How to Diagnose and Treat Catatonia

Learning Objectives:

1) Define catatonia
2) Learn to perform a standardized examination of Catatonia using the Bush-Francis Catatonia Rating Scale (BFCRS)
3) Describe the screen for catatonia in patients with medical illness
4) Formulate a differential diagnosis for catatonia
5) Formulate the neuromedical workup for catatonia
6) Learn management strategies for catatonia

Step 1: Become familiar with the clinical presentation of catatonia.

- Catatonia is a fascinating clinical syndrome that occurs not only in patients with psychiatric illness (e.g., mood disorders, schizophrenia), but also in those with neurologic diseases and other medical conditions (1, 2).
- The most common signs of catatonia are immobility and mutism, followed by rigidity.
- Catatonia can manifest as a stuporous (i.e., withdrawn) or an excited (i.e., agitated) state.
- Catatonia may also present in a malignant form, with hyperthermia and autonomic instability, which requires intensive care unit level of care

Step 2: Demonstrate an understanding of the Bush-Francis Catatonia Rating Scale, which is commonly used to screen and monitor for signs and symptoms of catatonia.

- The Bush-Francis Catatonia Rating Scale (BFCRS) is the most widely used measure to facilitate the recognition and measurement of catatonia (3). See Table 1 for items on this scale.
    - Screening: Use the presence or absence of items 1-14 (presence of two items is a positive screen – though presence four or more items have been validated in medically hospitalized patients with critical illness with 91% sensitivity/91% specificity, and 5 or greater positive items confers 59% sensitivity/99% specificity) (4).
    - Severity: Use scale of 0-3 for items 1-23 to rate severity (higher score = more severe). Use all 23 items (measure each for serial tracking).

Table 1: Items on Bush-Francis Catatonia Rating Scale

1. Excitement	9. Mannerisms	17. *Mitgehen*
2. Immobility/stupor	10. Verbigeration	18. *Gegenhalten*
3. Mutism	11. Rigidity	19. Ambitendency
4. Staring	12. Negativism	20. Grasp reflex
5. Posturing/catalepsy	13. Waxy flexibility	21. Perseveration
6. Grimacing	14. Withdrawal	22. Combativeness
7. Echopraxia/echolalia	15. Impulsivity	23. Autonomic abnormality
8. Stereotypy	16. Automatic obedience	

Step 3: Demonstrate comprehension of the BFCRS procedure to evaluate for catatonia

- Ratings are to be made solely on observed behavior during the examination, except 'withdrawal' and 'autonomic abnormality,' which may be based on directly observed

behavior and/or chart documentation. Table 2 lists the procedure for administering the BFCRS and associated signs.

Table 2: Procedure for administering Bush-Francis Catatonia Rating Scale

Procedure	Examines
Observe patient while trying to engage in a conversation	Activity level, abnormal movements, abnormal speech
Examiner scratches head in exaggerated manner	Echopraxia (i.e., mimicking of examiner's movements)
Examine arm for cogwheeling	Cogwheel rigidity
Attempt to reposition arm, instructing patient to 'keep your arm loose'	Negativism, Waxy flexibility, *Gegenhalten* (i.e., resistance to passive movement, which is proportional to strength of stimulus and appears automatic rather than willful)
Move arm with alternating light and heavy force	
Ask patient to extend arm Place one finger beneath hand and try to raise slowly after stating, 'Do not let me raise your arm'	*Mitgehen* (i.e., "Anglepoise lamp" - arm raising in response to light pressure of finger, despite instruction to the contrary)
Extend hand stating 'Do not shake my hand'	Ambitendency (i.e., when the patient appears motorically "stuck" in indecisive, hesitant movement)
Reach into pocket and state, 'Stick out your tongue, I want to stick a pin in it'	Automatic obedience
Stroke the patient's palm toward fingers or crosswise while the patient is distracted, causing the patient's hand to grasp the examiner's hand	Grasp reflex
Check chart for reports of previous 24-hour period Check for oral intake, vital signs, and any incidents	Withdrawal, autonomic abnormality, combativeness
Attempt to observe patient individually, at least for a brief period, each day	Reassessment of symptoms and treatment response

Step 4: Review the screen for catatonia in patients with medical illness

- Mnemonic: **"A SLIME-Posture"** (2)
- **A**cute or subacute onset within days, with at least 2 of the following findings on a general psychiatric medical examination (mental status examination).
- **S**peech: Disordered speech quality [poverty of speech, decreased volume (whisper), or mutism]. Disordered speech represents an acute change and may be intermittent or waxing/waning in severity.
- **L**atency: Increased response latency (> 5 seconds) in speech or affect or movement in response to a question or impulse or command.
- **I**nteraction (stupor): Decreased interaction with environment out of proportion to relatively preserved alertness, maintained for >1 minute.
- **M**uscle: Increased muscle tension (waxy flexibility, rigidity, clonus) on direct physical examination.
- **E**yes: Staring (decreased blinking, deadpan, does not track targets), maintained for >1 minute.
- **P**osturing (including grimacing): maintained for > 1 minute
- **T**wo or more findings should prompt a more focused examination for catatonic phenomena.

Step 5: Complete the differential diagnosis of catatonia.

- Differential is broad and includes psychiatric (e.g., conversion disorder, mood disorders), neurologic (e.g., Parkinson's and Lewy Body Dementia), and medical conditions (e.g., Wilson disease, diabetic ketoacidosis).
- Patients who are exhibiting catatonic signs (i.e., appear to be "playing possum") can be categorized into two distinct groups: those who cannot interact with the examiner due to avolitional causes (e.g., catatonia, akinetic mutism, locked-in syndrome) and those who will not interact with the examiner by voluntary choice (e.g., malingering, factitious disorder) (5).
- If a patient suffers persistent delirium, catatonia should be considered on the differential in addition to delirium and a BFCRS performed; if the patient should present ≥ 4 BFCRS signs, the diagnosis of medical catatonia is presumed (4).

Step 6: Complete the neuromedical workup of catatonia

- Complete metabolic profile to evaluate for metabolic derangements, liver, or renal failure
- Complete blood count with differential, urinalysis, human immunodeficiency virus and syphilis blood testing, and chest radiograph to evaluate for infections
- Thyroid-stimulating hormone to assess for endocrine disorders
- Urine drug screen to evaluate for substance abuse
- Neuroimaging (i.e., magnetic resonance imaging) to exclude strokes, hematomas, and space-occupying lesions
- Electroencephalogram to rule out epilepsy
- Electrocardiogram to rule out contributory cardiologic conditions
- Lumbar puncture should be considered, along with assay for autoantibodies (e.g., those directed against the N-methyl-D-aspartate [NMDA] receptor or voltage-gated K+ channels) to rule out meningitis or paraneoplastic conditions
- In malignant catatonia and neuroleptic malignant syndrome (NMS), creatine phosphokinase (CK) levels are often elevated, while serum iron levels are often reduced (ferropenia), and leukocytosis is frequently present.
- In simple catatonia, ferropenia, CK elevations, and leukocytosis can also be present

Step 7: Develop a treatment plan, including nonpharmacologic and pharmacologic strategies, for the management of catatonia.

- Early recognition is important in catatonia, as are close observation and frequent measurement of vital signs.
- Supportive care: hydration, nutrition, mobilization, anticoagulation (to prevent thrombophlebitis), and aspiration precautions.
- Discontinue neuroleptics and other dopamine depleters.
- Recently withdrawn dopamine agonists need to be restarted.
- Intensive care unit supportive measures should be initiated if hyperthermia or autonomic instability emerge or other signs of malignant catatonia emerge.
- As noted above, malignant catatonia is considered when autonomic instability, fever, and muscle rigidity, delirium and agitation are observed. Leukocytosis, elevated CK, +/- ferropenia – which is associated with decreased D2 receptor function – would also support the diagnosis of malignant (vs. simple) catatonia. Noting the similarity of the

signs and symptoms of malignant catatonia to NMS, many catatonia experts consider NMS to be a type of malignant catatonia caused by exposure to dopamine antagonists (6).

- Clinicians should maintain a high index of suspicion for development of medical complications and new medical problems.
- As soon as catatonia is diagnosed, obtaining consent for electroconvulsive therapy (ECT) is a prudent measure given the possibility of progression to malignant catatonia, which is associated with significant morbidity and mortality if ECT is not administered expeditiously.
- Intravenous (IV) lorazepam is the first-line treatment for catatonia, as it is easy to administer and often helpful in diagnosis and treatment of catatonia.
- An IV lorazepam challenge typically starts with 2 mg of IV lorazepam and observation for effect.
- If there is no effect, the same dose may be repeated in 3 hours, and it can be done again in 3 hours if necessary (clinical response is defined as 50% reduction in symptoms on BFCRS).
- At least 6 mg should be given over the course of 24 hours to determine adequate response to treatment, according to expert opinion and case reports.
- For those patients who show partial improvement on the first day of treatment, our recommendation is to continue 2 mg of IV lorazepam every 8 hours for at least 3 to 4 days, and it may be continued longer to maintain improvement, particularly if catatonia has been present for more than a month.
- After full lysis of the catatonia, the patient can be switched to a sublingual or oral formulation, which typically will maintain the treatment effect.
- The risk/benefit profile should always be considered, and monitoring for respiratory depression is essential with benzodiazepine medication treatment.
- Electroconvulsive therapy (ECT) is effective in 80%-90% of all cases and should be considered for patients who do not respond to lorazepam. It may be used as first line treatment and is the treatment choice in patients with malignant catatonia.
- ECT may be given daily if necessary (i.e., more severe cases) and then at a more customary frequency (i.e., every other day) once the catatonic syndrome begins to abate.
- Many clinicians prefer bitemporal ECT for catatonia to ensure effectiveness.
- Maintenance ECT may be necessary in some cases.
- Other treatments may be beneficial if the patient does not respond to lorazepam or does not have access to ECT (i.e., valproate, NMDA antagonists, zolpidem).

References:

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