

# Delirium in Older Patients: Important Determinant of Hospital Outcome

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## Abstract

It used to be assumed that delirium was transient and a benign process. However, this assumption is wrong with recent evidence showing that independent of age, dementia, illness severity and functional status, delirium predicts multiple adverse outcomes. This case highlights some of the challenges in diagnosing and treating older patients with an acute confusional state.

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## Introduction

It used to be assumed that delirium was transient and a benign process. However, this assumption is wrong with recent evidence showing that independent of age, dementia, illness severity and functional status, delirium predicts multiple adverse outcomes.<sup>1</sup> These include increased length of stay on wards, institutionalization, and mortality during admission and one year after discharge.<sup>1-3</sup> Delirium is defined as an acute and debilitating decline of cognition with clinical hallmarks being decreased attention span and confusion.<sup>3-4</sup> This condition generally effects the elderly due to the increased exposure to risk factors of the condition and underlying age-related cerebral changes. It is very common in a secondary care setting with between 14%-56% (depending upon the ward and specialty) of elderly patients being diagnosed with delirium.<sup>4-5</sup> Importantly, despite being such a common condition and having a mortality rate between 10% and 26%, it is still grossly under-

diagnosed and under-treated with detection rates in general hospitals of 30% or less.<sup>4-5</sup> This case highlights some of the challenges in diagnosing and treating older patients with an acute confusional state with a background of chronic cognitive impairment.

## Case Report

### *Background to admission*

A 96 year-old woman was admitted to the Royal Infirmary Edinburgh as a result of wandering and apparent confusion in her sheltered housing complex. During hospital transfer, she became aggressive towards paramedics and police and on admission the patient was documented as being unable to confirm her name, date of birth or address. The patient was normotensive (125/76), afebrile (36.4C) and maintained good oxygen saturation on room air (97%). A collateral history from her son and GP confirmed an acute decline in patient's cognition as the patient had been managing at home without any problems one week previously. Past medical history included a previous episode of delirium (related to a urinary tract infection), multi-infarct dementia (7 year duration), hypothyroidism and asymptomatic episodes of atrial fibrillation. Admission drug therapy was aspirin 75mg (od), levothyroxine 50mg (od), ramipril 2.5mg (od), simvastatin 20mg (od) and AdCal D3 2 tabs (od). The patient appeared comfortable at rest, had a clear chest, soft non-

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tender abdomen and normal tone, power and reflexes in all 4 limbs. An end diastolic murmur (grade 4) was heard in aortic area. Cognitive assessment showed a significant reduction in AMT (3/10) and MMSE (12/30) scores compared to scores recorded by her GP 2 months previously [AMT 8/10; MMSE 25/30]. Psychiatric assessment highlighted concurrent disturbances of consciousness and attention as well as markedly reduced short and long-term memory. In addition, abnormal psychomotor behaviour was documented including several episodes of physical aggression, wandering and restlessness.

### ***Differential diagnosis and patient's investigations***

A provisional diagnosis of delirium of unknown origin on background of cognitive impairment was made. Firstly, a general infection screen was carried out. This included blood and urine cultures, chest XR and admission bloods. Secondly, a review of her medications was undertaken. Five days of blind antibiotic therapy with trimethoprim was commenced after an empirical diagnosis of urinary tract infection was made. However, blood and urine cultures were both negative, chest XR was clear and admission bloods were unremarkable (WCC 5; CRP 12; Sodium 139). These investigation results led to trimethoprim being stopped. CT scans were ordered to exclude intra-cranial pathology after no infective cause could be found. However, these investigation results did not provide a diagnosis.

A geriatric consultant reviewed the patient and assessed risk factors for less common causes of an acute confusional state. This included examining for central nervous system pathology, drug withdrawal syndromes [alcohol; anti-depressants], electrolyte abnormalities [hypomagnesaemia], hormone deficiency [profound hypothyroid] and any subtle signs of infection. During a top to toe infection assessment, it was noted that the patient's hearing was significantly worse of the left side that had never been previously documented. Otoscopy showed evidence of signs of poor drainage, chronic inflammatory changes and severe unilateral loss of conductive hearing on the left. A diagnosis of chronic otitis media was made that was presumed to be the cause of her delirium.

### ***Patient's management***

The middle ear infection was treated with oral amoxicillin (500mg tds) and topical ciprofloxacin ear drops. There was no evidence of wider bony

involvement indicating possible surgical consult. In addition, the care team aimed to minimize any potential physiological derangement in this woman and care was taken in maintaining fluid balance and nutritional intake. Furthermore, after drug review AdCal D3 and simvastatin were stopped.

Throughout admission she displayed episodes of aggressive behavior and agitation. The patient was treated in a side room with a calm stable environment with limited sensory stimulation. Furthermore, it was arranged for a member of the patient's family to sit and chat with her for much of the day to reduce anxiety and stress levels of the patient. She began to improve towards prior cognitive levels after 4 days and was discharged to a local retirement home 6 days after commencing antibiotic therapy.

## **Discussion**

The management of a patient with delirium involves treating the precipitating factor but also managing the psychiatric complications.

### ***(A) Initial assessment***

The common causes for delirium are outlined in Table 1. It is very important to be aware that a thorough investigative approach is required to try and assess for all potential causes of delirium. Initial management should include full history and clinical examination. Clinicians will assess for risk factors and any potential causes for the patient developing delirium. For example, in our case the risk factors were that the patient was 96 years old and on five drugs. Secondly, a general psychiatric assessment and cognitive assessment with comparison to previous baseline should be carried out to document any disturbed cognition. Patients should be assessed for signs of disordered thinking, inattention drowsiness and memory deficits.

### ***(B) Precipitating factors***

Causes of delirium are often multiple and all causes of delirium should be considered regardless of the initial investigation results.<sup>2-4</sup> Best management includes an infection screen, metabolic/electrolyte screen, review of current drug therapy and monitoring of baseline observations. Baseline observations are particularly important to monitor in a postoperative state.<sup>4</sup> Full infection screen should include full admission blood tests (FBC, WCC, LFTs), blood/urine cultures, chest X-ray and baseline physiological measures should be carried out. If any infection is isolated antibiotic therapy

should be treated as appropriate, whilst considering potential side-effects such as patient risk of developing *Clostridium difficile*. If common causes of the acute confusional state cannot be isolated other less likely causes should be considered such as hormone deficiency or CNS causes.

Table 1. Risk factors; common precipitants and general measures to avoid delirium.

Risk Factors	Common Precipitants	General Measures to Avoid Delirium in Patients
<ul style="list-style-type: none"> <li>Increasing age</li> <li>Polypharmacy</li> <li>Surgery</li> <li>Substance abusers (alcohol, illicit substances)</li> </ul>	<ul style="list-style-type: none"> <li>Hypoxia</li> <li>Metabolic and electrolyte abnormalities</li> <li>Infections</li> <li>Alcohol or sedative withdrawal.</li> <li>Postoperative states</li> <li>CNS causes (structural, infective, thrombotic)</li> </ul>	<ul style="list-style-type: none"> <li>Avoid unnecessary moves and boarding of patients.</li> <li>Avoid prescribing high-risk drugs if at all possible (opioids, benzodiazepines, barbituates).</li> <li>Managing factors that optimise brain function (i.e. ensuring good oxygen supply and minimising physiological stresses).</li> <li>Orientation [familiar objects, continuity of nurses]</li> <li>Maintain mobility</li> </ul>

### (C) Psychiatric complications

Psychiatric complications are common in delirium, which can become challenging to manage. Non-drug treatment should always be pursued first line. There are many reasons for this including an increase in risk in adverse drug reactions in the elderly as a result of age-related decline in elimination and metabolism of drugs, increased risk of drug interactions in elderly patients as a result of poly-pharmacy and the fact that non-drug approaches are very effective.<sup>4-6</sup> These non-drug approaches include maximising sensory awareness (hearing aids/glasses worn), discourage passive dependency, manage patients in a moderately lit room with same nursing staff as much as possible.<sup>6-7</sup>

Drug approaches with haloperidol and lorazepam have a place if non-drug treatments are unable to stabilise the patient condition as required or the patient cannot be given life-saving treatment, such as intra-venous antibiotic, as a result of agitation or distress. Furthermore, in hyperactive delirium patients may experience distressing psychotic symptoms that may be best treated with an

anti-psychotic. It is important to stress that a drug based approach should be avoided if possible as there is evidence to show that use of benzodiazepines can prolong or worsen delirium in some patients.<sup>8-9</sup>

### Conclusion

Delirium is not a benign syndrome and must be treated as a medical emergency. The syndrome is common in hospitals and is partially preventable by managing factors that optimise brain function. Effective treatment of delirium requires multiple interventions. First line management should always include non-pharmacological treatments such as optimisation of patient environment, nutrition and fluid. In all patients, especially the over 65s, drug treatment should be avoided if at all possible.

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