structure and a list of domains of activity and participation. Since an individual's functioning and disability occur in a context, the ICF also includes a list of environmental factors. A detailed list of codes that allow the classification of body functions, activities, and participation is being developed. The ICF system is widely implemented in Europe and is gaining popularity in the United States. Whatever classification system is used, the health care provider should try to identify factors that can be modified to minimize disability. Many of these factors are discussed in this chapter. Important issues related to aging that are not addressed in this chapter but are covered elsewhere include dementia (Chap. 35) and other cognitive disorders including aphasia, memory loss, and other focal cerebral disorders (Chap. 36).

Geriatric Syndromes The term *geriatric syndrome* encompasses clinical conditions that are frequently encountered in older persons; have a deleterious effect on function and quality of life; have a multifactorial pathophysiology, often involving systems unrelated to the apparent chief symptom; and are manifested by stereotypical clinical presentations. The list of geriatric syndromes includes incontinence, delirium, falls, pressure ulcers, sleep disorders, problems with eating or feeding, pain, and depressed mood. In addition, dementia and physical disability are sometimes considered to be geriatric syndromes. The term *syndrome* is somewhat misleading in this context since it is most commonly used to describe a pattern of symptoms and signs that have a single underlying cause. The term *geriatric syndromes*, by contrast, refers to "multifactorial health conditions that occur when the accumulated effects of impairments in multiple systems render an older person vulnerable to situational challenges." According to this definition, geriatric syndromes reflect the complex interactions between an individual's vulnerabilities and exposure to stressors or challenges. This definition aligns well with the concept that geriatric syndromes should be considered as phenotypic consequences of frailty and that a limited number of shared risk factors contribute to their etiology. Indeed, in various combinations and frequencies, virtually all geriatric syndromes are characterized by body composition changes, energy gaps, signaling disequilibria, and neurodegeneration. For example, detrusor (bladder) underactivity is a multifactorial geriatric condition that contributes to urinary retention in the frail elderly. It is characterized by detrusor muscle loss, fibrosis, and axonal degeneration. A proinflammatory state and a lack of estrogen signaling cause bladder muscle loss and detrusor underactivity, while a chronic urinary tract infection may cause detrusor hyperactivity; all of these factors may contribute to urinary incontinence.

Because of limited space, only delirium, falls, chronic pain, incontinence, and anorexia are addressed here. Interested readers are referred to textbooks on geriatric medicine for a discussion of other geriatric syndromes.

Delirium (See also Chap. 34) Delirium is an acute disorder of disturbed attention that fluctuates with time. It affects 15–55% of hospitalized older patients. Delirium has previously been considered to be transient and reversible and a normal consequence of surgery, chronic disease, or infections in older people. Delirium may be associated with a substantially increased risk for dementia and is an independent risk factor for morbidity, prolonged hospitalization, and death. These associations are particularly strong in the oldest old. Fig. 11-16 shows an algorithm for assessment and management of delirium in hospitalized older patients. The clinical presentation of delirium is heterogeneous, but frequent features are (1) a rapid decline in the level of consciousness, with difficulty focusing, shifting, or sustaining attention; (2) cognitive change (rumbling incoherent speech, memory gaps, disorientation, hallucinations) not explained by dementia; and (3) a medical history suggestive of preexisting cognitive impairment, frailty, and comorbidity. The strongest predisposing factors for delirium are dementia, any other condition associated with chronic or transient neurologic dysfunction (neurologic diseases, dehydration, alcohol consumption, psychoactive drugs), and sensory (visual and hearing) deprivation; these associations suggest that delirium is a condition of brain function susceptibility (neurodegeneration or transient neuronal impairment) that precludes the avoidance of decompensation in the face of a stressful event. Many stressful conditions have been implicated as precipitating factors, including surgery;

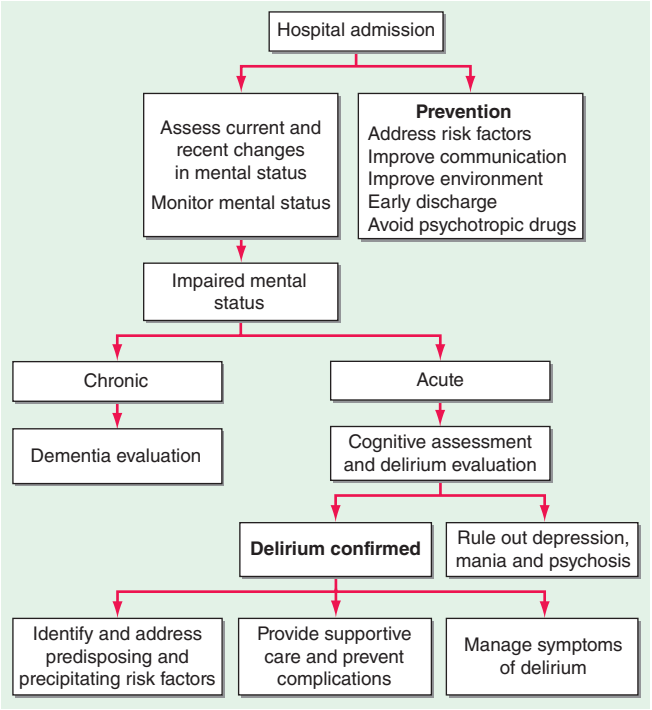

FIGURE 11-16 Algorithm depicting assessment and management of delirium in hospitalized older patients. *(Modified from SK Inouye: N Engl J Med 354:1157, 2006.)*

anesthesia; persistent pain; treatment with opiates, narcotics, or anticholinergics; sleep deprivation, immobilization; hypoxia; malnutrition; and metabolic and electrolyte derangements. Both the occurrence and the severity of delirium can be reduced by anticipatory screening and preventive strategies targeting the precipitating causes. The Confusion Assessment Method is a simple, validated tool for screening in the hospital setting. The three pillars of treatment are (1) immediate identification and treatment of precipitating factors, (2) withdrawal of drugs that may have promoted the onset of delirium, and (3) supportive care, including management of hypoxia, hydration and nutrition, mobilization, and environmental modifications. Whether patients who are cared for in special delirium units have better outcomes than those who are not is still in question. Physical restraints should be avoided because they tend to increase agitation and injury. Whenever possible, drug treatment should be avoided because it may prolong or aggravate delirium in some cases. The treatment of choice is low-dose haloperidol. It remains difficult to reduce delirium in patients with acute illness or other stressful conditions. Interventions based on dietary supplementation or careful use of pain medications and sedatives in pre- and postoperative older patients have been only partially successful.

Falls and Balance Disorders Unstable gait and falls are serious concerns in the older adult because they lead not only to injury but also to restricted activity, increased health care utilization, and even death. Like all geriatric syndromes, problems with balance and falls tend to be multifactorial and are strongly connected with the disrupted aging systems that contribute to frailty. Poor muscle strength, neural damage in the basal ganglia and cerebellum, diabetes, and peripheral neuropathy are all recognized risk factors for falls. Therefore, evaluation and management require a structured multisystem approach that spans the entire frailty spectrum and beyond. Accordingly, interventions to prevent or reduce instability and falls usually require a mix of medical, rehabilitative, and environmental modification approaches. Guidelines for the evaluation and management of falls, released by the American Geriatrics Society, recommend asking all older adults about falls and perceived gait instability (Fig. 11-17). Patients with a positive history of multiple falls as well as persons who have sustained one or more injurious falls should undergo an evaluation of gait and balance as well as a targeted history and physical examination to detect