

TREATING DELIRIUM

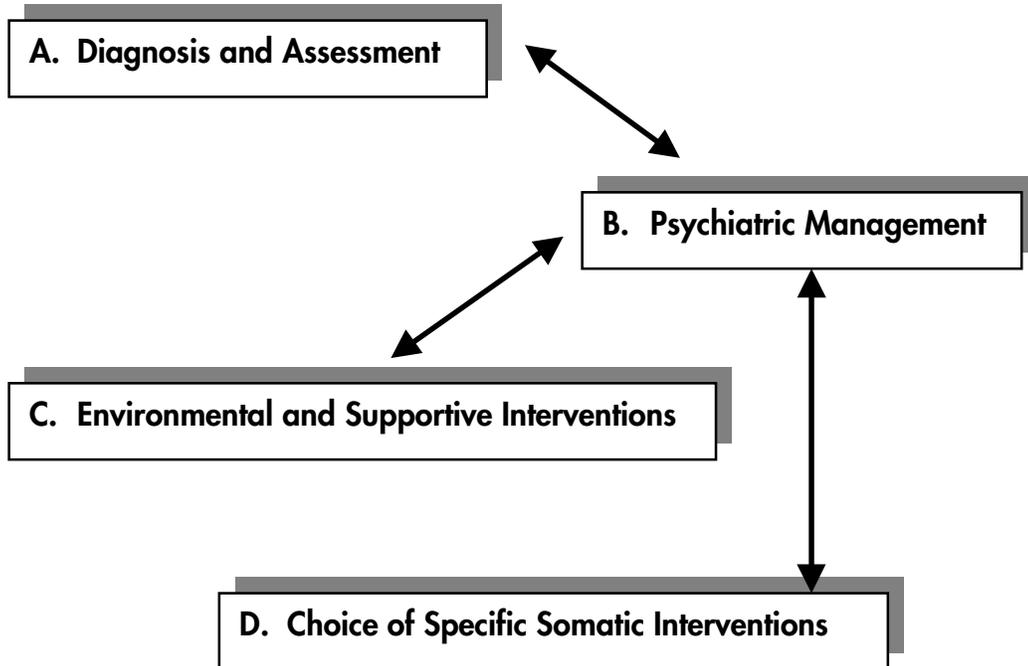
A QUICK REFERENCE GUIDE FOR PSYCHIATRISTS

The Quick Reference Guide for the treatment of delirium is a summary and synopsis of the American Psychiatric Association's *Practice Guideline for the Treatment of Patients With Delirium*, which was published in *The American Journal of Psychiatry* (May 1999). The Quick Reference Guide is not designed to stand on its own and should be used in conjunction with the full text of the Practice Guideline. Graphical algorithms illustrating the treatment of delirium are included.

Statement of Intent

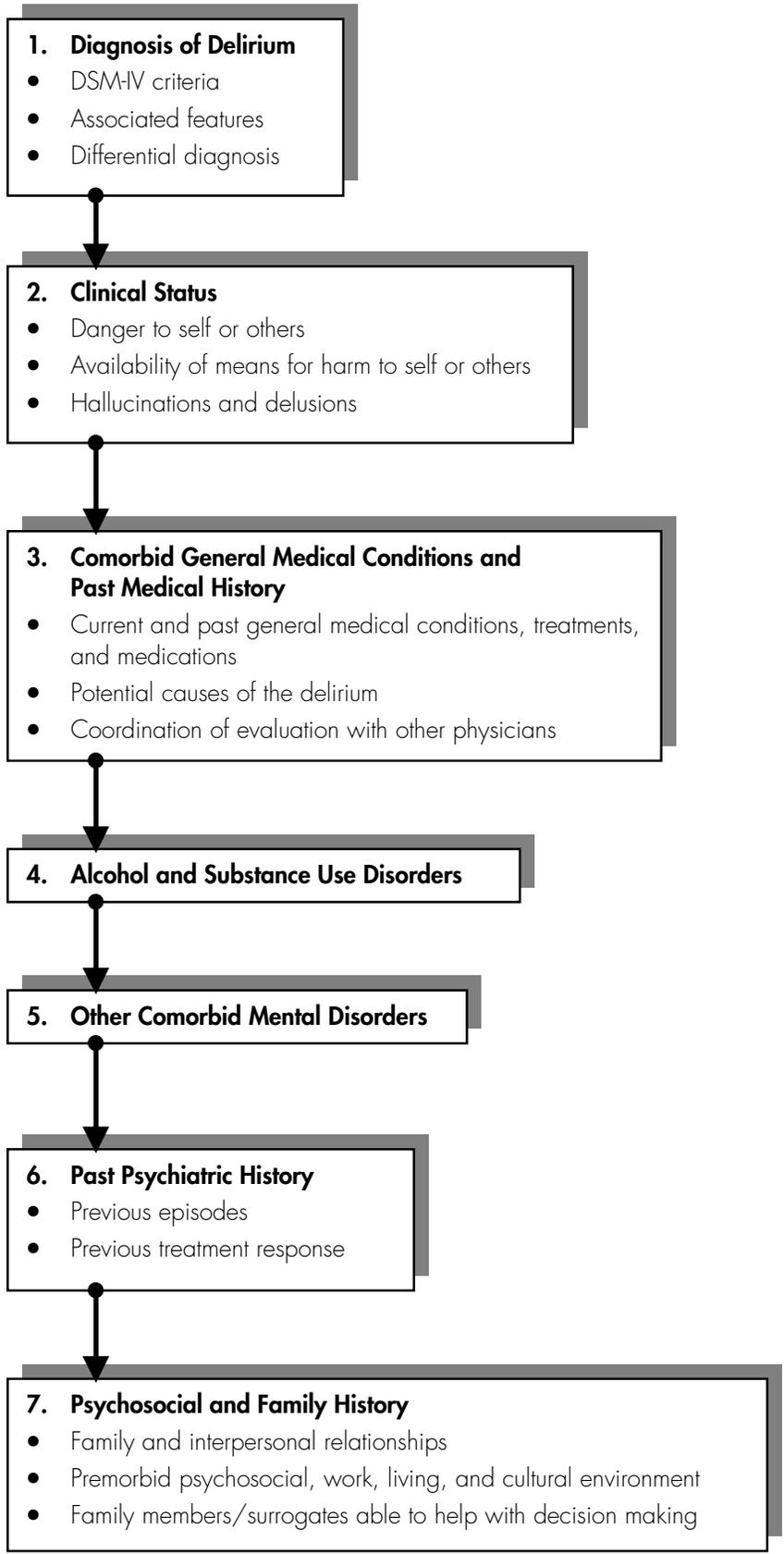
The Practice Guideline is not intended to be construed or to serve as a standard of medical care. Standards of medical care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns evolve. These parameters of practice should be considered guidelines only. Adherence to them will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgment regarding a particular clinical procedure or treatment plan must be made by the psychiatrist in light of the clinical data presented by the patient and the diagnostic and treatment options available.

General Outline



SYNOPSIS OF RECOMMENDATIONS

A. Diagnosis and Assessment



A. Diagnosis and Assessment

1. Diagnosis of delirium. A thorough assessment of the patient's symptoms should be conducted, including all DSM-IV criteria for delirium. An assessment should also be made of associated features of delirium, including disturbances in sleep, psychomotor activity, and emotions. A differential diagnosis should be made for patients with features of delirium; the most common differential diagnostic issue is determining whether the patient has dementia, delirium, or both. Obtaining information from medical records, psychiatric records, medical staff, family, and other informants is often necessary.

2. Clinical status. A thorough assessment of the patient's clinical status should be conducted, including the patient's potential for harm to self or others, the availability of means for harm to self or others and the lethality of those means, and the presence of hallucinations and delusions.

3. Comorbid general medical conditions and past medical history. Patients with delirium require an appropriate comprehensive evaluation of their current and past general medical conditions, treatments, and medications. Special consideration must be given to any conditions, treatments, or medications that may be the cause of the patient's delirium. Evaluation by the psychiatrist is frequently coordinated and conducted jointly with the patient's internist, neurologist, and other primary care and specialty physicians.

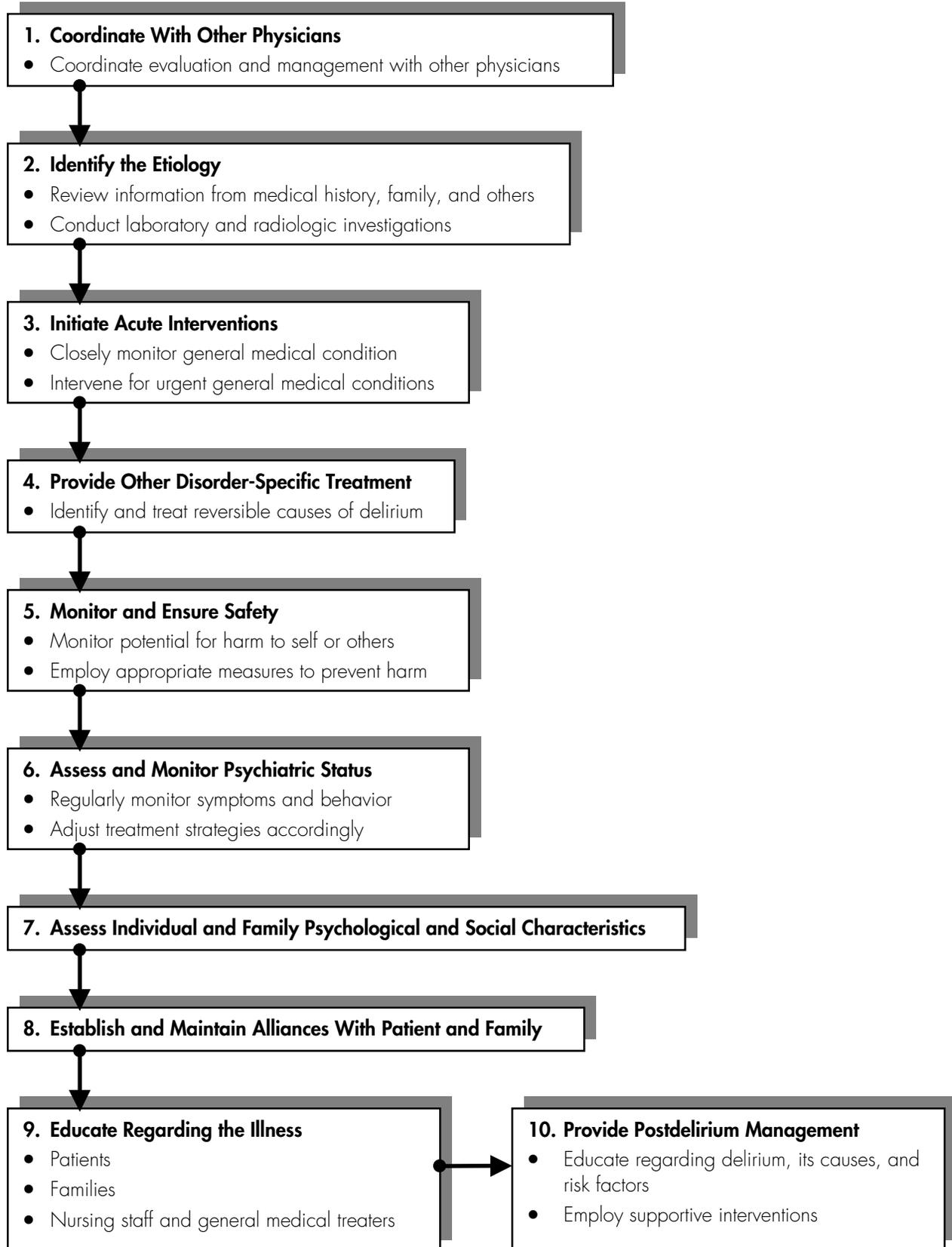
4. Alcohol and substance use disorders. A thorough assessment of possible alcohol or substance abuse and dependence should be conducted.

5. Other comorbid mental disorders. A thorough assessment of other psychiatric symptoms and the presence of other possible mental disorders should be conducted.

6. Past psychiatric history. A thorough assessment of the patient's past psychiatric history should be conducted, including but not limited to previous episodes of delirium, dangerousness to self or others, previous treatment responses, and prior substance use.

7. Psychosocial and family history. A thorough assessment of the patient's psychosocial history should be conducted, including but not limited to the patient's family and interpersonal relationships; his or her premorbid psychosocial, work, living, and cultural environment; and availability of family members or other surrogates capable of helping with decision making for patients who lack decisional capacity.

B. Psychiatric Management



B. Psychiatric Management

1. Coordinate with other physicians. Treatment of patients with delirium frequently requires joint and coordinated management involving psychiatrists and other general medical and specialty physicians.

2. Identify the etiology. It is essential that factors causing delirium be identified and corrected. Information from the patient's medical and psychiatric history, family members, and others close to the patient may be helpful. Appropriate laboratory and radiologic investigations should be conducted to determine the underlying cause(s). The choice of specific tests will be guided by the results of clinical evaluations and may include those outlined in the box below.

Assessment of Patients With Delirium

Physical status

- History
- Physical and neurological examinations
- Review of vital signs and anesthesia record if postoperative
- Review of general medical and psychiatric records
- Careful review of medications and correlation with behavioral changes

Mental status

- Interview
- Cognitive tests, e.g., clock face, digit span, Trailmaking tests

Basic laboratory tests—consider for all patients with delirium

- Blood chemistries: electrolytes, glucose, calcium, albumin, blood urea nitrogen (BUN), creatinine, SGOT, SGPT, bilirubin, alkaline phosphatase, magnesium, PO₄
- Complete blood count (CBC)
- Electrocardiogram (ECG)
- Chest X ray
- Measurement of arterial blood gases or oxygen saturation
- Urinalysis

Additional laboratory tests—ordered as indicated by clinical condition

- Urine culture and sensitivity (C&S)
- Urine drug screen
- Blood tests, e.g., Venereal Disease Research Laboratory (VDRL), heavy metal screen, B₁₂ and folate levels, lupus erythematosus (LE) prep, antinuclear antibody (ANA), urinary porphyrins, ammonia level, human immunodeficiency virus (HIV), erythrocyte sedimentation rate (ESR)
- Blood cultures
- Measurement of serum levels of medications, e.g., digoxin, theophylline, phenobarbital, cyclosporine
- Lumbar puncture
- Brain computerized tomography (CT) or magnetic resonance imaging (MRI)
- Electroencephalogram (EEG)

Source. Adapted from Trzepacz PT, Wise MG: "Neuropsychiatric Aspects of Delirium," in *The American Psychiatric Press Textbook of Neuropsychiatry*, Third Edition. Edited by Yudofsky SC, Hales RE. Washington, DC, American Psychiatric Press, 1997, pp. 447-470.

3. Initiate acute interventions. Patients with delirium may have general medical conditions that require urgent therapeutic intervention, even before an etiology for the delirium is identified. Increased observation and monitoring of the patient’s general medical condition is often necessary, including frequent monitoring of vital signs, fluid intake and output, and oxygenation level.

4. Provide other disorder-specific treatment. Reversible causes of delirium that are identified should be promptly treated. Examples of reversible causes of delirium and treatments for those disorders appear in the box below.

Examples of Reversible Causes of Delirium and Their Treatments	
Condition	Treatment
Hypoglycemia or delirium of unknown etiology where hypoglycemia is suspected	<ul style="list-style-type: none"> ● Tests of blood and urine for diagnosis ● Thiamine hydrochloride, 100 mg i.v. (before glucose) ● 50% glucose solution, 50 ml i.v.
Hypoxia or anoxia, e.g., due to pneumonia, obstructive or restrictive pulmonary disease, cardiac disease, hypotension, severe anemia, or carbon monoxide poisoning	<ul style="list-style-type: none"> ● Immediate oxygen
Hyperthermia, e.g., temperature above 40.5°C or 105°F	<ul style="list-style-type: none"> ● Rapid cooling
Severe hypertension, e.g., blood pressure of 260/150 mm Hg, with papilledema	<ul style="list-style-type: none"> ● Prompt antihypertensive treatment
Alcohol or sedative withdrawal	<ul style="list-style-type: none"> ● Appropriate pharmacologic intervention ● Thiamine, intravenous glucose, magnesium, phosphate, and other B vitamins including folate
Wernicke’s encephalopathy	<ul style="list-style-type: none"> ● Thiamine hydrochloride, 100 mg i.v., followed by thiamine daily, either intravenously or orally
Anticholinergic delirium	<ul style="list-style-type: none"> ● Withdrawal of offending agent ● In severe cases, physostigmine should be considered unless contraindicated

5. Monitor and ensure safety. Patients with delirium should be monitored for their potential to harm themselves or to endanger others. Such behaviors are often inadvertent or in response to hallucinations and delusions. Appropriate measures should be taken to prevent harm. Whenever possible, the least restrictive but effective measures should be employed.

6. Assess and monitor psychiatric status. The symptoms and behavioral manifestations of delirium can fluctuate rapidly. Regular monitoring of patients will allow for the adjustment of treatment strategies.

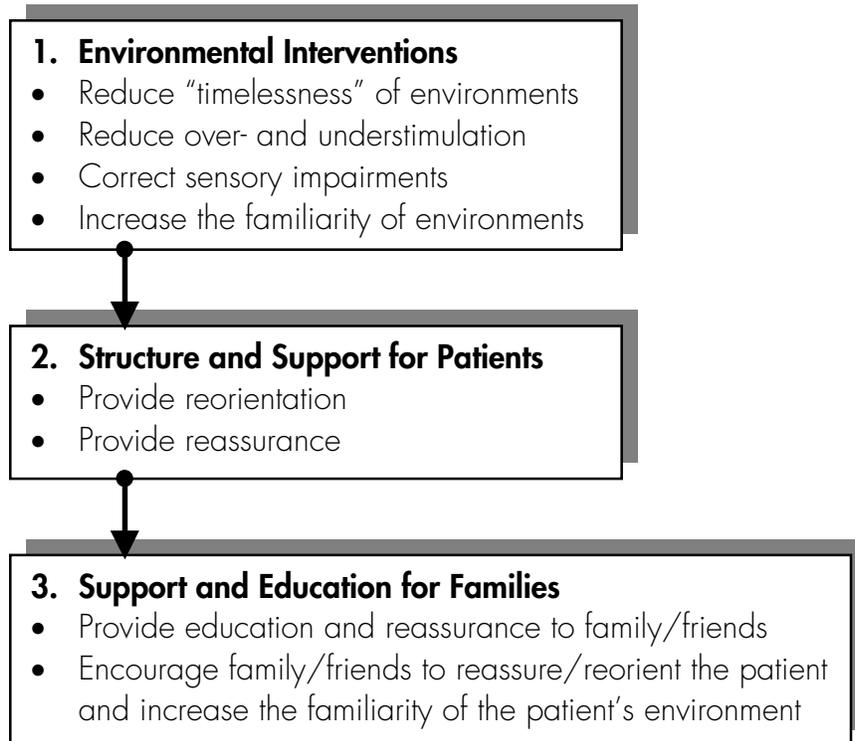
7. Assess individual and family psychological and social characteristics. Knowledge of the patient's and family's psychological and social characteristics may be helpful in dealing with anxieties and reactions of both patients and families.

8. Establish and maintain alliances. Establishing a supportive therapeutic stance with patients is important. Establishing strong alliances with family members, multiple clinicians, and caregivers is also crucial.

9. Educate regarding the illness. Education regarding delirium, its etiology, and its course should be provided to patients and tailored to their ability to understand their condition. Education regarding delirium may also be extremely beneficial to patient's families, nursing staff, and other medical treaters.

10. Provide postdelirium management. Following recovery, explanations regarding delirium, its etiology, and its course should be reiterated to patients. Education regarding the apparent cause(s) of and risk factors for delirium in the future should be provided. For patients experiencing distressing postdelirium symptoms, supportive interventions should be employed.

C. Environmental and Supportive Interventions



C. Environmental and Supportive Interventions

1. Environmental interventions. Environmental interventions are generally recommended for all patients with delirium to reduce environmental factors that may exacerbate delirium. These interventions include changing the lighting to cue day and night, reducing monotony and overstimulation and understimulation, correcting visual and auditory impairments (e.g., retrieve glasses, hearing aids), and rendering the patient's environment less alien by having familiar people and objects be present (e.g., family photographs).

2. Structure and support for patients. Interventions that help structure and support should also be provided to patients by all who come into contact with them. These interventions include reorienting patients to person, place, time, and their circumstances. Providing reassurance to patients that the deficits they are experiencing are common but usually temporary and reversible is important.

3. Support and education for families. Educate the patient's family and friends about delirium and reassure them that the patient's deficits are usually temporary and reversible. It is also helpful to encourage family and friends to reassure and reorient the patient and increase the familiarity of the patient's environment by spending time with the patient and bringing in familiar objects.

D. Choice of Specific Somatic Interventions

1. Antipsychotic Medications

a. Haloperidol

- Administered orally, intramuscularly, or intravenously
- Initial doses: 1–2 mg every 2–4 hours (0.25–0.50 mg every 4 hours for elderly patients)
- Consider continuous intravenous infusion for those requiring multiple bolus doses
- Monitor ECG: for $QT_c >450$ msec or $>25\%$ over baseline, consider cardiology consultation and antipsychotic medication discontinuation

b. Droperidol

- Consider for acute agitation because of its more rapid onset of action
- Administered either alone or followed by haloperidol

c. Newer Antipsychotic Medications

- Risperidone, olanzapine, and quetiapine
- Possibly improved side effect profile
- No published clinical trials in delirium

2. Other Interventions for Delirium Due to Specific Etiologies

a. Benzodiazepines

- For delirium due to seizures or alcohol/sedative-hypnotic withdrawal
- Can be combined with antipsychotic medications

b. Cholinergics

- For delirium caused by anticholinergic agents

c. Paralysis and Ventilation

- For agitated delirium caused by severe hypercatabolic conditions

d. Opioids

- For agitation in delirium patients in whom pain is not well controlled and is an aggravating factor

e. Vitamins

- For delirium in which there is a risk of B vitamin deficiency

f. ECT

- For some cases of delirium due to neuroleptic malignant syndrome

D. Choice of Specific Somatic Interventions

1. Antipsychotic Medications

a. Haloperidol. High-potency antipsychotic medications, such as haloperidol, are the pharmacologic treatment of choice for delirium. Haloperidol may be administered orally, intramuscularly, or intravenously and may cause fewer extrapyramidal symptoms when administered intravenously. Initial doses of haloperidol in the range of 1–2 mg every 2–4 hours have been used, with lower starting doses suggested for elderly patients (e.g., 0.25–0.50 mg every 4 hours). Continuous intravenous infusion of haloperidol may be considered for patients who require multiple bolus doses and can be initiated with a bolus dose of 10 mg followed by infusion of 5–10 mg/hour. Patients receiving antipsychotic medications for delirium should have their ECGs monitored, and a QT_c greater than 450 msec or more than 25% over baseline may warrant a cardiology consultation and consideration of medication discontinuation.

b. Droperidol. Droperidol, either alone or followed by haloperidol, has been suggested for acutely agitated patients in whom a more rapid onset of action is required.

c. Newer antipsychotic medications. Newer antipsychotic medications (risperidone, olanzapine, and quetiapine) have been used to treat delirium, in part because of their different side effect profile. No published clinical trials of these medications in patients with delirium are available.

2. Other Interventions for Delirium Due to Specific Etiologies

a. Benzodiazepines. Benzodiazepines as a monotherapy are generally reserved for patients with delirium caused by seizures or withdrawal of alcohol or sedative-hypnotics. When a benzodiazepine is used, medications such as lorazepam that are relatively short acting and have no active metabolites may be preferable. The combination of a benzodiazepine with an antipsychotic medication may be a consideration for patients who can only tolerate lower doses of antipsychotic medications or who have prominent anxiety or agitation. Combined treatment can be initiated with 3 mg i.v. of haloperidol followed immediately by 0.5–1.0 mg i.v. of lorazepam.

b. Cholinergics. Cholinergic medications, such as physostigmine and tacrine, may be useful in delirium caused by anticholinergic agents.

c. Paralysis and ventilation. Agitated patients with severe hypercatabolic conditions such as hyperdynamic heart failure, adult respiratory distress syndrome, or hyperthyroid storm may require paralysis and mechanical ventilation.

d. Opioids. For patients with delirium in whom pain is an aggravating factor, palliative treatment with an opiate should be considered.

e. Vitamins. Patients with delirium at risk for B vitamin deficiency, such as alcoholic or malnourished patients, should be given multivitamin replacement.

f. ECT. ECT may be a consideration in some cases of delirium due to neuroleptic malignant syndrome. The potential benefit of ECT should be weighed against the risks of such a procedure in patients who are often medically unstable.