

Treating Delirium Among Elderly Patients

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People 65 years of age and older constitute the fastest growing segment of the population and will progressively require a larger portion of health care services. Delirium is one of the most common and important psychiatric disorders among elderly persons. Recent studies estimate that 25 to 31 percent of patients aged 70 and older admitted to general medical wards develop delirium at some point during hospitalization (1,2).

Delirium is more prevalent among patients with severe burns, open-heart surgery, alcohol or sedative-hypnotic dependence, cognitive impairment, and multiple medical illnesses and among patients treated on intensive care units (3). Age-related biological and physiological changes, including reduced brain reserve, diminished hearing and vision, physical illnesses, decreased resistance to stress, and increased sensitivity to side effects of medication make elderly patients particularly vulnerable to delirium (4). Psychiatrists must be able to diagnose and treat delirium appropriately because of the high risk of morbidity and mortality among delirious patients.

Unfortunately, delirium is com-

monly underdiagnosed by nonpsychiatric physicians. In one study, 79 percent of cognitive deficits were missed by the examining physicians (5). Among elderly persons, delirium may be the presenting feature of serious illnesses such as myocardial infarction, pneumonias, and drug intoxication. Failure to recognize, diagnose, and treat delirium and the underlying etiology may have fatal consequences; as many as 22 to 76 percent of delirious patients die during hospitalization (6,7). Compared with patients without delirium, delirious patients have longer hospital stays, increased rates of hospital resource utilization, a higher frequency of medical complications, and more cognitive and functional impairment (3).

Delirium is a transient organic mental syndrome characterized by a global impairment of cognition and attention, a reduced level of consciousness, abnormal psychomotor activity, and a disturbed sleep-wakefulness cycle (8). Wells (9) has described the following characteristic features: acute or subacute onset; brief duration (less than four weeks); fluctuating severity of symptoms during episodes; widespread nervous tissue dysfunction, usually involving the cerebral hemispheres, the autonomic nervous system, and the reticular activating system; and potential reversibility if the cause is treated successfully. Sleep and sensory deprivation, immobilization (including use of restraints), and psychosocial stress can all contribute to the development of delirium among elderly patients. Delirium may be so subtle that it goes unnoticed or so severe that it is life threatening.

Clinical features

Before developing overt delirium, patients may manifest symptoms such as restlessness, anxiety, irritability, drowsiness, insomnia, or a combination of those symptoms. As overt delirium develops, deficits in consciousness, attention, and orientation become more evident. Impaired consciousness and attention reduce the patient's awareness of environment and self. All aspects of memory are impaired, and patients sometimes confabulate. Thinking is disorganized and leads to difficulties with logical reasoning and problem solving.

Persecutory delusions, usually arising from distorted perceptions, are common and can lead to threatening or violent behavior and inadvertent harm to staff. Such delusions have been reported to occur among about 10 percent of elderly delirious patients (10). Word-finding difficulties, paraphasic errors, and reduced comprehension are common. Dysgraphia is considered to be a sensitive indicator of delirium; however, patients often resist writing tasks. Illusions and hallucinations—most commonly, visual, auditory, or both—often occur in situations of reduced sensory discrimination.

Psychomotor activity ranges from somnolence to agitation. Patients are often drowsy during the daytime and awake and agitated at night. Patients frequently show affective lability, with rapid fluctuation from fear to tearfulness to irritability. Signs of autonomic arousal, such as tachycardia and elevated blood pressure, are seen, particularly among patients in alcohol or sedative-hypnotic withdrawal.

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Etiology and pathophysiology

Delirium is due to a diffuse impairment of nervous tissue metabolism that may be caused by multiple organic factors. As most elderly patients take several medications, drug-induced delirium is an important consideration. Several medications may be implicated, even in therapeutic doses (8). They include anticholinergic drugs, such as eye drops, antihistaminics, antispasmodics, and tricyclic antidepressants; analgesics; steroids; sedatives; cardiovascular drugs (especially digoxin and diuretics); and cimetidine. Other frequent causes of delirium among elderly patients are alcohol and sedative-hypnotic withdrawal, cerebrovascular accidents, closed head injuries, infections, pneumonia, cerebral neoplasms, hypoxia from heart failure or severe anemia, organ failure, and metabolic disturbances (10).

Assessment and differential diagnosis

Delirium should be suspected for elderly patients who have a recent change of mental status. The *DSM-IV* diagnosis rests on an impairment in consciousness, along with acute changes in cognition or perception considered to be secondary to an organic condition (11). The Mini-Mental State Examination can elicit cognitive deficits but cannot differentiate delirium from dementia (12).

Among elderly patients, delirium frequently is superimposed on dementia and usually presents with an acute cognitive deterioration. The patient's capacity to participate in medical decision making may be questioned by the consultee and may be part of the consultant's assessment in such cases. In contrast, among patients with psychotic disorders, whether affective or schizophrenic, the level of consciousness is intact, and nocturnal worsening is uncommon.

A careful workup includes a chart review, a thorough physical examination, a neurological examination, and basic laboratory tests, including complete blood count with differential, urine analysis, serum chemistries (Sequential Multiple Analysis-7, liver function tests, thyroid function tests),

Rapid Plasma Reagin or the Venereal Disease Research Laboratories test, a urine drug screen, an electrocardiogram, and a chest x-ray. If clinically indicated, additional tests, including arterial blood gases, serum drug levels (digoxin, barbiturates, theophylline), blood alcohol level, and vitamin B₁₂ and folate levels, as well as immunological testing and HIV testing, may be necessary.

If intracranial pathology is suspected, a computerized tomography or magnetic resonance imaging scan and a lumbar puncture should be performed. An electroencephalogram may be helpful, as it can demonstrate diffuse intracranial abnormalities, although the results are nonspecific. Typically, the basic electroencephalogram rhythm is slower, except for patients with alcohol or sedative withdrawal, which is associated with fast activity.

For about 85 percent of patients, a clear-cut cause of delirium can be found. It is important to note that delirium among elderly patients often has multiple causes; in a recent study 44 percent of elderly delirious patients had an average of 2.8 etiologies per patient (13).

Management

The management of delirium is twofold: identifying and correcting the underlying condition or conditions, and controlling behavioral symptoms by the judicious use of medications and environmental manipulation. The patient should be cared for in a well-lighted room with a visible clock and calendar. Constant observation, restraints, or both may be necessary to prevent self-injury or assaultative behavior. Psychological support includes repeated reassurance and reorientation of the patient and education of the family and patient about the physical basis of the syndrome and its cause or causes, if they are known.

Vital signs, adequate oxygenation, nutrition, and fluid-electrolyte balance should be closely monitored. Thiamine and folate should be administered to patients suspected of alcohol withdrawal, especially those with Wernicke's encephalopathy. All non-essential medications should be dis-

continued or reduced in dosage if they are possible contributors.

Not all delirious patients need psychopharmacological treatment. In fact, psychotropics are specifically contraindicated for elderly delirious patients who are drowsy and difficult to arouse, as these agents may further depress consciousness or mask signs of neuropsychiatric deterioration.

Pharmacotherapy should be instituted when the neuropsychiatric symptoms interfere with treatment, lead to dangerous behavior, or cause personal distress. In treating elderly medically ill patients, dosages must be modified to account for altered pharmacokinetics, including reduced volume of distribution, decreased hepatic metabolism, impaired renal clearance, reduced plasma albumin, and increased sensitivity to central nervous system side effects (14). Too little medication may be ineffective; too much may worsen delirium.

The patient's condition must be assessed repeatedly and medication adjusted accordingly. Once the delirium has resolved, medications are tapered over two to five days, depending on the severity of the episode. Premature discontinuation may unmask an ongoing delirium.

Antipsychotics are the first-line agents in treating agitated, psychotic elderly delirious patients. High-potency neuroleptics such as haloperidol and droperidol are preferred because they have minimal hypotensive and anticholinergic properties, scarcely suppress respiration, and can be administered parenterally. Haloperidol is the best studied and is safe and effective (15).

Elderly delirious patients should initially receive low daily doses, such as .25 to .5 mg orally (or .125 to .25 mg parenterally). Doses may be increased every one to two days until symptoms abate. Evening doses are helpful in controlling sundowning, increased disorganization in the evening and nighttime hours. For patients with mild to moderate delirium, .5 mg orally two to three times daily usually suffices.

For patients with severe agitation, .5 to 2 mg of intravenous haloperidol, repeated every 30 minutes until the patient is calm, is followed by a daily

maintenance dose of half to two-thirds of the initial 24-hour dose (16). Intravenous haloperidol takes effect in ten to 30 minutes, is rarely needed in doses higher than 20 mg per day, and only infrequently results in extrapyramidal side effects and arrhythmias (17).

Droperidol is used as an preanesthetic agent and to control nausea and vomiting. In contrast to haloperidol, it has a faster onset of action (five to ten minutes), a shorter half-life, and more sedating and hypotensive properties. It is approved for intravenous use. The usual intravenous dose is 5 mg every 30 to 60 minutes until agitation is controlled.

Less potent antipsychotics are not recommended for elderly delirious patients because they cause hypotension or anticholinergic toxicity. Atypical neuroleptics such as risperidone in doses up to 3 mg per day are clinically effective in treating elderly agitated patients and lack significant side effects (3).

Benzodiazepines are preferred in treating delirium related to alcohol or sedative-hypnotic withdrawal. Lorazepam and oxazepam are desirable in treating elderly patients due to their short half-lives, lack of active metabolites, and minimal hepatic metabolism. In general, however, benzodiazepines should be avoided, as the associated sedation and cognitive dysfunction may worsen delirium among elderly patients. Nevertheless, for patients with severe agitation that does not respond to neuroleptics alone, addition of small doses of intravenous lorazepam (.25 to .5 mg) has been shown to be effective (17).

As a general rule, if an elderly delirious patient remains agitated after receiving 40 mg of haloperidol, lorazepam may be added in a dose of .5 to 1 mg intravenously, repeated every 30 to 60 minutes. Intravenous lorazepam should be given slowly, over 60 to 90 seconds, due to risk of respiratory depression.

In cases of life-threatening agitation—for example, a delirious patient in an intensive care unit who is removing arterial lines and endotracheal tubes—tranquilization at nearly any cost becomes necessary. In such cases, haloperidol infusion at 10 mg

per hour has been shown to be safe. Up to 200 mg of haloperidol in 24 hours has been successfully used (18), as have combination of antipsychotics, benzodiazepines, and opiates.

Course and prognosis

Although most cases of delirium are reversible, elderly patients often do not show a full recovery, and persistent cognitive deficits are common. Whether these deficits are due to onset of a new dementia or manifestations of a previously unrecognized dementia is unclear. The reversal of an episode of delirium does not necessarily imply a good prognosis for the patient. Apart from the high short-term mortality of patients with delirium, increased mortality also is seen at one-year follow-up after delirium (13).

Prevention

Certain clinical precautions can minimize the likelihood of delirium among elderly patients: starting medications with low doses, being aware of drug-withdrawal and drug-drug interactions, and tapering rather than abruptly discontinuing psychotropic medications, particularly sedatives. Surgical patients may benefit from careful psychological preparation and close monitoring of nutritional and fluid-electrolyte status, to reduce the risk of postoperative delirium. Early recognition and treatment of delirium among elderly patients can prolong survival and significantly reduce morbidity. ♦

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