



Review

Mild cognitive impairment: Safe to drive?



Kirsty Olsen*, John-Paul Taylor, Alan Thomas

Institute for Ageing & Health, Newcastle University, Campus for Ageing & Vitality, Newcastle upon Tyne NE4 5PL, England, United Kingdom

ARTICLE INFO

Article history:

Received 4 March 2014

Accepted 10 March 2014

Keywords:

Ageing

Mild cognitive impairment

Driving

ABSTRACT

Driving is an important aspect of daily living and for many older people provides autonomy and psychosocial benefits. Cognitive impairment has been found to impact driving skills at the level of dementia, however, uncertainty remains around the impact of a diagnosis of the pre-dementia condition mild cognitive impairment. Current official guidelines are unclear, and assessment of fitness to drive can be problematical. This editorial examines current official guidance available to the clinician and problems with existing assessment as well as the current position of research specifically into MCI and driving, and considers future direction for research in this field.

© 2014 Elsevier Ireland Ltd. All rights reserved.

Contents

1. Introduction	82
2. Driving and older people	82
3. Current guidelines	83
4. Problems with assessment	83
5. Current literature on MCI and driving	83
6. Impact of diagnosis	83
7. Conclusions	84
Contributors	84
Competing interests	84
Funding	84
Provenance and peer review	84
References	84

1. Introduction

Cognitive impairment can have a significant impact upon driving safely, particularly when the level of dementia is reached (e.g. [1,2]). However, for those with a diagnosis of mild cognitive impairment (MCI) the impact is not so clear-cut, and this raises a number of issues for both clinicians and patients. MCI has several closely related definitions but perhaps is most commonly defined as the presence of clinically detectable memory decline with or without other cognitive deficits associated with only minimally impaired activities of daily living, that is not severe enough to be classified as dementia, but is worse than expected for age [3]. MCI is considered

to be an early stage of the dementing process, with a high rate of conversion to dementia, particularly Alzheimer's disease [4]. However, not all patients with a diagnosis of MCI will develop a dementia [5] and this makes it an uncertain construct and in the context of driving, makes it difficult to build legislation upon. The prevalence of MCI varies with definition but using the Peterson criteria, it has been estimated that 3% of an elderly population will meet the diagnostic criterion for a diagnosis of MCI [6] As with dementia it is strongly age associated. Currently, the National Office of Statistics, states that 17.6% of the population is over 65 years of age, with this set to rise to 20.3% by 2025 [7], showing that the numbers of those with mild cognitive impairment will increase substantially.

2. Driving and older people

Driving is an important aspect of daily living, for many people. For older people it can provide autonomy, continuing mobility, and

* Corresponding author. Tel.: +44 0191 2481344; fax: +44 0191 2481301.

E-mail addresses: kirsty.olsen@ncl.ac.uk (K. Olsen), john-paul.taylor@ncl.ac.uk (J.-P. Taylor), alan.thomas@ncl.ac.uk (A. Thomas).

other psychosocial benefits [8]. Those who need to cease driving report increased feelings of depression [9] and reduced access to social activities, household activities (e.g. shopping) and medical appointments [10].

Presently, 79% of people aged 60+, and 58% of people aged 70+ hold a current driving licence in the UK [11]. It has been suggested that driving is the 'ultimate Instrumental Activity of Daily Living' [12], as it requires co-ordination and the ability to mentally and physically multi-task. By definition, those with a diagnosis of MCI will experience some mild impairment of ADL's. Early diagnosis can allow appropriate access to treatment and interventions [13] and permit clinicians and individuals to plan ahead for the future [14]. However, MCI is an 'uncertain' label [13] and can often be mis-understood [15] and this may create friction between the individual, clinician and family when key decisions need to be made.

From a driving perspective, early diagnosis of cognitive difficulties can also lead to the question of someone's suitability to hold a driver's licence [16] and it can be difficult for clinicians and individuals to pin point when it becomes unsafe to drive. However, symptoms in MCI relevant to driving include decreased concentration, minor problems with geographical orientation and problems performing parallel actions [13].

3. Current guidelines

Official guidance available for individuals and clinicians currently appears to offer inconsistent classifications and no clear pathway for action. At present, guidance available to patients in the UK [17] requires the reporting of cognitive problems, memory problems (severe) and dementia. While the diagnosis of dementia may be more concrete, no definition of cognitive problems is given, and MCI is not defined as a separate entity, leaving the term of 'cognitive problems' open to broad interpretation. This may leave to individuals with MCI unsure whether there is a need to report their diagnosis, to the DVLA, or their insurance company. Additionally the guidance for clinicians in the UK [18] is not specific. MCI need not be reported if it is felt driving has not been affected. But if there are concerns, notification is required, so follow up can occur. Presently there is no mandatory testing. This leaves the clinician with the problem of assessing how severely, if at all, driving skills have been compromised. Throughout Europe the picture is mixed with some countries issuing unlimited lifetime licences (e.g. Belgium, Germany), some that do not require a medical exam but rely on an administrative or self report procedure of medical conditions (Sweden, UK), others that require a medical assessment for renewal when a specific age is reached (e.g. Italy, Denmark, Finland), and some countries requiring that licences must be renewed every 10 years and include a medical examination (e.g. Romania, Estonia, Spain) [19]. In the USA, the NHTSA recommends that drivers with cognitive problems should undergo assessment. However, this is given in terms of dementia diagnosis, with no specific mention of MCI [20]. Therefore overall, there exists a lack of consensus and thus highlights it is a key issue to be addressed.

4. Problems with assessment

Assessing a person's fitness to drive when they have cognitive impairment is problematical. It has been reported that a general cognitive test battery [21,22] selective attention tasks [23] maze test performance [24] and visuospatial tasks [25] may predict safe driving behaviour. However, many studies contest the usefulness of cognitive testing as a measure of driving ability [26,27]. Also, safe driving can depend on additional factors such as vision and hearing [28], which in conjunction with the cognitive impairment could affect driving ability. There currently is no definitive test or

battery that can be used, and as these studies pertain to 'mild' or early stages of Alzheimer's disease, rather than specifically MCI, the outcomes may well not be transferable to this population.

5. Current literature on MCI and driving

In the literature, currently, there are a few empirical studies of driving performance and MCI, although the criterion used for defining MCI often differs between studies, and so it is difficult to say how generalisable and applicable the findings may be. Wadley et al. [29] used the Peterson criteria to identify individuals with MCI for their investigation, and found that on ratings of both global and discrete driving manoeuvres, those with MCI performed worse than healthy control subjects. However, these differences were not at a level of frank impairment in driving skills, but were simply of 'not optimal' performance. Findings by Devlin et al. [30] were also similar. In this instance the inclusion criteria was defined as symptomology of MCI/early cognitive decline identified by a geriatrician in a working memory clinic and those with this definition of MCI performed more poorly than controls across a number of domains (e.g. reaction time, hesitations), but trends did not reach statistical significance. Frittelli et al. [31], found that those with MCI performed worse than a control group in a driving simulator. This, in addition to Wadley et al. [29], suggests that at the stage of an MCI diagnosis, driving ability may be affected. A different approach, and one arguably more relevant, as it is based upon 'real world' situations rather than a simulated condition, was taken by Jeong et al. [32] who found there was no difference in the history of reported crashes and traffic citations between a population of elderly controls and an MCI group. This suggests that although subtle neurocognitive impairments may be present, driving may remain safe in people with MCI. Interestingly, this study also found that performance on a digit span, word list, recognition and recall was correlated with situational avoidance in driving (e.g. driving in bad weather or at night), suggesting that the better performance in a real world situation compared with cognitive tests may be due to self regulation. In addition to this O'Connor et al. [33] also found that those with MCI (defined using the Peterson criteria) and dementia were more likely to avoid complex driving situations (e.g. high traffic roads and unfamiliar areas) than controls.

Regarding MCI subtypes, a study by O'Connor et al. [34] looked at differences between a normal, amnesic, non-amnesic and multi-domain MCI group and found, using self-report measures, that at baseline there was little difference between the groups. But over time both the amnesic and non-amnesic group showed decline in driving frequency, with non-amnesic and multi-domain groups reporting increased difficulty in common driving situations. Further to this, Bangen et al. [35] concluded that those with non-amnesic MCI show greater impairment in abilities relating to health and safety.

Currently therefore the picture with regards to MCI is unclear. The situation is further complicated by the movement towards the diagnosis of prodromal or preclinical Alzheimer's disease rather than MCI which could potentially have negative consequences in relation to driving if people are given the diagnosis 'Alzheimer's disease' when their cognition is only at MCI level. There is no evidence of how these pre-dementia disease states interact with driving skills, and whilst it seems a diagnosis of MCI can have an adverse effect on cognitive measures of driving ability, albeit a mild one, it is not clear this actually impairs driving performance.

6. Impact of diagnosis

An important point for patients is they may be reluctant to receive a diagnosis of MCI if they fear that as a consequence

Download English Version:

<https://daneshyari.com/en/article/10743527>

Download Persian Version:

<https://daneshyari.com/article/10743527>

[Daneshyari.com](https://daneshyari.com)