Assessment of driving capacity in persons with dementia

Should patients with dementia be driving?

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As medical practitioners, telling a patient with dementia that they cannot drive is challenging. Family members are often scared to ask their loved ones to cease driving and turn to us to make this call and enforce it.

Drivers with mild to moderate dementia have a 2- to 8-fold greater risk of accidents compared with those without dementia. However, not all persons with dementia are unsafe drivers, particularly in the early stages.[1] Differentiation between safe and risky drivers is essential in order to protect the independence and autonomy of competent drivers, and to protect the public from those who are incompetent.

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Cognition, vision and physical function determine capacity to drive safely. In addition, cognition governs the person's *insight* and *judgement* about their driving capacity (Fig. 1).[2] In a person with dementia, reduced insight and judgement and reduced decision-making capacity result in impaired capacity to drive safely (Fig. 2). Vision and physical function will not be discussed further in this article. For more information refer to the American Medical Association's '*Physician's Guide to Assessing and Counseling Older Drivers*' (2nd ed).[3]

When is driving capacity lost in a person with dementia?

It is clear that people with moderate or severe dementia should not drive. The disease results in sufficient cognitive impairment to impair driving ability.[1] This would correlate with a mini mental state examination (MMSE) score of ≤20/30.[4] The differentiation becomes more challenging in the earlier stages of mild cognitive impairment (MCI) and early dementia, correlating with a MMSE score of ≥21/30. It is clear that persons with MCI show poorer performance at on-road driving tests (ORDTs) than healthy controls and their driving ability declines the most over time.[5,6] Persons with mild dementia are at substantially increased risk for unsafe driving, and if they pass the ORDT, they are more likely to be unsafe at the 6-month reassessment.[7]

It is not the dementia diagnosis *per se*, but the impaired driving capacity that should dictate driving cessation. Remember that we are dealing with a progressive disease and the person will need to stop driving at some point.

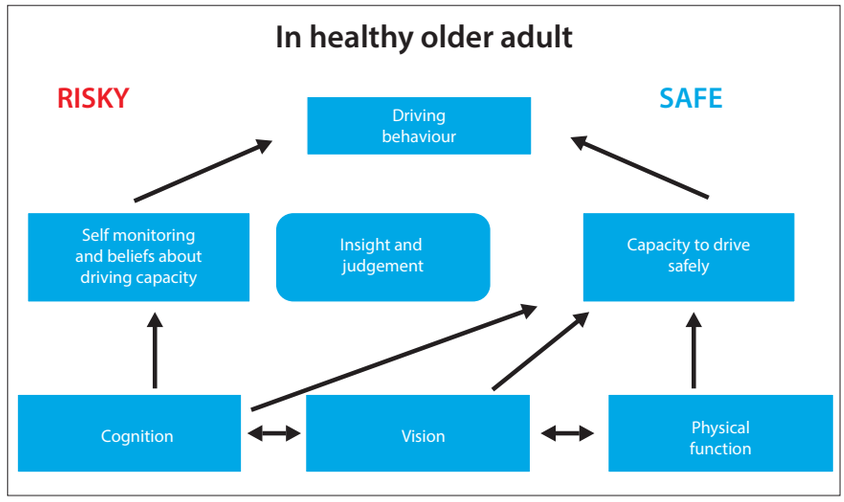

Fig. 1. Cognition governs a person's insight and judgement about their driving capacity.

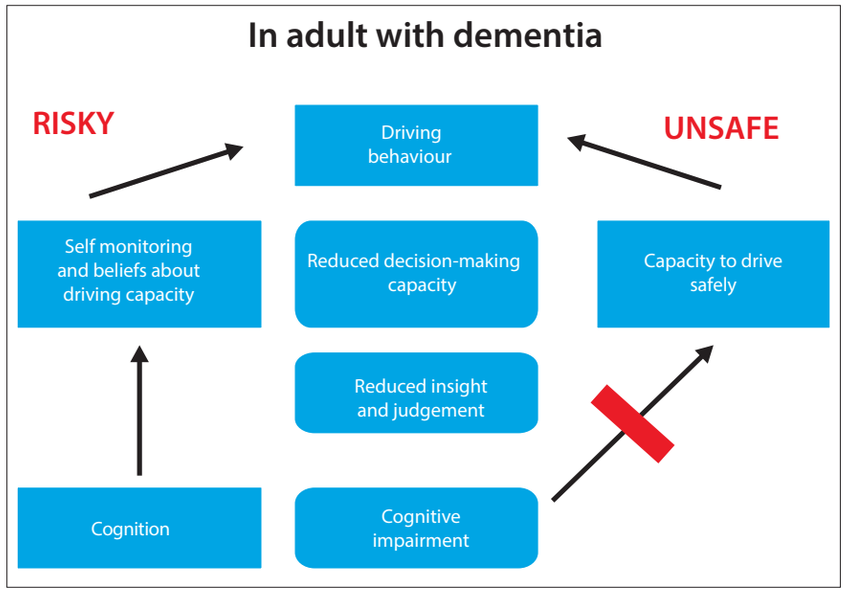

Fig. 2. A patient with dementia has reduced insight, judgement and decision-making capacity, thus increasing driving risk.

How do we correctly decide who should not drive?

Unfortunately, there is no gold standard for determining driving fitness in persons with dementia, nor consensus from the medical fraternity on the assessment of older drivers with cognitive impairment.[8] The American Academy of Neurology published a practice parameter update in 2010, which is useful, but not definitive, and the American Medical Association's Physician's Guide from 2010 is also available, but does not deal with drivers with dementia specifically.[3,7] Currently, we assess patients indirectly by assessing the functions necessary for safe driving ability. The tools used do not directly assess crash risk. Importantly, we cannot use a single test to decide driving ability. Instead all assessment points below, combined, help to formulate an assessment as to whether the person is competent.

1. Full history with an informant – any of the following are red flags:
   - informant reports that the person's driving is marginal or unsafe
   - any crashes or traffic violations
   - self-reported avoidance of certain traffic situations and reduced driving mileage
   - the person is aggressive or has impulsive personality traits
   - the person's self-rating of driving ability is not trustworthy
   - any concerns physically or visually that may make driving more difficult.
2. Full examination – to elicit physical and visual concerns
3. Cognitive assessment – to confirm the diagnosis of cognitive impairment and assess stage
   - MMSE – in MCI and mild dementia, the MMSE is not sensitive enough to predict driving ability and there is no valid cut-off. [8,9] If the MMSE is ≤24/30, this should raise concern.
   - Trail-making test part B (TMT-B) – there is an association between poor performance on the TMT-B and poor driving performance. If the patient takes >180 seconds to complete the test this is a red flag.
   - Trail-making test part A (TMT-A) – this should be done before TMT-B as a warm-up.[10]
   - Clock drawing test (CDT)[11] – the Freund scoring criteria should be used. Any abnormality in completing this test is a red flag.

Instruction on the administration of TMT-A and B,[10], and the CDT[11] is available on the internet.

Assess risk:

- Always use good clinical judgement
- *The patient is low risk if*:
  - minimal red flags
  - MMSE score is >24
  - he/she scores well on other cognitive tests
- *The patient is high risk if:*
  - moderate or severe dementia
  - multiple red flags
  - abnormal scores on cognitive tests.

Further management – this will depend on the risk:

- *Low-risk patient* – need careful reassessment every 6 months or sooner if indicated. Address plan of driving cessation
- *High risk patient, LESS URGENT* – a plan of driving cessation needs to be put in place, in writing with a time frame
  - Ask the patient to voluntarily stop driving
  - Limit driving to day-time, local areas and non-rush hours
  - Discuss and plan alternative transport/family support
  - Follow-up regularly to assess progress.
- *High-risk patient, VERY URGENT* – a plan of immediate cessation needs to be put in place
  - Ask the patient to stop driving voluntarily
  - Inform the patient/family of the financial/insurance/legal consequences of continued driving when unfit
  - Consider removing the vehicle/keys
  - Inform the patient and family of your legal obligations, including reporting the patient as unsafe to the traffic department if driving is not stopped.

The process of driving cessation usually takes time and patience. It helps to plan for this eventuality from the time of the initial dementia diagnosis.

References

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Summary

- Drivers with mild to moderate dementia have a 2- to 8-fold greater risk of accidents than those without dementia.
- Not all persons with dementia are unsafe drivers, particularly in the early stages.
- Cognition, vision and physical function determine capacity to drive safely.
- There is no gold standard for determining driving fitness in persons with dementia, nor consensus from the medical fraternity on the assessment of older drivers with cognitive impairment.
- Currently, we assess patients indirectly by assessing the functions necessary for safe driving ability.