

Immobile, mute, and at risk

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Mr. M has schizophrenia and develops catatonia after being found naked outside his home. Immobility and reduced oral intake increase his risk of medical complications. How do you ensure his safety?

CASE **Nude and mute**

Mr. M, age 45, is found naked outside his apartment. He has a history of schizophrenia, paranoid type, hypertension, and diet-controlled type 2 diabetes mellitus. His schizophrenia has been treated with ziprasidone, 160 mg/d, but 2 months ago he stopped taking his medication and seeing his psychiatrist. He does not respond to questions from police and is taken to a local emergency department for medical workup of altered mental status.

Mr. M is noted to have bilateral conjunctival discharge and a white blood cell (WBC) count of 15,000/mm³. Vital signs, physical examination, laboratory studies, and head CT are otherwise within normal limits. Mr. M is medically cleared for his 15th admission to our inpatient psychiatric facility in the last 7 years. He is divorced, has 2 adult sons, and receives Social Security disability benefits.

Mr. M is alert but guarded and mute and appears to be internally preoccupied. His mood is euthymic and his facial expressions do not vary much and are similar to a blank stare. His grooming and hygiene are poor, but there is no evidence of delusions or suicidal or homicidal ideation. He paces around the unit or sits in his bed staring straight ahead, occasionally mouthing inaudible words but remaining nonverbal.

Mr. M is restarted on his previous dose of ziprasidone and referred to the primary care

physician in our inpatient psychiatric facility for further evaluation. His admission vitals and laboratory values show a platelet count of 124,000/mm³, glucose of 113 mg/dL, triglycerides of 160 mg/dL, high-density lipoprotein of 37 mg/dL, and hemoglobin A_{1c} of 6%. Mr. M needs help drinking fluids but resists solid foods as well as medications, including lorazepam, 3 mg/d, and most scheduled doses of ziprasidone. On day 3, Mr. M's extremities are rigid and he has poor oral intake. We diagnose Mr. M with catatonia based on his immobility, negativity, and mutism.

The authors' observations

The literature describes >40 signs of catatonia.¹⁻¹¹ According to DSM-IV-TR, catatonia may occur in the context of schizophrenia, a mood disorder, or a general medical condition. DSM-IV-TR criteria for catatonia include:

- motor immobility as evidenced by catalepsy or stupor
- excessive motor activity
- extreme negativism or mutism
- peculiarities of voluntary movements as evidenced by posturing, stereotypic movements, or grimacing
- echolalia or echopraxia.¹²

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Clinical Point

Poor oral intake and immobility seen in catatonia may lead to malnutrition, dehydration, pneumonia, or infection

Table

Signs and symptoms of deep vein thrombosis and pulmonary embolism

Deep vein thrombosis
Swelling of the leg or along a vein in the leg
Pain or tenderness in the leg, which may be felt only when standing or walking
Increased warmth in the area of the leg that is swollen or in pain
Red or discolored skin on the leg
Pulmonary embolism
Unexplained shortness of breath or pain with deep breathing
Chest pain
Coughing or coughing up blood
Arrhythmia
<small>Source: National Heart, Lung, and Blood Institute. What are the signs and symptoms of deep vein thrombosis? Available at: www.nhlbi.nih.gov/health/dci/Diseases/Dvt/DVT_SignsAndSymptoms.html. Accessed November 8, 2010</small>

Only 2 signs are necessary to meet the diagnostic criteria for catatonia.^{11,12} Several catatonia rating scales—including the Bush-Francis Catatonia Rating Scale (BFCRS)—have been found to be highly reliable for screening for and rating the severity of catatonia. Such tools also can be used serially to monitor treatment efficacy. The BFCRS takes 5 minutes to administer; the screen is considered positive if ≥ 2 of the first 14 items on the scale are present.¹³ Mr. M exhibits immobility and mutism, which are the most common signs of catatonia.

In patients with catatonia, poor oral intake may result in malnutrition that often requires parenteral nutrition or intravenous fluids^{1,10} and dehydration that may lead to dental caries, gum disease, constipation, and ileus.¹ Pneumonia may occur secondary to atelectasis or buildup of respiratory secretions and possibly aspiration.⁷ Vaginal infections may develop secondary to poor hygiene.¹ Immobility and malnutrition may lead to infection and decubitus ulcers.¹ Finally, immobility also may cause urinary

incontinence,^{2,10} nerve palsies, flexion contractions, and rhabdomyolysis.¹

Which of the following complications of catatonia is most acute and emergent?

- aspiration pneumonia
- flexion contractures
- dental caries/gum disease
- venous thromboembolism
- rhabdomyolysis

EVALUATION Venous complications

On day 3, Mr. M is referred to a local emergency department, where he is assessed for delirium and dehydration because of increased WBC count and diaphoresis. The medical staff finds bilateral pulmonary embolisms and a deep vein thrombosis (DVT) of his left lower leg.

The authors' observations

Catatonia is associated with an increased risk of venous thromboembolism because of the increased risk of venous stasis and hypercoagulability, both elements of Virchow's triad for thrombogenesis.^{1-10,14,15} The third element of Virchow's triad, vascular injury, does not appear to directly increase the risk for thromboembolic events in catatonic states.

Catatonia-specific causes for venous stasis include immobility, prolonged use of physical restraints, and sedation as a side effect of antipsychotic use.¹⁶

Causes for hypercoagulability during catatonic states include:

- increased catecholamine levels during excited states³
- hyperhomocysteinemia secondary to poor diet, smoking, and/or high caffeine consumption¹⁶
- increased anticardiolipin and/or antiphospholipid antibody levels secondary to use of specific antipsychotics, such as chlorpromazine and clozapine¹⁶
- increased platelet aggregation secondary to hyperprolactinemia caused by low-potency conventional antipsychotics, such as chlorpromazine^{16,17}

- increased platelet activation caused by altered levels of platelet serotonin in depressed patients.¹⁸

Patients taking low-potency conventional antipsychotics may have a 7-fold greater risk for thromboembolic events compared with those who do not use these medications.¹⁶

Reducing thromboembolic risk

Diagnose catatonia early. Treating symptoms of catatonia early with benzodiazepines (and, in refractory cases, with electroconvulsive therapy) prevents immobility, thereby decreasing the risk of thromboembolic events.^{3,11} It may be useful to minimize antipsychotic use.

Monitor activity levels. Fatal thromboembolic events may appear early in the course of catatonia before risk factors associated with thromboembolic events are evident.⁴ However, these events may be more common when the patient resumes movement.³ Monitor patients' activity status and encourage ambulation throughout treatment.

Monitor vital signs for signs of pulmonary embolism, including hypoxia, tachycardia, tachypnea, and fever. Take serial pulse oximetry and, if indicated, arterial blood gas measurements to monitor hemoglobin oxygen saturation. Be vigilant for other signs and symptoms of pulmonary embolism and DVT (*Table*).

Consider prophylactic treatment. Some studies recommend prophylaxis against thromboembolic events in catatonic patients.^{3-6,10,15} These measures include:

- intravenous fluids
- nasogastric tube feeding
- physical examinations to assess for signs of DVT
 - support stockings
 - sequential/pneumatic compression devices

Algorithm

Does my patient need venous thromboembolism prophylaxis?

Step 1. Assess risk factors for venous thromboembolism and determine risk level score

Risk factor	Score
Consensus-based	
Immobilization	1
Hormone therapy	1
Obesity (BMI ≥ 30 kg/m ²)	1
Age 60 to 74	1
Varicose veins/venous insufficiency	1
Dehydration	1
Thrombophilia	1
Expert opinion	
Treatment with antipsychotics	1
Evidence-based	
History of deep vein thrombosis or pulmonary embolism	2
Cancer (active/treated)	2
Age ≥ 75	2
Acute infection/respiratory disease	2
TOTAL	

BMI: body mass index

Step 2. Determine recommended prophylaxis based on risk level score

Risk level score	Recommended prophylaxis
All risk levels	Regular physical exercise of lower extremities, sufficient hydration, graduated compression stockings
Medium risk (4 to 7 points) and/or physical restraint ≥ 8 hours	Heparin, 5,000 units every 12 hours, or low molecular weight heparin equivalent until patient is fully mobilized
High risk (≥ 8 points)	Heparin, 5,000 units every 8 hours, or low molecular weight heparin equivalent until patient is fully mobilized

Source: Adapted from reference 15

Clinical Point

Treating symptoms of catatonia early prevents immobility, thereby decreasing the risk of thromboembolic events

continued

- physical therapy or range-of-motion exercises
- complete anticoagulation during immobility, although there are no data that support using anticoagulation medications in catatonic patients who have not yet experienced a thromboembolic event.

Consider prophylactic antithrombotic treatment in catatonic patients and other immobile inpatients who have risk factors for thromboembolic events.^{9,16} Although it has not been rigorously tested, the *Algorithm (page 73)* suggested by Malý et al¹⁵ can serve as a guideline for determining the need for prophylaxis against venous thromboembolism in psychiatric inpatient settings.

OUTCOME Stable and speaking

In the hospital, Mr. M remains immobile and mute for several days. The hospital's psychi-

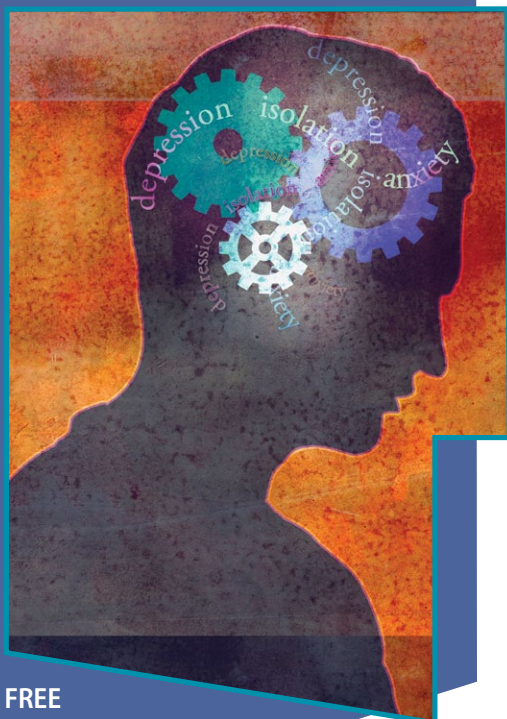
atric consult team recommends lorazepam, 3 mg/d, to address his catatonia. Mr. M improves and begins speaking and eating after starting lorazepam, but becomes agitated, banging his head against walls and threatening to jump out the window. Because this puts him at risk for trauma, Mr. M is not a good candidate for warfarin therapy, and an inferior vena cava filter is placed on an emergency basis. Later, a Dobhoff tube is placed for feeding and administering oral medications.

Mr. M's catatonic state gradually improves and he begins to respond to the staff with short phrases, eats all of his food, and accepts oral medications. He is transferred back to our inpatient psychiatric facility with haloperidol, 10 mg/d, lorazepam, 3 mg/d, and benztropine, 2 mg/d, in addition to sulfacetamide eye drops for bilateral conjunctivitis. At our facility, we start him on warfarin, 5 mg/d, and closely monitor his international normalized ratio levels, with a plan to remove the inferior

Clinical Point

Fatal thromboembolic events may appear early in the course of catatonia, but are more common when the patient resumes movement

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vena cava filter after 6 months of anticoagulation therapy. Mr. M remains at our facility for 3 weeks to stabilize his medications and is discharged to his apartment.

Six months after being discharged from our facility, Mr. M is stable at an intensive outpatient mental health program.

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Related Resources

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Drug Brand Names

Benzotropine • Cogentin	Lorazepam • Ativan
Chlorpromazine • Thorazine	Sulfacetamide • Sulamyl
Clozapine • Clozaril	Warfarin • Coumadin
Haloperidol • Haldol	Ziprasidone • Geodon

Disclosure

The authors report no financial relationship with any company whose products are mentioned in this article or with manufacturers of competing products.

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Clinical Point

Consider prophylactic treatment in catatonic patients and other immobile inpatients who have risk factors for thromboembolic events

Bottom Line

Catatonia may be characterized by immobility and reduced oral intake that can lead to serious medical complications. Maintain a high index of suspicion for venous thromboembolism in psychiatric patients with catatonia and initiate prophylaxis against or treatment of venous thromboembolism to prevent potentially fatal pulmonary emboli.