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Case Report OMICS International

A case of Getting the Diagnosis Right in the Management of An Elderly Man with Challenging Behavior

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Abstract

The confused elderly are often a challenge for the medical professionals to manage. The presence of delirium is often missed, dementia is often underdiagnosed and the confused elderly with agitation and aggression are often ignored or restrained either physically or chemically in an acute hospital setting. Careful work up for delirium, drug review and getting the diagnosis right is of paramount importance in the management of a confused elderly.

Keywords: Delirium; Dementia; Drugs; Diffuse Lewy body dementia

Introduction

The world's population is ageing rapidly with an increasing trend of people living with dementia. Reports have estimated that there will be about 131.5 million people with dementia by 2050. Dementia has a huge economic impact, costing US $818 billion in total worldwide, and it will become a trillion-dollar disease by 2018. Today, it is estimated that 94% of people living with dementia residing in low and middle income countries are cared for at home. These are regions where health and care systems often provide limited or no support to people living with dementia or to their families [1].

Dementia is a group of prolonged, debilitating neurodegenerative disorders which affect the patients and their family for years after diagnosis. The presence of behavioural and psychological symptoms of dementia (BPSD) occurs among 98% of individuals with dementia at some point during their disease progression. BPSD has been associated with more rapid decline in cognition, greater impairment of ADLs, caregiver burden leading to caregiver burnout, diminished quality of life for caregivers and patients and early institutionalization [2-5]. The spectrum of BPSD includes mood disorders like depression and anxiety, psychosis with delusion and hallucination, aberrant behaviours like stripping, pacing, hoarding, wandering, repetition, physical and verbal aggression, agitation, etc. which often results in behavioural symptoms which are challenging for the caregivers resulting in caregiver stress and burnout. Behavioural models explain that BPSD signifies underlying unmet needs and communication breakdown between the person with dementia and their caregivers [6]. The caregiver for a person with dementia has been described as living a 36 hour day by Mace and Rabins, resulting in physical, emotional and mental fatigue [7].

Case Summary

Mr T is a 75-year-old man who presented with multiple admissions in 2015. There were 4 admissions between November 2014 and May 2015 for flare of asteotic eczema as he could not cope with his treatment regime. Daughter reported that he usually started with behaving strangely and noticed he scratched his skin more than usual. These were frequently followed by "delirium", where he became confused and agitated.

His past medical history-Peroxisomal atrial fibrillation (AF) on warfarin, Tachy-Brady syndrome for which his family declined pacemaker, folate and iron deficiency anaemia, Frequent flare of asteotic eczema due to poor compliance with topical Rx.

Collaborative cognitive history was taken from lived-in daughter. There was a background of short term memory loss of two years' duration, occasionally more forgetful, but was still able to go to work at a coffee shop. His daughter reported that his employer complained of his strange behaviour on certain days when he mixed up orders and counted wrong change for the customers. The cognition seemed to fluctuate wildly from day to day and there were occasions when he wandered out of the house at nights, and was brought to hospital the police after a fall as he appeared disorientated and lost.

There was also history of visual hallucination for 1.5 years where he saw people making a mess in his house and hiding his belongings. He reacted with chasing them out or engaged in deep conversation. He had on occasions, took orders for coffee and drinks from the people he talked to and bought coffee and food for them. His daughter also reported REM sleep disorder with shouting, kicking, talking and running out of the house during his sleep.

During his hospital stays, he was physically restrained for trying to get out of bed to wander, offering to make coffee for fellow patients and talking to imaginary friends. Old age psychiatrist prescribed olanzapine for agitation, delirium and hallucination. Dermatologists prescribed hydroxyzine and chlorpheniramine for pruritis.

Case notes documented days of low Glasgow Coma Scale score of 8/15 where he was unrouseable, alternating with days of being normal. These episodes were preceded with being served olanzapine +/- antihistamines within the last 24 hours. He showed spontaneous recovery.

Physical findings showed that he was restrained with a body vest. He was alert and talking to his "friends". Saying there were an old lady and a man looking through his belongings. He could not recognize his daughter that day. Otherwise there were no significant physical signs. He had no features suggestive of Parkinsonism. Rigidity and

bradykinesia were documented after olanzapine in previous admission. Abbreviated mental test score was 7/10. Mini-mental state examination (MMSE) was 17/30.

His basic blood investigations were as shown in Table 1.

Other investigation results

- CT brain-mild periventricular microvascular changes with bilateral old Lentiform Nucleus lacunar infarct
- CT thorax-Old apical scarring, abdomen showed no significant abnormalities
- 24-hour Holter-paroxysmal AF with frequent atrial ectopics
- Differential diagnosis: Delirium, Drugs with anticholinergic properties worsening delirium, Diffuse Lewy Body Dementia (DLBD), Alzheimer's disease with behavioural and psychological symptoms of dementia (BPSD)-psychosis

Haemoglobin	12.6 (11.5-15.0 g/dL)
WBC count	11.0 (4.0-10.0 × 103/uL)
Platelet count	442 (150-450 × 103/uL)
Urea, serum	4.4 (2.8-7.7 mmol/L)
Sodium, serum	142 (135-145 mmol/L)
Potassium, serum	4.4 (3.5-5.3 mmol/L)
Bicarbonate, serum	25 (19.0-31.0 mmol/L)
Creatinine, serum	75 (50-90 µmol/L)
Bilirubin Total, serum	39 (5.0-30.0 µmol/L)
Albumin, serum	29 (37-51 g/L)
Alkaline Phosphatase	137 (32-103 U/L)
Alanine Transaminase	20 (10-55 U/L)
Aspartate Transaminase	23 (10-45 U/L)
Gamma-Glutamyl Transferase	19 (5-50 U/L)
C-Reactive Protein	73.2 (<3.0 mg/L)
Pro-Calcitonin	0.15 (0.00-0.5 ug/L)

Table 1: Blood investigation results at the point of admission in April 2015.

Management plans: Medications discontinued included hydroxyzine, chlorpheniramine, Olanzapine and general measures to remove physical restraints, ensure good nutrition and hydration, regular mobilization, treatment for constipation and regular toilet rounds. The differential diagnosis of DLBD led to a trial of Rivastigmine at low dose of 1.5 mg BD.

Progress: He made a good recovery and was discharged home in a week. Rivastigmine was gradually increased to maximum dose in clinic and he was community ambulant 3 months after discharge and was managing his skin treatment well at home with no further admissions. Clinic review with his daughter reported that his visual hallucination has completely stopped and his cognition had improved.

MMSE scores: May 2015: 17/30, Aug 2015: 24/30, Jul 2016: 26/30

Discussion

This elderly man presented with an interesting history of recurrent hospital admissions which resulted in him being confused during his stay in the hospital. The episodes of agitation and worsening hallucinations resulted in multiple blood and radiological investigations, addition of medications like antipsychotics and antihistamines in an attempt to sedate him and control his symptoms, with adverse outcome. The differential diagnoses for this man included delirium, drugs, diffuse Lewy body dementia, and Alzheimer's dementia with psychosis.

Delirium is an acute decline in cognitive function and common in the acute hospital setting, with a prevalence of 14% to 24% among the older patients, new onset in hospital 6% to 56%. In the surgical wards, it is present in 10% to 50% of the patients. In the Intensive care and palliative care settings, it is present in up to 80% of the patients. At any one time, 20% to 60% of nursing home and patients in the subacute care are delirious. And yet, delirium is unrecognized in 66% to 70% of patients. Delirium carries with it poor outcome with hospital mortality of 22% to 70% and a 1 year mortality of 35% to 40%. The surgical patients who developed delirium are at risk of cognitive impairment even at one year postoperatively. Delirium is also associated with decline in physical function. Delirium can occur at any age, but commoner among the elderly, residents of nursing homes and the terminally ill [8-10]. The commoner predisposing factors for delirium are shown on (Tables 2 and 3). The causes are often multiple and some of which are correctable. For this man, his cognition worsened with exacerbation of his eczema. The skin was raw and inflamed on admission which explained the high C-reactive protein but it was not associated with cellulitis. The eczema flare was treated and improved with steroid ointment and moisturizer's. The other common symptom of delirium included disturbances in perception with visual hallucination being a common feature clinically. This man too had visual hallucination and in an acute setting, it is best to exclude organic cause for visual hallucination.

Predisposing factors	**Precipitating factors**
Background dementia	Medical causes
History of delirium	Drugs
Older age >75	Inadequately treated pain
Depression	Iatrogenic-catheters, lines, physical restraints, poor sleep and nutrition in hospital
Alcohol abuse	Surgery
Sensory deprivation-poor vision and hearing	Changes in environment, routines, caregivers
Multiple comorbidities	Emergency admission
Functional impairment	fractures

Table 2: Predisposing and precipitating factors for delirium [9].

Drugs are the sole trigger of delirium in 12% to 39% of the cases of delirium. Drugs can cause delirium by their direct toxic or adverse effects, or indirectly via drug-drug interactions or drug-disease interactions or by inducing physiological abnormalities which

precipitate delirium such as high dose diuretics causing electrolyte abnormalities and acute kidney injury [11].

Cerebrovascular system	Stroke-thrombotic/haemorrhagic, seizures, infections- meningitis, encephalitis
Cardiovascular system	AMI, heart failure, arrhythmia, hypotension
Metabolic disorders	Metabolic acidosis, hypo/hyper natraemia, hypo/hyper kalaemia, hypo/hyper calcaemia, hypo/hyper glycaemia, hypomagnesaemia
Organ dysfunction	Acute kidney injury, hepatic dysfunction, hypoxaemia
Infection	Urinary tract, respiratory, CNS, ENT, abdominal
Nutritional status	Dehydration, poor nutritional intake
Medications	Psychotropics-antidepressants, hypnotics, antipsychotics, addition of >3 new medications, drugs with anticholinergic side effects

Table 3: Medical causes for delirium [9].

At the neurotransmitter levels, drugs which affect the cholinergic and dopaminergic systems are implicated in delirium. Anticholinergics or drugs with anticholinergic properties are potent precipitant of delirium. There are in vivo bioassays available which measures serum anticholinergic activities and it correlates with the presence and severity of delirium [12,13]. The lists of anticholinergics or drugs with anticholinergic properties are long, and first generation antihistamines like chlorpheniramine and hydroxyzine are both advised by the Beers criteria to be avoided in the elderly due to cholinergic side effects. Antipsychotics are also advised by the Beers criteria as inappropriate for the elderly because of increased stroke risk, cognitive decline and mortality among the elderly. For the treatment of delirium and BPSD, antipsychotics are only to be used after failed non-pharmacological treatment or the elderly are at risk of harming himself or others [14]. For this man, his skin was intensely pruritic which led the dermatologists to prescribe antihistamines for symptom control. The psychiatrist prescribed Olanzapine for his vivid visual hallucinations, again as symptom control. Olanzapine is one of the atypical antipsychotics and it too, has anticholinergic properties. The combination of Chlorpheniramine, hydroxyzine and Olanzapine caused his delirium to worsen, with periods of drowsiness which he spontaneously recovered after cessation of these medications.

Diagnosis of DLBD Requires

Central feature (required for possible or probable diagnosis)

- Progressive dementia severe enough to interfere with normal social or occupational function.
- Deficits on tests of attention, executive function, and visuospatial ability might be especially prominent.

Core features (Two are required for probable, one for possible diagnosis)

- Fluctuating cognition
- Recurrent visual hallucinations
- Spontaneous parkinsonism
- Suggestive features (any suggestive feature with at least one core feature defines probable dementia with Lewy bodies; any suggestive feature in the absence of core features defines possible dementia with Lewy bodies)
- Rapid eye movement sleep behaviour disorder, severe sensitivity to antipsychotics, low dopamine transporter uptake in the basal ganglia

DLBD shows extreme sensitivities to neuroleptics and Dopaminergic drugs. The cholinergic deficit in DLBD makes cholinesterase inhibitors the mainstay of treatment for DLBD which has been shown to reduce visual hallucination and other neuropsychiatric symptoms. Atypical antipsychotic like Quetiapine may be used for psychosis, REM sleep disorders may be managed with Clonazepam and levodopa is preferred to Dopamine agonists for Parkinsonism [15,16].

The diagnosis of dementia in this gentleman was made because of a history of short term memory decline associated with impairment in occupation, at an early stage. The presence of visual hallucination is not a common feature in Alzheimer's Disease (AD) at presentation, although it can be one of the features of BPSD which is common in AD at later stages. This led to a high probability of DLBD in this man, considering his fluctuating history prior to admission, presence of sleep disorders, extreme sensitivities to anticholinergics and antipsychotics with a rapid decline in his cognition. He made a remarkable recovery following treatment with Rivastigmine both physically and cognitively.

Summary

The elderly are a heterogenous group of individuals who have low physiological reserve and are vulnerable to iatrogenic complications. The management for a confused elderly include looking for a medical cause, drug review and ensuring the supportive measures are in place to prevent further complications during hospital stay.

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