DELIRIUM is a condition that is poorly recognized, and yet has devastating consequences. Inouye and colleagues (1) found that nurses identified delirium in only 31% of patients in which it was present. Factors present in those whose delirium was not identified included hypoactive delirium, vision impairment, underlying dementia, and being older than 80 years. Overall, delirium is not identified in 32% to 66% of older hospitalized patients (2). A similar high failure to identify delirium has been found in the emergency department (3) and in the intensive care unit (4). Delirium also occurs commonly in subacute facilities and, again, is rarely identified (5). For these reasons, the Confusion Assessment Methodology (CAM) was developed, and has been proven to be useful in detecting delirium (6,7). The CAM for the intensive care unit is useful for this purpose even in ventilated patients (6). The Delirium Rating Score appears to be an equally effective instrument (8). New-onset falls in older persons need to be considered a delirium equivalent (9). Delirium is also often misdiagnosed as depression (10).

While not found in all studies, it appears that delirium results in increased length of hospital stay and increased mortality (11–16). Delirium during hospitalization is highly predictive of future cognitive and functional decline (17–20).

In this issue of the Journal, Bourdel-Marchasson and colleagues (21) provide evidence that delirium is a risk factor for subsequent institutionalization. Kiely and colleagues (22) further stress the importance of this by pointing out that 15% of admitted patients to a post-acute facility are delirious at screening; for many patients, their delirium did not resolve within 1 month of admission. In the study by Bourdel-Marchasson and colleagues (21), falls and poor dietary intake in addition to delirium were associated with institutionalization. This gives credence to the statement above that falls should be considered a delirium equivalent in older persons, and that protein energy malnutrition, which is extremely common in older persons and recognized to be associated with poor outcomes (23–26), is associated with a decline in cognition and can precipitate delirium when the patient is receiving albumin-bound or lipid-soluble drugs. Guidelines for the management of weight loss have been published in the Journal (27).

A number of factors have been found to be predictive of delirium. These include cognitive impairment, advanced age, low albumin level, bone metastases, heart failure, inadequate pain relief and severe pain, meperidine, physical restraints, indwelling urinary catheter, malnutrition, benzodiazepines, stroke, longer duration of cardiopulmonary bypass, and low cardiac output (28–35). In most persons, delirium is multifactorial and its resolution requires a careful recognition and treatment of a number of causes. D-E-L-I-R-I-U-M-S is a mnemonic developed at Saint Louis University to allow a focused approach to the causes of delirium (Table 1).

The basic mechanisms by which delirium is produced remain uncertain (36). Clearly the circulating level of anticholinergic activity is an important factor (37,38). Many drugs that are not classically thought of as being anticholinergic, such as digoxin, theophylline, and cimetidine, have high anticholinergic activity in vitro. Several other commonly prescribed drugs and over-the-counter medications have been reported to be associated with mental status changes (39). The other major pathogenic factor in delirium appears to be the production of cytokines such as interleukins 1 and 2 and tumor necrosis factor alpha (36,40). These factors have been shown to produce cognitive impairment and to cross the blood–brain barrier (41). In some cases, components of the external core of infectious agents, such as the GP-120 component of the AIDS virus (42), seem to be the causative agent. Poor cerebral blood flow is also associated with the onset of delirium (43).

The prevention of delirium requires a focused interdisciplinary approach as demonstrated by Inouye and colleagues at Yale (44). However, overall, their results could be considered somewhat disappointing, perhaps because of poor compliance with the recommendations (45,46). Similarly, guidelines have failed to produce a major effect on delirium outcomes (47). The development of a Delirium Room at Saint Louis University, which some would consider a delirium intensive care unit because of the 24-hour in-room nursing (however, without the use of any physical restraints), appears to be a successful alternative for the prevention and treatment of delirium. It allows a focus not only on patients at risk for delirium, but patient who already have delirium (39). Part of the success of the Delirium Room appears to be the production of cytokines such as interleukins 1 and 2 and tumor necrosis factor alpha (36,40). These factors have been shown to produce cognitive impairment and to cross the blood–brain barrier (41). In some cases, components of the external core of infectious agents, such as the GP-120 component of the AIDS virus (42), seem to be the causative agent. Poor cerebral blood flow is also associated with the onset of delirium (43).

The prevention of delirium requires a focused interdisciplinary approach as demonstrated by Inouye and colleagues at Yale (44). However, overall, their results could be considered somewhat disappointing, perhaps because of poor compliance with the recommendations (45,46). Similarly, guidelines have failed to produce a major effect on delirium outcomes (47). The development of a Delirium Room at Saint Louis University, which some would consider a delirium intensive care unit because of the 24-hour in-room nursing (however, without the use of any physical restraints), appears to be a successful alternative for the prevention and treatment of delirium. It allows a focus not only on patients at risk for delirium, but patient who already have delirium (39). Part of the success of the Delirium Room is that it is an integral part of an Acute Care of the Elderly Unit, which gives the interdisciplinary team the ability to carry out its own recommendations (48). Further multicenter studies on the efficacy of this model are indicated.

Overall, delirium remains an important and poorly studied area of medicine. Like so many other areas in geriatrics,
paying attention to simple common sense measures can reduce the occurrence and improve the management of delirium. Certainly, delirium should be regularly screened for in hospitals and post-acute institutions. Avoidance of drugs with high anticholinergic activity whenever possible is a cornerstone of delirium management. At present, development of delirium intensive care units appears to be a possible cost-effective approach to the management of delirium.

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REFERENCES


