

•> CASE 17

A psychiatrist is called to see a 64-year-old man after he began screaming that there were strange men in his hospital room. The patient underwent a coronary artery bypass graft (CABG) 3 days previously and appeared to be recovering without complications. He claims that the previous evening he had seen several men standing in his room by the windows. The patient states that they did not say anything to him but that he was "sure that they were going to hurt [him].\*" He has never seen anything unusual before, and has no prior history of psychiatric difficulties. The nurses' notes from the late shift indicate that the patient became agitated and restless, although at times during the evening he was also noted to be disoriented and stuporous. He was not observed in this condition on previous evenings. On a mental status examination, the patient was alert and oriented to person and place, but he thought that the date was several months earlier than it actually was. Otherwise, the results of his mental status examination were normal. No hallucinations or delusions were noted at the time of the examination.

- **What is the most likely diagnosis for this patient?**
- **What is the next step in the treatment of this patient?**

## ANSWERS TO CASE 17: Delirium

*Summary:* The patient is a 64-year-old man who underwent surgery 3 days previously. The night prior to the psychiatric consultation he experienced visual hallucinations and paranoia, as well as being alternately disoriented and stuporous. On examination the following morning, the patient is oriented to person and place but not to time. Otherwise, the results of his mental status examination are normal. He has no prior history of psychiatric illness.

- **Most likely diagnosis:** Delirium.
- ^ **Next step in treatment:** A cause of the delirium should be sought. The patient's medication list should be examined. He should undergo laboratory testing and a physical examination to determine the medical causes of the delirium, for example, hypoxia, an electrolyte imbalance, or infection.

### Analysis

#### Objectives

1. Recognize and diagnose delirium in a patient.
2. Be familiar with the steps to be followed in the case of new-onset delirium.

#### Considerations

This patient, who has no history of psychosis, began having visual hallucinations and paranoia 3 days after undergoing a CABG. Intensive care settings and/or major surgical procedures are risk factors for delirium, especially for geriatric patients. He also experienced waxing and waning of consciousness and was disoriented. Most of the symptoms resolve during the day, but presumably worsen in the evening (sundowning). The short-term nature of the event and the fluctuations in cognition and consciousness observed are consistent with delirium (Table 17-1).

## APPROACH TO DELIRIUM

#### Definitions

**Hypoxia:** A condition defined by a low supply of oxygen

**Orthostasis:** A decrease in systolic blood pressure of 20 mm Hg on a change in position

**Stuporous:** A state of diminished alertness or awareness

**Sundowning:** Worsening of a delirium at night

**Table 17-1**  
DIAGNOSTIC CRITERIA FOR DELIRIUM\*

- Disturbance of consciousness with a reduced ability to focus, sustain, or shift attention
- A change in cognition (a memory deficit, disorientation, a language disturbance) or a perceptual disturbance not better accounted for by dementia
- The disturbance develops over a short period of time (hours to days) and tends to fluctuate over the day
- There is evidence from the patient's history, a physical examination, or laboratory findings that the disturbance is caused by a general medical condition, substance intoxication or withdrawal, a medication, or multiple etiologies

\*Note that the criteria are essentially the same regardless of the etiology.

## Clinical Approach

As noted, **the hallmark** of delirium is a fluctuation in **the** level of consciousness. Any disease process, substance of abuse, or medication that affects the central nervous system can produce delirium, especially in individuals who are elderly, medically ill, taking multiple medications, have recently undergone surgery, or are demented. Table 17-2 lists many of the causes of delirium. It is important to remember that it is quite common for several potential causes of a delirium to be present simultaneously in the same patient. Along with a fluctuation in the level of consciousness, there is usually disorientation and/or perceptual disturbances, commonly visual hallucinations or paranoia. These result in behavioral problems that can interfere with the patient's care, such as yelling, agitation, wandering, and pulling out intravenous lines.

**Table 17-2**  
CAUSES OF DELIRIUM

Acute intermittent porphyria  
 Cardiovascular diseases: Arrhythmias, congestive heart failure  
 Central nervous system disorders: Brain trauma, epilepsy, infections, neoplasm, stroke, subdural hematoma, vasculitis  
 Drugs of abuse (in intoxication or withdrawal): Alcohol, barbiturates, benzodiazepines, narcotics  
 Electrolyte imbalances  
 Endocrine disorders: Adrenal insufficiency, hypoglycemia, parathyroid dysfunction  
 Medications: Anticholinergics, anticonvulsants, antihypertensive agents, antiparkinsonian agents, cimetidine, digitalis, ranitidine, steroids  
 Pulmonary disorders: hypercarbia, hypoxemia  
 Sepsis  
 Uremia  
 Vasculitis  
 Vitamin deficiencies: B<sub>12</sub>, folic acid, thiamine

**Table 17-3**  
CHARACTERISTIC OF DELIRIUM AND DEMENTIA

CHARACTERISTIC	DELIRIUM	DEMENTIA
Onset	Short	Long
Course	Fluctuating	Stable
Level of alertness	Reduced	Stable
Prognosis	Reversible	Irreversible

## Differential Diagnosis

Having dementia increases the risk of developing delirium, but delirium cannot be diagnosed if the condition is better explained by dementia. This difficulty is compounded because both delirium and dementia can exhibit very similar symptoms (e.g., memory impairment, cognitive disturbances, and behavioral problems). Several characteristics help to distinguish between these two illnesses: the onset of **delirium is short** (hours to days), whereas that for **dementia is longer** (months to years); **the course of delirium fluctuates** over the day, whereas **that of dementia remains relatively stable**; the level of consciousness is reduced in delirium, whereas in dementia it is not; delirium is usually reversible, whereas dementia is usually irreversible (Table 17-3).

Other diseases in the differential diagnosis for delirium include psychotic-disorders such as schizophrenia. However, individuals with delirium display a fluctuating level of consciousness, and patients with schizophrenia usually maintain an alert level of consciousness. Delirious patients often have visual hallucinations, but primary psychotic disorders are more frequently characterized by auditory hallucinations and delusions.

## Treatment

The cornerstone of treatment for delirium is identification and correction of the underlying abnormality. This approach results in reversal of the delirious state, usually over several days to a week. Pharmacologic management of the behavioral disturbances can be accomplished with low doses of high potency antipsychotics (such as droperidol or haloperidol), given their lower incidence of orthostasis and anticholinergic side effects, which can worsen the patient's condition. Atypical antipsychotics (such as risperidone, olanzapine, and quetiapine) are also receiving attention as therapeutic agents to manage behavioral disturbance. A low dose of a short-acting benzodiazepine such as lorazepam can also be helpful, but it can have the unwanted result of disinhibition, oversedation, or paradoxical excitation, particularly in the case of elderly

individuals. In situations where the delirium is caused by withdrawal from benzodiazepines or alcohol (delirium tremens), administration of benzodiazepines is the treatment of choice. Other nonpharmacologic approaches involve strategies to help facilitate the orientation of the patient, such as a calendar or clock, access to a window during the day, a television set or a radio playing during the day, family pictures, and familiar faces such as those of relatives or friends.

### Comprehension Questions

- [17.1] Which of the following is the most sensitive in diagnosing delirium?
- A. Chest radiograph
  - B. Computerized tomography scan of the brain
  - C. Electrocardiogram
  - D. Electroencephalogram (EEG)
- [17.2] Which of the following neurotransmitters is most likely involved in delirium?
- A. Acetylcholine
  - B. Dopamine
  - C. Norepinephrine
  - D. Serotonin
- [17.3] Which of the following features most distinguishes delirium from dementia?
- A. Altered level of consciousness
  - B. Behavioral disturbances
  - C. Cognitive deficits
  - D. Disorientation
- [17.4] Which of the following is the most important treatment approach in patients with delirium?
- A. Detection and correction of the underlying abnormality
  - B. Environmental strategies to help with orientation
  - C. Pharmacotherapy for behavioral problems and hallucinations
  - D. Physical restraint to protect the patient from injury

### Answers

- [ 17.1 ] D. Although the other studies are all helpful in determining the etiology of delirium, only an EEG is sensitive in diagnosing this disorder. In almost all cases of delirium, an EEG shows generalized slowing. In cases where alcohol or sedative-hypnotic withdrawal is causing delirium, an EEG can show fast low-voltage activity. In hepatic encephalopathy, an EEG characteristically displays triphasic delta waves.

- [17.2] A. Acetylcholine is the neurotransmitter most implicated in cases of delirium, as most notably demonstrated by the fact that anticholinergics are notorious for causing delirium.
- [17.3] A. Both delirium and dementia can result in behavioral disturbances, cognitive deficits, and poor orientation. However, in all cases of delirium there is an alteration (reduction) in the level of consciousness, whereas in dementia (in the early stages) there is an alert, stable level of consciousness.
- [17.4] A. Although environmental strategies and pharmacologic and physical interventions can be helpful and necessary to help orient patients or protect them from harm, the most essential treatment approach in all cases of delirium is to detect and correct the underlying cause of the disorder. The occurrence of an episode of delirium itself suggests a poor prognosis, meaning these patients have a significantly elevated future incidence of mortality.

## CLINICAL PEARLS

The hallmark of delirium is a fluctuation in the level of consciousness.

Medications are a significant cause of delirium.

An EEG is very sensitive in detecting delirium.

The most important treatment approach for a patient with delirium is to detect and correct the underlying condition. Behavioral management can be accomplished with a low dose of a high-potency antipsychotic or a short-acting benzodiazepine.

## REFERENCES

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