

What Is Delirium?

Delirium is a condition that develops quickly (usually over hours or days) and involves changes in consciousness, attention, cognition (thinking and reasoning), and perception. An individual's degree of difficulty in these areas may be greater or less over the course of the day, but overall, delirium represents a sudden and significant decline from the previous level of functioning. Delirium is usually temporary and reversible and does not reflect a persistent psychiatric disorder.

Causes of Delirium

Delirium may result from a general medical condition, from use of drugs or similar substances, or from withdrawal from these substances. Sometimes there is more than one cause of delirium, and sometimes the cause cannot be determined. The boxes below and on page 2 list medical conditions that frequently are associated with delirium and substances that can cause delirium, either through intoxication or through withdrawal.

Medical Conditions That Often Precede Delirium

Disorders of the central nervous system	Head injury, seizures, postseizure states, diseases of the blood vessels, degenerative diseases
Disorders of metabolism	Kidney failure, liver failure, anemia, low blood sugar, vitamin B ₁ deficiency, hormone imbalance, fluid and electrolyte imbalance, acid-base imbalance
Disorders of the heart and lungs	Congestive heart failure, cardiac arrhythmias (abnormal heartbeat rhythms), shock, respiratory (breathing) failure
General illnesses	Substance intoxication/withdrawal, infection, tumor, severe trauma, high fever, period after major operation

Substances That Can Cause Delirium Due to Intoxication or Withdrawal

Drugs of abuse	Alcohol, amphetamines, cocaine, hallucinogens, inhalants, opioids, phencyclidine (PCP), sedatives, hypnotics, other substances
Medications	General anesthetics, analgesics, anti-asthmatic agents, anticonvulsants, antihistamines, anti-hypertensive (anti-high-blood pressure) and cardiovascular (heart) medications, anti-microbials, antiparkinsonian medications, corticosteroids, gastrointestinal medications, muscle relaxants, immunosuppressive agents, lithium, psychotropic medications with anti-cholinergic properties
Toxins	Cholinesterase inhibitors, organophosphate insecticides, carbon monoxide, carbon dioxide, volatile substances such as fuel or organic solvents or glue

Signs and Symptoms of Delirium

Persons with delirium may have a reduced awareness of their surroundings. They may have trouble focusing on an activity or conversation and may be easily distracted. Changes in cognition may include **memory impairment, disorientation, and language disturbance.**

- ▶ Recent **memory** is usually affected more than long-term memory.
- ▶ **Disorientation** usually occurs in regard to time (for example, thinking that it is morning in the middle of the night) or to place (for example, thinking that they are home when they are in the hospital), and sometimes also to people (that is, they may not recognize people they know).
- ▶ Examples of **language disturbances** that can occur are slurred speech, difficulty naming objects, difficulty writing, and possibly the inability to speak or write or to understand speech or writing.

Changes in perception during delirium are usually visual but can

involve any of the senses (sight, hearing, touch, taste, and smell). Perceptual disturbances may include **misinterpretations, illusions, and hallucinations**. A *misinterpretation*, for example, might occur when a patient sees a nurse preparing the patient's medications and thinks that the nurse is trying to poison the patient. An *illusion* is perceiving one thing but thinking it is something else. For example, individuals with delirium may see a coat on a chair and think it is a teddy bear. A *hallucination* consists of seeing (or hearing, feeling, tasting, or smelling) things that do not exist. For example, individuals with delirium might think they see people in their room when no one is actually there.

Other symptoms often associated with delirium include **sleep disturbances, changes in activity level, and emotional disturbances**. Individuals with delirium may find that they are sleepy during the day or wake up in the middle of the night.

Some researchers suggest that there are two forms of delirium: **hyperactive** (agitated) and **hypoactive** (lethargic). If individuals with delirium experience the hyperactive form, they may be more prone to hallucinations, delusions, agitation, and disorientation. If they have hypoactive delirium, they may be confused and tired but not have hallucinations, delusions, or illusions. It is possible to have features of both forms of delirium. Emotional disturbances may take the form of anxiety, fear, depression, irritability, anger, euphoria (an unrealistic or exaggerated feeling of happiness or well-being), or apathy.

Who Develops Delirium?

About 10% to 30% of hospitalized medically ill individuals develop delirium. The rate is higher in elderly persons, those with cancer, and those with acquired immunodeficiency syndrome (AIDS). Patients who have had an operation (especially heart surgery, hip surgery, and organ transplants), as well as patients with burns, dialysis, or central nervous system lesions, are at increased risk for delirium. It is very common in individuals with terminal illnesses, often occurring just before death.

How Long Does Delirium Last?

Delirium can last from less than a week to more than 2 months, but usually symptoms disappear within 10 to 12 days. Sometimes symptoms such as restlessness, anxiety, irritability, distractibility, or sleep disturbance may occur 1 to 3 days before the full onset of the disorder. Elderly persons are more likely than younger ones to have symptoms of delirium that last for more than a month.

Treatments for Delirium

The treatment of delirium almost always involves all of the following four components:

- ▶ Psychiatric management
- ▶ Environmental interventions
- ▶ Supportive interventions
- ▶ Physical interventions (including medication therapy)

When individuals have delirium, they may not be able to give informed consent for treatment. In an emergency situation, physicians will decide on treatment based on the risks and benefits involved. In a nonemergency situation, the individual's physicians will obtain consent for treatment from family members. For decisions that involve significant risks, or if there are substantial disagreements among family members, a court-appointed guardian or a judge may become involved in the decision-making process.

Psychiatric Management

The goal of psychiatric management is to identify and treat the cause or causes of delirium, improve individuals' level of functioning, and make sure that they are safe and comfortable.

Treatment usually takes place in a hospital and involves several physicians, including a psychiatrist. If persons with delirium have

milder symptoms, they may be treated in a nursing facility or at home.

To determine the cause of the delirium, physicians will talk with the individuals and their family or others close to them about their medical history. The physicians will review the medical records and any medications the individuals are taking.

Depending on the situation, various tests will be performed, including but not limited to psychiatric evaluation, blood tests, an electrocardiogram (ECG), urine tests, and chest X rays. The delirium symptoms of individuals, their mental and physical status, and other psychiatric symptoms will also be monitored periodically throughout their treatment.

If individuals have an underlying medical condition, which is often the case with delirium, their physicians will increase the monitoring of vital signs (pulse, temperature, blood pressure, respiration), fluid intake and output, and oxygen levels. Any nonessential medications will be discontinued, and doses of needed medications will be kept as low as possible.

If a treatable condition contributing to the delirium is found—such as low blood sugar, high fever, high blood pressure, or vitamin B₁ deficiency—this will be treated promptly.

Some of the effects of delirium may cause danger to patients with delirium or those around them. The psychiatrist will assess a patient's potential to cause harm to self or others and will minimize risks by removing dangerous items, increasing supervision, and/or prescribing medication. Restraints are used rarely, and only when other means of control are ineffective.

Environmental Interventions

The goals of environmental interventions are to reduce anything in the surroundings that may make the patient's delirium, confusion, and misperceptions worse, and at the same time to provide familiarity and the appropriate level of stimulation.

Many aspects of being in a hospital, especially in an intensive care unit, can contribute to a feeling of "timelessness." Having windows in the room or changing the lighting to correspond to day and night may help reduce sleep disturbances. Attempts will be made to control the noise level, making it neither overstimulating nor too quiet. If individuals with delirium have eyeglasses or a hearing aid, wearing these can

lessen confusion and disorientation. A clock and a calendar in the room will help keep patients oriented to time and to day of the week. Visits from family members and the presence of familiar objects from home may also reduce the severity of the delirium.

Supportive Interventions

Supportive interventions are aimed at reducing anxiety and the unfamiliar while providing understanding and support. Everyone who comes in contact with individuals with delirium will be encouraged to provide “reorientation”: reminding them of where they are, the day or date and the time, and what is happening to them.

Physical Interventions

The primary treatment for the symptoms of delirium is medication. The specific features of the individual’s condition, the underlying cause or causes of the delirium, and the existence of other associated medical conditions will be used by the physician to determine which medications will work best. The majority of individuals with delirium are treated with an antipsychotic medication. This may be used alone or combined with a benzodiazepine. Other medications and physical interventions that may be used for particular kinds of delirium include cholinergics, vitamins, opiates, and other treatments as needed.

All physical interventions can cause side effects. Once individuals with delirium begin taking a medication or having other physical interventions, it is important for them and/or their family to alert the physicians to any new or different symptoms, so that treatment can be modified as necessary.

Antipsychotics. Antipsychotic medications are the treatment of choice for many persons with delirium. These medications have been shown to be helpful for reducing the symptoms of delirium, such as agitation, confusion, and bizarre behavior. The antipsychotic used most often is haloperidol. Haloperidol can be given as a pill, as an injection, or intravenously. Another antipsychotic medication used is droperidol. This medication begins to work more quickly than haloperidol does, and it can be more sedating for some patients. Some physicians have also begun to use several newer antipsychotic medications, such as risperidone, olanzapine, and quetiapine.

In a few individuals who are given antipsychotic medications, some side effects can develop. These might include muscle stiffness, restlessness, and possibly involuntary movements. The newer antipsychotic medications (risperidone, olanzapine, and quetiapine) may be less likely to cause such side effects.

Other side effects are possible with the use of specific antipsychotic medications, and the risk of these should be discussed with the individual's physician.

Benzodiazepines. In most cases of delirium, benzodiazepines alone are not an effective treatment. However, they are effective in treating delirium associated with alcohol and some drug abuse. They are also often used in combination with antipsychotic medications. The goal of this combination is to decrease medication side effects and increase the medications' effectiveness (for some people). The benzodiazepine used most often in these situations is lorazepam.

Side effects of benzodiazepines can include sedation, uncontrolled behavior, amnesia, loss of muscle control, difficulty breathing, physical dependence, rebound insomnia (insomnia caused by the stopping of a medication), other withdrawal reactions, and worsened delirium. As mentioned earlier, it is important to discuss any new symptoms with a patient's physicians, so they can adjust the medication dose or find other ways to lessen bothersome side effects.

Cholinergics. Delirium can be caused by a medication or sickness that blocks the action of acetylcholine (a neurotransmitter) in the body. In this kind of delirium, a type of medication called a cholinergic may be used to reverse the effects of the medication or illness. Physostigmine is the medication most often used in these cases, but tacrine and donepezil have also been used. Cholinergics are associated with the following side effects: slowing of the heart rate, nausea, vomiting, salivation, and increased stomach acid. Physostigmine can cause seizures, especially if it is given intravenously too quickly.

Vitamins. When delirium is caused by a vitamin deficiency, the deficient vitamin is replaced. This type of delirium can occur in association with alcoholism or malnourishment.

Opiates. If individuals are experiencing significant pain associated with delirium, they may be given an opiate medication, such as morphine. Some opiates can make delirium worse, so physicians will assess the benefits and risks involved before prescribing these kinds of agents.

Muscle relaxants and mechanical ventilation. If patients with delirium are experiencing fatigue and other physical problems associated with overexertion, physicians may administer a medication that relaxes the muscles. If this occurs, patients will be heavily sedated and put on a mechanical ventilator to assist with breathing. This treatment may also be used if individuals have an agitated form of delirium that does not respond to other physical interventions.

Electroconvulsive therapy (ECT). ECT is generally not effective for treating delirium but rarely may be useful in some cases of delirium that result from neuroleptic malignant syndrome, which can result from taking antipsychotic drugs.

Clinical Features Influencing Treatment

Certain facts about individuals with delirium and their current physical and mental condition may influence the way the delirium is treated. A few of these are detailed below.

► Psychiatric disorders

Delirium can be confused with depression or dementia (dementia is a mental syndrome characterized by the loss of intellectual abilities). It is also possible for individuals to have other psychiatric disorders at the same time that they experience delirium. Depression and dementia can be diagnosed during delirium only if their symptoms were present before the delirium began.

If individuals do have other psychiatric disorders at the same time as delirium, the delirium will be treated first. Treatments for other psychiatric disorders will be minimized or not started until the delirium has resolved.

▶ Acquired immunodeficiency syndrome (AIDS)

Approximately 30% to 40% of hospitalized patients with AIDS develop delirium. If individuals with delirium also have AIDS, they may be more sensitive to some of the side effects of antipsychotic medications, so lower doses will be prescribed.

▶ Liver disease

If individuals with delirium have liver disease, it may affect the way their body reacts to certain medications. The patients' physicians must know about this condition. They can then select medications that do not primarily involve the liver as they are used in the body.

▶ Advanced age

Elderly patients are particularly vulnerable to delirium because of changes in brain function, multiple general medical problems, multiple medications being taken, reduced metabolism of medications by the liver, multiple problems with the senses, and an increased incidence of brain disorders such as dementia. If individuals with delirium are elderly, they will probably receive lower doses of medications, and their physicians will be careful to prevent the risk of falls and hip fractures.

Long-Term Effects of Delirium

Although most individuals experience a full recovery from delirium, its occurrence increases the risk of complications from other medical conditions. Medically ill individuals who develop delirium have greater risks of postoperative complications, long recuperation periods, long hospital stays, and long-term disability. Delirium in medically ill persons is also associated with an increased risk of death during hospitalization and in the months following discharge.

Elderly individuals are less likely to recover completely from delirium, often having continuing mental deficiencies.

Individuals with AIDS also may be less likely to fully recover. In both of these cases, the persistent symptoms may be due to an underlying dementia.

After delirium is over, individuals may not remember the experience; however, they may have vivid and possibly frightening memories of it. If they feel anxiety, guilt, anger, depression, or other disturbing emotions, psychotherapy that focuses on working through the experience may help to resolve these feelings. It is also important to discuss the causes of their delirium with their physician so that they will know about the risk factors that may lead to delirium in the future.

For more information about delirium, see the readings below.

Further Readings

- American Psychiatric Association: *Practice Guideline for Treatment of Patients With Delirium*. Washington, DC, American Psychiatric Association, 1999. Available from American Psychiatric Press, Inc., 1400 K Street, N.W., Suite 1101, Washington, DC 20005; (800) 368-5777
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