Suspicious, sleepless, and smoking

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Mr. F, age 30, has been talking to himself, having hallucinations of his deceased father, and smoking cigarettes excessively. He also has not eaten or slept in 2 days. What could be causing his behavior?

CASE Sleepless, hallucinating

Mr. F, age 30, is brought to the emergency department (ED) by his brother, with whom he has been living for the last 2 days; his brother says that Mr. F's wife is afraid of her husband and concerned about her children's safety. Mr. F has been talking to himself, saying "odd things," and has an unpredictable temper. He claims that his long-deceased father is alive and telling him "to move to a land that he brought [sic] for him." In order to follow his father's instructions, Mr. F says he wants to "see the ambassador so he can get his passport ready." He also believes his wife and children are intruders in his home. Although he had never smoked before, Mr. F has started smoking ≥2 packs of cigarettes per day, sometimes smoking a pack in 30 minutes. He has not eaten or slept for the last 2 days and lies awake in bed all night staring at the ceiling and smiling to himself.

On examination, Mr. F is short with a slight build and has large, dark eyes, disheveled, short, brown hair, and a scraggly beard. English is not his first language, and he speaks with a thick Eastern European accent. His speech is latent, monotonous, tangential, and illogical. He is alert, oriented only to his person, and says he is 21 or 27 years old and at the hospital for "smoking medication and that's it." Despite immigrating to the United States 8 years ago, Mr. F claims he has spent his whole life "here," although he is unsure of exactly where that is. Cognition and memory are impaired. Regarding his wife and 5 children, he says, "I am a virgin. How then can I have children? That woman is abusing me by forcefully entering my house with 5 kids." He is fidgety, appears anxious, and does not make eye contact with the examiner during the interview. He is suspicious and irritable. Initial medical workup in the ED is negative.

What is your differential diagnosis for Mr. F?

a) schizophreniform disorder
b) schizophrenia
c) drug-induced psychotic disorder
d) major depressive disorder with psychotic features
e) brief psychotic disorder

EVALUATION Labs and observation

Because Mr. F had delusions and hallucinations for the past 2 days and the initial medical workup was negative, brief psychotic disorder is suspected.[1] He is admitted to a secure psychiatric floor for further evaluation. He has no documented medical history. A thorough medical workup for a cause of his

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

How would you handle this case?

Answer the challenge questions throughout this article

Clinical Point

Because Mr. F had delusions and initial medical workup is negative, brief psychotic disorder is suspected

Table 1

Results of the MoCA administered on hospital Day 11

MoCA component	Score
Visuospatial/executive	5/5
Naming	0/3
Attention	2/6
Language	0/3
Abstraction	0/2
Delayed recall	0/5
Orientation	2/6
Total score	9/30
Scoring: ≥26 is considered normal	

MoCA: Montreal Cognitive Assessment

hallucinations and delusions, including EEG and brain MRI, is negative. Additional collateral interviews with Mr. F's wife and brother at a family meeting indicate Mr. F had a slow onset of symptoms that began 4 to 5 years ago. Initially, he became isolated, withdrawn, inactive, and had poor sleep. Recently, he also had become suspicious, irritable, delusional, and hallucinatory. Mr. F used to work full-time in construction, then began working intermittently in a warehouse as a day laborer, but has not worked for the last few months. He used to be an involved father and reliable partner, helping with household chores and caring for the children. However, for the last few months, he had become increasingly apathetic and isolated.

During the comprehensive workup for psychosis, Mr. F's symptoms continue. He is disoriented; although it is 2015, he states it is "2007… I carry a cell phone so I don't need to know." On July 31, he is told the date, and for several days after that, he states that it is July 31. When asked his birth date, he looks at his hospital wrist ID. His affect is flat, but he states he feels "fine" and smiles at inappropriate times. He answers open-ended questions briefly, with irrelevant or illogical answers after long pauses, or not at all. His eye contact is poor; he seems preoccupied with internal stimuli, and it is difficult to keep his attention.

Mr. F says he is a "natural-born Bosnian gypsy translator," and that he needs to finish "building the warehouse" with his father and grandfather (both are deceased). The nurses note that he is withdrawn, inactive, and suspicious; he spends most of the day lying in bed awake, and in the evening he paces in the hallway. Mr. F does not interact with other patients, is guarded when questioned, and does not eat much. He has minimal insight into his condition and says that he is at the hospital for "fevers and a cold," "ESL treatment," or because his "right side is thicker" than his left. It is unclear what Mr. F means by "ESL." It may refer to English as a Second Language, given his apparent perseveration regarding his immigration status and language ability, but this is speculation.

What is your final diagnosis for Mr. F?

a) schizophreniform disorder
b) schizophrenia
c) major depression disorder with psychotic features
d) schizotypal disorder

TREATMENT Residual symptoms

With the additional collateral history and a negative medical workup, Mr. F meets DSM-5 criteria for acute, first-episode schizophrenia[1] and is started on risperidone, 2 mg/d, titrated up to 2 mg twice daily, and trazodone, 50 mg, as needed, as a sleep aid. He shows significant improvement in his symptoms early in his treatment course. During visiting hours and at family meetings, he recognizes his wife, and during interviews he denies any continuing hallucinations. He initially says that he never failed to recognize his wife and kids, but later explains that he "woke up different…from a dream, and she was a different woman." When asked specifically about hearing his father's voice, he is uncertain, saying "No," "I don't know," "I didn't hear," or "Not anymore."

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Table 2

Results of the MoCA administered on hospital Day 16

MoCA component	Score
Visuospatial/executive	4/5
Naming	2/3
Attention	3/6
Language	2/3
Abstraction	0/2
Delayed recall	1/5
Orientation	3/6
Total score	15/30
Scoring: ≥26 is considered normal	

MoCA: Montreal Cognitive Assessment

Clinical Point

It is the patient's neurocognitive abilities, not the severity of psychotic symptoms, that most strongly predict functional outcomes

Despite his improvement, Mr. F continues to be disoriented and suspicious, and has minimal insight into his illness. He also continues to exhibit significant negative symptoms and cognitive impairment. Mr. F is withdrawn and has a flat affect, poverty of speech, delayed processing, and poor focus and attention.

On hospital Day 6, Mr. F reports feeling depressed. He misses his children and wants to go home. He has lost several pounds because he had a poor appetite and is now underweight. He is apathetic; interactions with staff and patients are minimal, he declines to attend group therapy sessions, and he still spends most of his time lying in bed awake or pacing the hallway. He also expresses a desire to quit smoking.

How would you treat Mr. F's residual symptoms, especially his cognitive impairment?

a) increase antipsychotic dose, and titrate until improvement is seen
b) switch to a different antipsychotic
c) treat comorbid conditions, and start vocational rehabilitation or social skills training
d) initiate cognitive remediation therapy

The authors' observations

Despite its lack of specific inclusion in the DSM-5 criteria,[1] cognitive impairment is a distinct, core, and nearly universal feature of schizophrenia. As demonstrated by Mr. F's case, the severity of cognitive impairment in schizophrenia has no association with the positive symptoms of schizophrenia; it is a patient's neurocognitive abilities—not the severity of his (her) psychotic symptoms—that most strongly predict functional outcomes.[2]

Neurocognitive impairment is a strong contributor to and predictor of disability in schizophrenia.[3,4] Treatment of the cognitive symptoms of schizophrenia with antipsychotics has been largely ineffective.[2] Effective drug therapy regimens are still being developed, and although there are some promising novel targets, no drug is FDA-approved to treat the cognitive symptoms of schizophrenia.[2,4] However, it is known that additional treatment modalities, including social skills training and/or vocational rehabilitation, as well as treatment of comorbid conditions, may lead to improved cognitive status and, as a result, improved functional outcomes in schizophrenia.[2-4]

It is well documented that persons with schizophrenia in households with high expressed emotion (EE) have higher rates of relapse, independent of demographics and pharmacotherapy.[5] EE is a measure of the family environment that evaluates how the relatives of a psychiatric patient spontaneously talk about the patient. Relatives are considered to have high EE if they show hostility or marked emotional overinvolvement, or if they make a certain number of critical comments. The tool used to measure EE is the Camberwell Family Interview Schedule.[6,7] Rates of first-year relapse in high EE homes when family treatment is employed drop significantly, especially when combined with social skills training.[8] The patient's family members are educated about EE and its potential negative effects on the patient.

Table 3

The MATRICS Consensus Cognitive Battery

Test	What it measures
Trail Making Test, Part A	Speed of processing
Brief Assessment of Cognition in Schizophrenia, Symbol Coding subtest	Speed of processing
Hopkins Verbal Learning Test-Revised (immediate recall) (3 learning trials only)	Verbal learning
Wechsler Memory Scale 3rd edition: Spatial Span subtest	Working memory (nonverbal)
Letter–Number Sequencing Test	Working memory (verbal)
Neuropsychological Assessment Battery Mazes Test	Reasoning and problem-solving
Brief Visuospatial Memory Test, Revised	Visual learning
Category Fluency Test (Animals)	Speed of processing
Mayer-Salovey-Caruso Emotional Intelligence Test (Managing Emotions)	Social cognition
Continuous Performance Test-Identical Pairs version	Attention/vigilance

Note: Tests are listed in recommended order of administration

MATRICS: Mental Health's Measurement and Treatment Research to Improve Cognition in Schizophrenia

Source: Reference 9

Clinical Point

Cognitive remediation therapy has a significant effect on functioning and symptoms

Cognitive remediation therapy (CRT) uses therapist-led, computer-based techniques to preserve intact neuroplasticity and has been shown to improve cognition and functional status, especially when paired with vocational rehabilitation or social skills training.[2,3] Many trials confirm that CRT produces meaningful, durable improvements in cognition and functioning.[3] One systematic review that focused on trials in early schizophrenia found that CRT had a significant effect on functioning and symptoms, and that these effects were larger when CRT was combined with adjunctive psychiatric rehabilitation and small group interventions.[3]

OUTCOME Gradual improvement

Mr. F is started on nicotine gum, 2 mg/d, for smoking cessation and fluoxetine, 20 mg/d, for depression, and a dietary consult is made for his poor appetite and weight loss. His psychotic symptoms continue to improve, and by hospital Day 10, his depressive symptoms begin to improve as well: his affect brightens, he has increased appetite, and he wants to shave. He also exhibits mildly increased insight into his illness.

The Montreal Cognitive Assessment (MoCA) is administered on hospital Day 11 and indicates that Mr. F's cognitive ability is severely impaired (***Table 1, page 50***). Over the next several days, his affect brightens, and Mr. F becomes more talkative and less withdrawn. With additional caloric intake and dietary supplements, he begins to regain weight. The MoCA is administered again on hospital Day 16 and shows significant neurocognitive improvement in organization of thought (as evidenced by the increased scores in naming, language, and orientation); however, moderate impairment is still present (***Table 2, page 52***).

By hospital Day 20, Mr. F's hallucinations are resolved, his delusions are greatly attenuated, and his mood is improved. Although his cognition is still mildly impaired, it is greatly improved compared with when he was first admitted. A third MoCA administered on the day of discharge (hospital Day 24) is scored at 21/30 (≥26 is considered normal). Mr. F has become more socially interactive, participat-

ing in group therapy sessions on multiple occasions. He also has improved insight into his illness, understanding the need for medication and close follow-up.

Mr. F is discharged with risperidone, 2 mg twice daily, for schizophrenia, fluoxetine, 20 mg/d, for depression, and trazodone, 50 mg, as needed, for sleep, and is referred to a community mental health center for comprehensive follow-up, including vocational rehabilitation and social skills training.

Clinical Point

The MCCB may aid evaluation of cognitive remediation strategies

The authors' observations

A major goal of the National Institute of Mental Health's Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS) initiative was to develop a consensus cognitive battery for clinical trials of cognition-enhancing treatments for schizophrenia. The MATRICS Consensus Cognitive Battery (MCCB) is a comprehensive cognitive assessment designed for use in patients with schizophrenia (***Table 3***[9]***, page 53***). Although the MCCB was developed to be the standard tool for assessing cognitive change in clinical trials of cognition-enhancing drugs for schizophrenia, it also may aid evaluation of cognitive remediation strategies.[9]

In Mr. F's case, such testing was not performed, in part because of his improvement. The MoCA was chosen because it is a universally accepted brief cognitive assessment tool used for screening. More robust testing can be administered by the neuropsychiatry team if indicated and if resources are available.

Related Resources

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Drug Brand Names

Fluoxetine • Prozac
Nicotine Gum • Nicorette
Risperidone • Risperdal
Trazodone • Oleptro

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Bottom Line

Cognitive impairment in schizophrenia is disabling and cannot be effectively treated with existing medications. A combination of vocational and social skills rehabilitation, treatment of comorbid conditions, and a low expressed emotion environment may improve cognitive impairment and functional outcomes.