Delirium in Alzheimer’s Disease

Dementia and advanced age are risk factors for delirium. The differentiation of delirium from dementia is not difficult for the experienced physician, but combinations of the two in one patient can pose a perplexing challenge for the healthcare team.

by Peter N. McCracken, MD, FRCPC

It is well recognized that delirium is the most common cognitive problem in hospitalized elderly patients. Given the prevalence of dementia in the older age groups, it is hardly surprising that the two disorders are frequently associated with each other. Dementia and advanced age are risk factors for delirium. The differentiation of delirium from dementia is not difficult for the experienced physician, but combinations of the two in one patient can pose a perplexing challenge for the healthcare team.

Delirium is defined as the rapid onset of a clouded state of consciousness (usually lowered), marked by problems in retaining attention, fragmentation of the thinking process, and sensory misperceptions (illusions or hallucination). Table 1. A wide variety of clinical events can lead to presentations in the elderly (Table 2), but sepsis and adverse drug reactions are likely the most common.

**Diagnosis**

Changes in consciousness and reduced attention are particularly useful in detecting delirium, with and without an underlying dementia. Useful bedside approaches include the Confusion Assessment Method, the vigilance A test, or asking the patient to perform a task that requires focused attention such as counting backwards. The most common error in general or specialized medical practice is to misinterpret delirium in an Alzheimer patient as a progression of the underlying dementia. This is particularly likely when the treating physician has not seen the patient for months. Careful history-taking in this scenario will reveal an abrupt nature of the cognitive step-down.

Even without underlying Alzheimer’s disease (AD), delirium is common in seniors. Between 10 and 30% of hospitalized seniors have a delirious state during their stay. On surgical units, the figures range from 10–15% for general surgery and up to 40–60% for orthopedic wards. Despite perceived improvement in recent years, prospective studies reveal a
failure of clinicians to recognize delirium. One trial on an orthopedic floor showed that delirium was poorly recognized by nurses and physicians (39% of nurses, 22% of physicians identified it). Unfortunately, the incidence of episodes of delirium in patients with AD is largely unknown.

Delirium in frail seniors is rarely recognized and can be frustrating to attending staff neurologists and geriatricians, physiatrists as well as family physicians. There are numerous barriers to the recognition of delirium. The change in patient composure is misread by hospital staff. Other reasons include its fluctuating nature with lucid intervals, atypical presentation (hypoactive delirium) and the lack of general appreciation of this potential medical emergency.

Not only is delirium common, it is deadly. Delirium has a significant mortality rate estimated to be between 20% and 40%, and studies have shown it to be twice that of comparable non-delirious patients.6

Apart from high mortality, significant morbidity is also associated with delirium including falls, aspiration, pressure sores, urinary incontinence, dehydration, heart failure, and persistence of confusion.7 In demented patients, delirium may take several weeks to clear, even after the cause has been identified and treated. Unfortunately, it is never resolved in a surprising percentage of demented individuals.

When evaluating such patients, there is no substitute for gathering relevant and reliable information from spouses, other family members, or staff from the residence where the patient was living. This is particularly important in demented patients because an abrupt worsening of their chronic confusional state can almost always be uncovered if the pursuit of the information is thorough enough. Through these interview steps, a careful review of nursing notes, and objective bedside testing of the patient, a diagnosis of delirium can be made, even in a demented patient. DSM IV criteria (Table 1) should be used as a guideline.

**Clinical Features**

Delirium in the demented patient can be difficult to determine. Its onset may well appear to be more insidious and can take several days to develop. The most common early change affects psychomotor behaviour resulting in protracted drowsiness, anxiety, more difficulty with thinking clearly, insomnia, disturbing dreams and psychotic features.

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dreams and psychotic features. Sometimes the attending physician is alerted to this by an abrupt change in the extent of such psychotic features. Delusions, commonly influenced by surrounding environmental stimuli, may surface. Hallucinations and sensory illusions, usual visual and of very rich intensity, are particularly common. Even with dementia, delirious seniors will fluctuate and often appear to be most lucid in the morning, and at their worst at night. The sleep/wake cycle becomes completely disorganized. Those patients with hypoactive delirium often go unnoticed and may not be correctly identified for hours or even days after its onset.

Longer lengths of stay in hospitals, reduced functional outcomes, and increased discharge to long-term care facilities are common consequences of delirium.

In patients with AD and other dementias, recovery from delirium is not predictable. Levkoff’s classic study revealed that only 4% of all patients recover to their pre-morbid state six months after the onset of delirium.8

The causes of delirium are listed in Table 2. Common medical entities such as infections of the lungs and urinary tract, cardiopulmonary conditions resulting in hypoxemia, neurological conditions, and metabolic changes in cognitive drugs are frequently identified. Often, more than one possible cause is found. However, experienced clinicians have gone through painstaking searches for a cognitive etiology and have been unable to identify any discreet cause. A rectal exam, bladder scan or straight catheter drainage (to evaluate post-void residual urine) can sometimes identify urinary or fecal retention as the culprit. On occasion, more aggressive steps such as lumbar puncture or tissue biopsy must be employed.

Management
Management of the delirious AD patient is broken down into three categories: specific, supportive, and sedative.

Specific
The specific approach is to identify, treat, and eliminate the underlying cause. This includes identifying and reducing all medications that could be responsible for this downturn (Table 3). Appropriate treatment is focused on the causes listed above. Investigative steps include blood work to obtain the hematologic and biochemical status of the patient; cultures of blood, urine, and sputum; EKGs; oxygen saturation and chest and abdominal x-rays.

Delirious AD patients with severe agitation will usually require neuroleptic medication to reduce the threat of injuring themselves or others. Careful consideration of the patient’s pre-morbid status should precede decision-making on which agents to use.

Supportive
The supportive management of delirium tends to be non-pharmacologic. It involves creating the optimum environment to facilitate recovery. The right aids, both hearing and visual devices, should be made available. Other steps should include proper sources of light, clocks, and windows to promote recognition of familiar patterns. If possible, attempts to reduce hospital noise should be implemented. Restraints should be removed whenever possible. A security guard might be necessary to protect patients from self-harm. Family and

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Table 3

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<tr>
<th>MEDICATIONS; THE USUAL SUSPECTS3</th>
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<tbody>
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<td>• Narcotics</td>
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<td>• Anticholinergics</td>
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<tr>
<td>• Benzodiazepines</td>
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<tr>
<td>• Psychotropics</td>
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<tr>
<td>• Anti-Parkinsonians</td>
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<tr>
<td>• Common drugs but less likely: H2 antagonists, Beta Blockers, NSAIDs</td>
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other familiar people should be encouraged to stay at the patient’s bedside. Avoiding indwelling catheters is also important.

**Sedative**
The sedative approach is reserved for patients with hyperkinetic or agitated delirium. When such patients are post-operative, they will require some analgesia even if narcotics have been identified as a peripent to the delirious episode. The most prudent approach is to employ acetaminophen 650 mg orally with low dose morphone 2.5–5.0 mg IM or s/c for breakthrough pain.

Delirious AD patients with severe agitation will usually require neuroleptic medication to reduce the threat of injuring themselves or others. Intravenous (IV) lines delivering medications must be maintained. Careful consideration of the patient’s pre-morbid status should precede decision-making on which agents to use. Even though high-potency neuroleptics have marked extra-pyramidal adverse effects, most physicians still favor these drugs for delirium because they are relatively non-sedating, do not have marked cardiorespiratory side effects, can be given IV, and there is familiarity with their use. Low-potency agents such as thioridazine and chlorpromazine have high anticholinergic properties, hardly of benefit for those with underlying AD and should be avoided in this setting. When sedation is necessary, intermediate potency neuroleptics such as loxapine and perphenazine are extremely useful. Experience is increasing in the medical community with the use of antipsychotics such as risperidone and olanzapine. 9

The approach in the coming years should focus mainly on the prevention of delirium and the identification of predisposing and precipitating risk factors for its development. 10 It should also be noted that donepezil improves symptoms of delirium in some demented patients and has implications for future research. 11 In Canada, quetiapine has been approved for the treatment of schizophrenia but not agitated delirium. It is important to discontinue the neuroleptic as soon as the delirium resolves. It is important to note that seniors should not be returned to the community on such a compound when they no longer require it.

**Acknowledgements**
I wish to recognize the very useful input and contributions of Dr. David Hogan from the University of Calgary, Division of Geriatric Medicine. I am also grateful to Mrs. Loreen McConaghie for her clerical assistance.