More about...Ageing and health

A practical approach to delirium

BRENT TIPPING, *MB ChB, FCP (SA), Cert Geriatrics (SA), MPhil (Geriatric Medicine)*

Specialist Geriatrician, University of the Witwatersrand Donald Gordon Medical Centre, Johannesburg.

Delirium is a poorly understood, complex multifactorial syndrome characterised by impaired consciousness, impaired cognition, a rapid onset, a fluctuating course and external causation.[1] It represents an adverse interaction between a vulnerable patient, disease, medical therapy and the care environment.

With ageing the various organ systems experience a gradual decline in their capacity to buffer insults to their homeostasis, with wide inter-individual variation in these changes. New disease presentation in the older person is dependent on the organ system made most vulnerable by previous ageing- and disease-related changes. For example, in an older person pneumonia is more likely to present with delirium than with pyrexia and cough if the brain is the 'weakest link'. Delirium is a leading presenting symptom in the older patient.[2]

Delirium has a prevalence of 10 - 31% (mean 17%) in older patients admitted to medical wards and an incidence of 3 - 29% (mean 14%) per admission.[3]

Important sequelae of delirium include:[3-5]

- increased mortality (1.5 - 2.0 times)
- increased rates of institutionalisation (1.3 - 3.3 times)
- functional decline (1.5 - 2.0 times)
- worsening of pre-morbid cognitive status
- increased length of hospital stay (1.5 - 2.0 times) and increased health care costs.

Implementation of a non-pharmacological multi-component intervention reduces delirium incidence rates by 33% (from 15% to 10%) with similar reductions in the number of episodes and length of delirium, but not affecting severity or recurrence rates.[1]

Clinical non-detection rates for delirium average 33 - 66%.[4] Any confused older person presenting for health care should be regarded as having delirium. Failure to consider this diagnosis may result in missing important treatable problems, with adverse outcomes.

Risk factors for delirium include the following:

Patient-dependent risk factors[4, 6]

- existing cognitive impairment (particularly in the executive domain)
- older age
- greater functional dependence
- dehydration (with raised serum urea)
- electrolyte abnormalities and sensory impairments.

Environmental-dependent risk factors[7]

- immobility
- sensory deprivation
- social isolation
- sleep deprivation
- multiple environmental changes
- physical and medical restraints (e.g. bladder catheters)
- absence of time-orientating devices
- lack of vision-and hearing-corrective devices
- absence of familiar relatives.

Medications that are a common cause of delirium and may be the most easily reversible trigger, e.g.[2]

- centrally acting drugs
- analgesics
- antihistamines
- anti-emetics
- antibiotics
- psychotrophic medications
- cardiac medications
- corticosteroids
- medications or liquids containing alcohol.

Specific risk factors for not recognising delirium include the following:[5]

- psychomotor hypoactivity
- older than 80 years
- visual impairment
- dementia.

Goals of delirium management are:

- prevention aimed at minimising the impact of known patient and environmental risk factors
- monitoring of cognitive function to improve detection
- identification and management of precipitating factors
- management and prevention of delirium-associated complications.

Brief cognitive evaluation is easily performed using the Mini-Mental State Examination (MMSE). An acute decline in the MMSE by 2 or more points is predictive of delirium (sensitivity 93%, specificity 90%).[8] The Confusion Assessment Method (CAM) is a diagnostic algorithm for delirium that requires the presence of an acute onset with fluctuating course as well as inattention and either evidence of

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Table I. Clinical approach to minimising and managing delirium in the older person

- Promote a calm, comfortable, reassuring environment with regular patient reorientation
- Use orientating devices, e.g. calendars and wall clocks
- Prevent sleep deprivation and promote non-pharmacological sleep hygiene
- Promote bladder and bowel function, avoiding faecal impaction and urinary retention
- Involve family in care activities
- Limit staff and room changes
- Maintain optimal hydration, nutrition and electrolyte balance
- Avoid medications causing delirium, particularly anticholinergics
- Recognise and manage pain
- Mobilise early to prevent immobility
- Screen routinely for disorientation and mental function fluctuations
- Ensure appropriate use of adaptive devices, e.g. dentures, spectacles, hearing aids, etc.
- Optimise haemoglobin levels, oxygenation and perfusion in patients with cardiopulmonary compromise (including minimising intraoperative hypotension)
- Diagnose and manage infections early

disorganised thinking or an altered level of consciousness (sensitivity 94 - 100%, specificity 90 - 95%).[9]

When delirium occurs despite the implementation of routine universal preventive measures (Table I), management requires comprehensive clinical reassessment aimed at detecting a modifiable factor. Management has many components because delirium has many causes.

Pharmacological treatment of delirium is reserved for patients in whom other measures have failed and whose symptoms pose a safety threat. Low-dose haloperidol is the safest agent provided the total daily dose does not exceed 3 mg. Prophylactic use of this drug in high-risk patients does not reduce the incidence of delirium, but can reduce the duration of delirium and shorten hospital stay.[10] However, patients with parkinsonism or rigidity disorders should not receive antipsychotics. Benzodiazepines tend to worsen and perpetuate delirium and should be avoided, except in the case of alcohol-related withdrawal delirium.

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HIV and the older person

HALIMA DAWOOD, *MB BCh, FCP (SA)*

Principal Specialist; Infectious Diseases, Department of Medicine, Grey's Hospital, Pietermaritzburg

The provision of highly active antiretroviral therapy (HAART) has transformed HIV/AIDS from an acute/subacute disease to a controllable chronic disease. HIV-infected individuals now live longer and grow old. Furthermore, a number of older patients become infected later in life and are not aware of their HIV status. The prevalence of HIV infection in individuals older than 55 years is growing and HIV infection can no longer be thought of as a 'young person's disease'.

The US Centers for Disease Control and Prevention (CDC) considers individuals aged ≥ 55 years as a separate age group without determining further distinctions according to age.[1] The age of 55 is considered high compared with the lower mean age of HIV-infected patients observed in the HIV pandemic.

There is a lack of age-specific data as well as treatment, interventions and prevention programmes in older individuals with regard to HIV infection in South Africa. These individuals are not routinely targeted for HIV testing, resulting in a late diagnosis of HIV infection when patients seek treatment for an HIV-related illness. The presentation of HIV-associated conditions can be nonspecific because the age-related co-morbid illnesses have similar symptoms, e.g. occult malignancy, myelodysplasia and Alzheimer's disease.[2] Diseases that may be an early sign of HIV infection, such as bacterial pneumonia and varicella-zoster virus reactivation, are common in the elderly.[3] In addition, health carers may be reluctant to discuss matters of sexuality with older patients and are unlikely to request HIV screening.

Reasons for the increased HIV risk in the elderly include:

- Age-related changes in immune func-tion contributing to an increased likelihood of seroconversion after sexual exposure and a shorter period of HIV clinical latency.

- Thinning of the vaginal mucosa due to oestrogen loss, rendering women more susceptible to tears during sexual activity and hence facilitating viral entry.

- Older individuals being more likely to receive blood transfusions for co-morbid illnesses.

- Studies indicating that the elderly do not perceive themselves as being at risk of HIV infection and hence have a low frequency of condom use.[2]

A retrospective study of 43 cases in Singapore noted an increasing proportion of older individuals among HIV-seropositive patients (4.8% in 1991 to 16.7% in mid-1996).[2] The mean age at presentation was 59.2 years (range 50 - 75 years). The majority (76.7%) were symptomatic at presentation. *Pneumocystis jirovecci* pneumonia and tuberculosis were the commonest AIDS-defining illnesses.

Studies before the HAART era have indicated that older individuals have a more severe disease course and a shorter survival.[4,5] Pezzotti *et al.*[6] showed a rapid progression to AIDS in patients > 35 years. This progression was independent of sex, CD4 count, and antiretroviral and prophylactic treatments. A physiological decline in immune competence associated with ageing, late diagnosis of HIV infection[7] and presence of an underlying concurrent medical condition may contribute to more severe HIV disease.

Many antiretroviral and antimicrobial therapeutic trials exclude individuals with advanced age and/or concurrent end-organ disorders. Therefore, data with regard to response to antiretroviral therapy, safety of antiretroviral therapy and their associations, drug-drug interactions, short- and long-term toxicity, consequences of co-morbid illnesses or interactions with concomitant pharmacological regimens in the elderly[1] are lacking.

The frequency of adverse events in older patients may be higher due to age-related impairment of renal and liver function and decreased albumin levels.[8] Peripheral neuropathy, and bone marrow[2] and liver toxicity may be more common in this age group. Co-morbid illnesses may require additional medical and psychological care that may further complicate HIV management.

Intergenerational support exchanges are common in South Africa. Older adults are often the caregivers of AIDS patients (children, grandchildren). This care extends to physical, financial and emotional support. A recent survey of households in South Africa revealed that two-thirds of caregivers were female, with almost one-quarter of them over 60 years.[9] Preventive programmes and education for HIV infection are mainly focused on family values and monogamy and exclude older individuals who may be at risk of acquiring infection and may be the primary source of information for these households with regard to HIV prevention and testing.

More insight is needed into the risk factors, behavioural patterns, disease spectrum and treatment options other than HAART in older HIV-infected patients. Older persons contact health care workers more often than the general population for other illnesses – this may be used as an opportunity for HIV counselling.[1]

A high index of suspicion for suspected or undiagnosed HIV disease in an older person should be maintained. Three years after the start of the national antiretroviral drug treatment programme, a timely diagnosis of HIV infection is the key to starting adequate treatment, avoiding disease progression, and delaying opportunistic complications and a potentially severe disease course.[1]

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Driving assessment in the older person

KATHLEEN ROSS*, MB ChB, FCP (SA), Cert Geriatrics (SA)*

Geriatrician in Private Practice, Cape Town Sessional Clinic Consultant, Division of Geriatric Medicine, University of Cape Town/ Groote Schuur Hospital

Family physicians play an important role in addressing the driving ability and safety of their older patients. No test can *directly* predict crash risk in an individual. Instead, physicians can test patients *indirectly* by assessing the functions that are necessary for safe driving. We can assign a risk of future driving problems.[1,2] In addition to being not at risk (which requires follow-up) and permanently at risk, an individual may be temporarily at risk while recovering from an acute event.[1,2]

'Should Granny stop driving?' – When faced with this question, our goal should be to help older drivers stay on the road safely to preserve mobility and independence. If this is not possible how do we come to this conclusion objectively?

The American Medical Association's *Physician's Guide to Assessing and Counselling Older Drivers* is available free on-line and should be referenced for full explanations on how to do the tests mentioned in this article, the red flags and other information (Fig. 1).[1]

Is the patient at risk for medically impaired driving?

When assessing an older patient, perform an initial screen.

Observe the patient. Are there hints that suggest the person may have difficulty driving (e.g. the patient struggles to get to your examination table or has difficulty with attention or memory)?

Be alert to red flags that may indicate problems:
- chronic medical conditions that could affect driving function (e.g. dementia, macular degeneration, residual stroke deficits)
- medications, polypharmacy and alcohol/drug use that have the potential to impair driving ability
- review of systems (e.g. acute events/symptoms that may impair driving performance like black-outs, visual disturbances)
- patient's, family member's or friend's concern.

If the screen is positive ask questions specific to driving (recent crashes, near misses, getting lost), the patient's transportation needs and what social or family support they have. Following this the patient's function needs to be assessed. This should be done with a complete examination.

Assessment of driving-related skills[3]

The three key functions for safe driving are vision, cognition and motor function. These are assessed as follows:
- **Vision** tested by visual acuity (Snellen chart) and visual fields (confrontation testing), both with or without refractive correction.
- **Cognition** tested by the trail-making test part B (TMT-B) and the Clock drawing test (CDT). In addition, the Mini-Mental State Examination (MMSE) is probably helpful.
- **Motor function** tested by the rapid pace walk (RPW) and the manual test of motor strength and of range of motion (ROM).

One would assume that hearing loss would increase driving risk but research outcomes are not conclusive.[4] The doctor should routinely assess hearing.

Interventions

Driving interventions are indicated when:
- **Visual acuity** (VA) < 6/12 for each eye – where the VA of one eye < 6/12 or blind, the minimum VA for the other eye should be 6/9.[5]
- **Visual field** (VF) is < 50 degrees nasal and 70 degrees temporal in respect of at least one eye.[5] VF loss can significantly impact driving safety, especially binocular VF loss.[6] Any deficit found should prompt intervention.
- Time to complete **TMT-B** > 180 seconds.Studies have demonstrated an association between performance on

Is the patient at risk for medically impaired driving?

Perform initial screen
- Observe patient
- Be alert to red flags
  - Chronic medical conditions
  - Medications, polypharmacy and alcohol/drug use
  - Review of systems
  - Patient's or family member's concern

If screen is positive
- Ask driving-specific questions
- Understand the patient's transportation needs
- What social / family support is available

At risk   **Not at risk**

Medical intervention   **Assess driving-related skills**   **Health maintenance**
•For diagnosis and treatment   •Vision   • Successful ageing tips
                                        •Cognition   • Tips for safe driving
                                        •Motor function   • Periodic follow-up

Deficit not resolved   **Deficit resolved**

Driving interventions   **Counsel and follow-up**
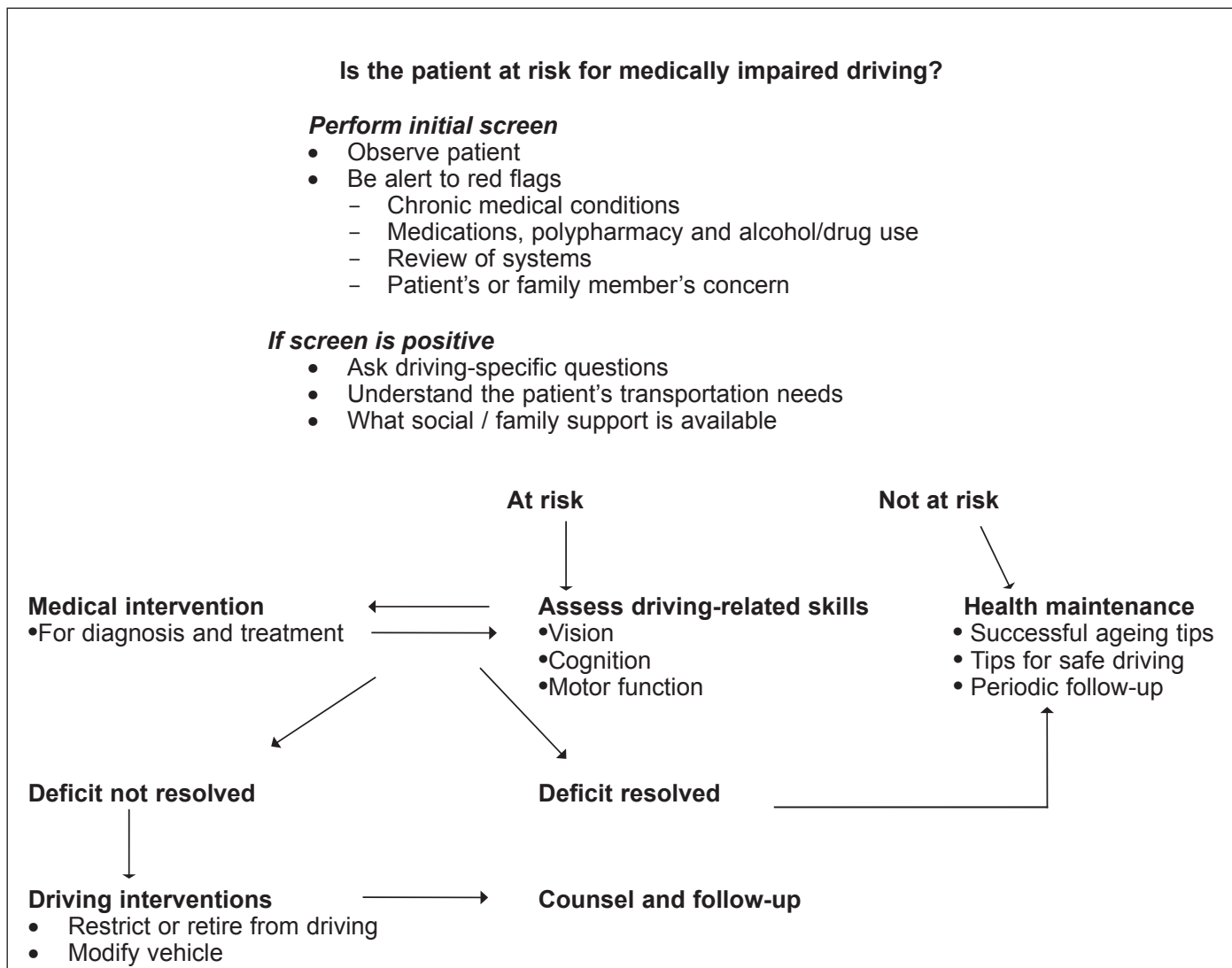- Restrict or retire from driving
- Modify vehicle

Fig. 1. Driving assessment of the older person. (Adapted from Physician's Guide to Assessing and Counselling Older Drivers[1]*).*

TMT-B and cognitive function and/or driving performance.[7]
- Any element in the **Freund Clock Scoring** of the CDT is found to be incorrect.[3]
- **MMSE** < 20 – the MMSE score does not predict crash risk, but it has been demonstrated that individuals with an MMSE score < 20 failed an on-the-road driving test and that the average MMSE at the time of a first crash in Alzheimer's patients was 19.9.[8,9]
- The **RPW** takes > 9 seconds to complete – there is a definite correlation between performance on the RPW and future at-fault crash.[7]
- **Power** < grade 4/5 in either upper extremity or the right and/or left lower extremity.
- The **ROM** is not within normal limits – scoring for ROM is vague and the impact of limited ROM depends on other functions; the result should act as a stimulus to optimise function rather than immediately restrict driving.

Driving interventions may include:
- Recommendations to continue, restrict or to retire from driving completely. This advice is based on the above and on the physician's clinical judgement. Always document the recommendations in the patient's notes.
- Suggestions to change the vehicle (i.e. to automatic, bigger mirrors) or driving behaviour (i.e. driving only in daylight, non-peak hours) which may improve safety.
- Counselling to explain the test results. Give alternative transport options. Involve family members.
- Follow-up of the patient for compliance and to reinforce recommendations.
- If a high-risk patient continues to drive despite repeated recommendations and family intervention, the physician may need to recommend the licence be revoked.

Patients should be referred for medical intervention for diagnosis and treatment of new conditions found during the assessment.

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