 7 cases Neurotoxic induced Catatonia
NMS Shocks Psychopharmacology

- *Syndrom malin* with haloperidol, Delay 1960
- A neurotoxic syndrome with fluphenazine, Meltzer 1973
- Catatonia neurotoxic syndrome, Gelenberg 1976
- Labeled 'NMS' by Caroff 1980
Is NMS excessive dopamine blockade?

Treatment with dopamine agonists (bromocriptine, amantadine)

Because NMS muscle weakness ‘looks like’ Malignant Hyperthermia, dantrolene is prescribed

But, neither treatment is effective

(Benefits are due to neuroleptic withdrawal)
SBU Experience

1983: Three cases of NMS, one responded to nursing care, 2 to ECT within 48 hours.

1987: Fricchione refers Catatonia (Delir Mania) in Lupus: dramatically responds to ECT

1990: Full relief of “unknown stupor” when verified as catatonia on Neurology Service

1994: Toxic Serotonin Syndrome (TSS) treated as form of malignant catatonia
SBU Treatment Trials (1996)

Catatonia Rating Scale described.
9% Catatonia in survey in Psych, ER and Neurology units over 6 months
Lorazepam test applied (n=28); 80% positive.
Lorazepam treatment applied; 76% recover.
ECT applied to remainder, all recovered

(ACTA 1996; 93(2):129-143)
Signs of Catatonia

• Mutism, stupor
• Delirium, mania
• Negativism
• Posturing, staring
• Rigidity, waxy-flexibility
• Stereotypy, mannerisms
The Many Faces of Catatonia

- Retarded catatonia (Kahlbaum Syndrome)
  - Benign stupors, Mutisms
- Malignant catatonia (MC)
  - Neuroleptic Malignant Syndrome (NMS)
- Delirious mania
- Self-Injurious Behavior in Autism
- Limbic encephalitis (NMDAR)
# Incidence of Catatonia Syndrome

## Hospital Studies (by CRS)

<table>
<thead>
<tr>
<th>Authors, et al, Year</th>
<th># Patients</th>
<th>% Catatonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosebush, 1990</td>
<td>140</td>
<td>9</td>
</tr>
<tr>
<td>Bush, Fink 1996</td>
<td>215</td>
<td>7</td>
</tr>
<tr>
<td>Peralta, 1997</td>
<td>567</td>
<td>3.5</td>
</tr>
<tr>
<td>Northoff, 1999</td>
<td>1259</td>
<td>2.7</td>
</tr>
<tr>
<td>Bräunig, 2000</td>
<td>297</td>
<td>12</td>
</tr>
<tr>
<td>Lee, 2000</td>
<td>160</td>
<td>15</td>
</tr>
<tr>
<td>Chalasani, 2005</td>
<td>298</td>
<td>12</td>
</tr>
<tr>
<td>Peralta, 2010</td>
<td>200</td>
<td>12</td>
</tr>
</tbody>
</table>
Effective ECT

Bilateral or BF electrodes
Half-Age formula dosing
EEG monitoring seizure quality
Vary frequency by severity, age, confusion;
  Daily for febrile catatonia
Medication augmentation (BZD)
  Flumazenil (BZD antagonist)
Continuation treatments to pre-illness status
The Lorazepam Challenge

Score Catatonia Rating Scale
Test: IV 2 mg lorazepam
   If catatonia signs improve by 50%, test positive
Afebrile: Prescribe LRZ
   Dosages are high-- 4-12 mg/day
Febrile: Bilateral ECT
   – Daily seizures for 2-5 days
Avoid high potency antipsychotic drugs
Supportive Treatments for Catatonia

- Treat Hyperthermia
- Reinstate fluid, electrolyte balance
- Protect excited patient
- Avoid antipsychotic drugs
- Minimize risks of immobility
The DSM Wrestles with Catatonia

   Schizophrenia, catatonic type (295.2)

DSM-IV (1994):
   Adds catatonia secondary to medical condition (293.89)
   Keeps schizophrenia, catatonic type

DSM-5 (2013)
   Schizophrenia, catatonic type deleted
Challenges to neuroscience

1. How do induced seizures change behavior?

2. What is mechanism of catatonia?
   Neuroendocrine hypothesis (Relation to melancholia?
   Glial hypothesis?
   Does persisting Fear sustain catatonia?

3. Relation of catatonia and melancholia?
The Catatonia Library