Medicine in the elderly

The prevalence of drivers in acute geriatric wards

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Summary

An audit of 150 patients on five acute geriatric wards found that 28 (19%) still drove. Forty-three (28%) used to drive but had given up, whilst 79 (53%) (76 of whom were female) had never driven. Former drivers gave the main reason for stopping as cost. No driver could recall being advised about driving by a doctor. Twenty-two drivers (79%) had a significant clinical condition that could affect driving, ranging from blackouts to arthritis.

It is recommended that all elderly patients should be asked if they drive and any clinical conditions they might have that would adversely affect their driving be sought. Appropriate advice should be given by doctors to their elderly patients in order to safeguard them and the public from road traffic accidents.

Keywords: driving, elderly

The Road Traffic Act¹ requires notification to the Driving Vehicle Licensing Agency (DVLA), immediately a person becomes aware of a disability likely to affect safe driving. If they are in contact with a doctor it is his/her responsibility to advise appropriately about driving and notification to the DVLA.

There is evidence that the skills needed for safe driving deteriorate in later years.² There are three areas of function integral to driving performance, sensory, cognitive-perceptual and motor. All decline to some extent with advancing age.^{3–6} It is not surprising, therefore, that older drivers have higher crash rates per mile driven than any other age group except for those under 24 years of age.⁷ There is no current information available on the prevalence of elderly drivers admitted to hospital or seen in out-patient clinics. We have audited 150 elderly patients on the subject of driving and clinically assessed those who are still driving.

Methods

Approval was obtained from the Wirral Health Authority Research Ethics Committee. We interviewed 150 alert patients, (abbreviated mental test score at least 8 out of 10, mean age 83.2 years, 87 females) on five acute geriatric wards over a six-month period. All were interviewed individually in private by a doctor unknown to them, and all were convalescent awaiting discharge. A formal assessment of vision (visual acuity and visual fields), and cervical rotation was carried out on current drivers.

All visual testing was performed with corrected lenses where appropriate. Each patient was asked to read with each eye in turn, a standard Snellen chart at 6 metres. The results were then recorded as 6/6, 6/12, 6/18, etc. Visual fields were tested by confrontation using a large red and then white pin.

Cervical rotation was measured by asking each patient to 'Look over your shoulder, (right and left) as you would if parking a car'. They were then asked to touch each shoulder in turn with their chin. Rotation from the neutral (zero starting) position (ie, face centre) to the right and then left shoulder was measured using a goniometer. The maximum rotation achieved from the neutral position was then recorded.

Results

Only 28 (19%) (mean age 80.1 years, four females) of patients still drove; 43 (28%) (mean age 86.4 years, seven females) used to drive but had now stopped, whilst 79 (53%) (mean age 83.2 years, 76 females) had never driven. The main reasons for stopping driving were: cost (36), concern about health (three), road traffic accidents (three) and one former driver was advised to stop by a doctor on the grounds of poor vision. Two drivers who ceased driving after road accidents admitted that they thought the accident had occurred because they had not seen the other driver, whilst the third former driver admitted that he had not been able to brake in time. Of the former drivers who ceased because of poor health, one ceased following a stroke although physically he had made a good recovery, one ceased because he felt his reactions were no longer as good as they used to be, and the third because of poor vision (macular degeneration).

Increased costs had caused 19 (68%) drivers to reduce their mileage in the last 10 years but 15 (54%) still drove on most days. Nine (32%) drivers admitted to having had a single road traffic accident in the last five years, whilst one driver admitted to four separate accidents in the last five years. All stated that the accidents were not their fault and involved a car colliding into the back of them. Only three (11%) drivers would stop driving if alternative transport was available. No driver had ever been advised by a doctor about driving.

Relevant clinical conditions affecting drivers from their past medical history were non insulin-dependent diabetes (three patients), one of whom had a severe

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Box 1

Guidelines for elderly drivers

- avoid night driving where possible
- optimise vision and ensure regular visits to the optician
- be aware that response time may not be as fast as it used to be and make adequate provision for this by ensuring more than the recommended distance between you and the car in front and keeping well within the speed limit. Avoid rush hour traffic where possible
- you may be more vulnerable to medications that might have an effect on your driving, if in doubt ask your doctor for advice
- your doctor may not be aware that you drive; if you have to see a doctor about your health let your doctor know that you still drive
- fixing an auxillary mirror to your car wing mirror will increase your field of vision and may prevent an accident

Box 1

Box 2

DVLA guidelines on some common medical conditions

- angina whilst driving: stop driving until symptoms controlled
- myocardial infarction or insertion of permanent pacemaker: stop driving for 1 month
- syncopal episode, cause unknown: stop driving for at least 12 months
- stroke/transient ischaemic attack: stop driving for at least 1 month
- epilepsy: clear one year before re-issue or clear three years with fits at night only
- non-insulin-dependent diabetes: controlled by diet alone, no need to inform the DVLA. Controlled by oral hypoglycaemics, issued with a licence until 70 years, provided no visual problems and no hypoglycaemic problems
- insulin-dependent diabetes: 1, 2 or 3-year licence; satisfactory health must be confirmed on renewal
- early dementia: driving is permitted provided there is adequate retention of insight and judgement, and there is no significant disorientation in time and space. Annual medical review is required

Box 2

diabetic retinopathy, one had had at least two admissions with hypoglycaemic episodes and one with poor visual acuity); ‘blackouts’ (five patients); transient ischaemic attacks (two patients); and angina whilst driving (three patients). Eighteen had arthritis affecting either hip, knees or neck. Clinical assessment of drivers revealed one had tunnel vision, one was blind in the right eye following a failed cataract operation and three had poor visual acuity (worse than 6/18) even with glasses. Cervical rotation was reduced (less than 45 degrees from the neutral position to the left and/or right shoulder, respectively) in 16 (57%). Fifteen drivers in total had a medical condition prior to this admission, requiring notification to the DVLA, (two drivers had more than one condition). Only five out of 15 (33%) drivers with clinical conditions requiring notification had informed the DVLA (see table). Only six of the drivers had no notifiable medical condition or impaired cervical rotation.

Discussion

The actual number of elderly drivers forms a small percentage of the approximately 25 million vehicle licence holders in the UK. The number of elderly drivers is, however, likely to grow in future years because of the ageing population.

At the beginning of this century driving was available to a select privileged few, wealthy enough to afford a car. Social forces dictated that driving belonged to the domain of men not women. This probably accounts for the fact that only four of the 28 elderly drivers were women and just over 50% (79) of patients had never learnt to drive. The majority of ex-drivers had ceased driving because of cost not because of medical considerations. It is difficult to account for all of the road traffic accidents involving a collision from the rear, which would suggest that the accidents were not the fault of the elderly driver.

DVLA recommendations on driving with some common medical conditions are given in box 1. In the UK at present a driver is issued with a ‘till 70’ years of age licence and thereafter a three-year licence following completion of a medical questionnaire on the licence application form. The Road Traffic Act states that if a driver has a disability it is the duty of the licence holder to notify the DVLA on being made aware of that disability.

One of the main reasons for withholding the licence following transient ischaemic attack or stroke is the risk of a sudden disabling event such as a recurrent attack. In the case of loss of consciousness in which investigations have not revealed a cause, it is recommended that patients should cease driving for at least one year.⁸ Diabetics who have frequent hypoglycaemic episodes or loss of awareness of hypoglycaemia must cease driving and will require a specialist assessment before driving can resume.

Driving must also cease if visual acuity becomes worse than 6/12. The minimum visual field for safe driving is defined as ‘of at least 120 degrees width on the horizontal and of at least 20 degrees from the central fixation point above and below the horizontal on any meridian, measured by perimetry using a 3 mm white test object at 1/3 metre’.

Musculoskeletal problems are common in the elderly.⁹ Arthritis results in a reduction in the range of movement and pain, producing hesitancy on movement. In this study 18 (64%) drivers had arthritis. A reduction in cervical rotation was present in 16 (57%) elderly drivers. In young adults cervical rotation is approximately 90° from the neutral position (face centre) to the right and left shoulder, respectively. Cervical spine rotation, peripheral vision and grip are necessary to turn a car. Cervical spine stiffness may add to a reduction in peripheral vision and limit perception of oncoming traffic.¹⁰

Table Diagnoses of some elderly drivers *vs* the number informing the DVLA

Condition	Patients (n = 15)	No of drivers notified DVLA
Angina	3	0
Transient ischaemic attacks	3	1
Blackouts	5	1
Visual acuity	3	1
Visual fields	2	2
Hypoglycaemia	1	0
Total	17*	5

*Some patients had more than one condition

Management of the elderly driver

- minimise drug use. If on drugs with sedative effects, warn the patient and suggest avoiding alcohol
- manage underlying medical problems
- maximise vision (eg, refer for new glasses)
- refer to a Driving Assessment Centre for assessment for vehicle adaptations that might improve the quality of driving
- document when advice to inform the DVLA has been given
- if in doubt contact the Medical Advisor at the DVLA, Swansea

Box 3

Summary/learning points

- elderly drivers (> 70 years) have higher crash rates per mile driven than any other age group except those under 24 years
- there is a decline in sensory, cognitive and motor function with age which may affect the elderly driver
- some elderly drivers continue to drive and fail to inform the DVLA, despite having an appropriate clinical condition
- doctors often fail to advise elderly patients who drive when they have an appropriate clinical condition
- when an elderly patient enters hospital it should be routine to enquire if they are still driving. If they have an appropriate medical condition doctors should advise them on the current DVLA guidelines

Box 4

None of the patients with reduced cervical rotation had auxillary mirrors fitted to their cars. A reduction in cervical rotation does not require notification to the DVLA.

It is difficult to be sure how many of the 28 drivers were intending to drive after this discharge. None of the drivers at the time of interview could recall being advised by a doctor on their driving, although the doctor who carried out the interview and assessment subsequently informed each patient's consultant where appropriate, leaving it to them to advise their own patients.

In conclusion we have looked at a select elderly population in whom the prevalence of current drivers was 19%. Cost rather than health was the main factor for giving up driving.

Many of the elderly drivers had failed to inform the DVLA of relevent clinical conditions. However, since none could recall receiving advice on driving from a doctor we suspect that failure to inform is partly due to ignorance and the failure on the part of medical staff to advise. Although no one wants to restrict the freedom of elderly drivers, we have a responsibility to them to advise on medical conditions that may impair their driving. Failure to do so may result from a combination of ignorance, ie, the doctor may not be aware of those conditions which could be reported,¹¹ and the fact that doctors may fail to appreciate that some elderly patients still drive. Screening of elderly patients who drive could make driving safer for some of them by advising them, for example, to attend the optician for new glasses to improve visual acuity where correctable and/or the addition of auxillary mirrors in the case of reduced cervical rotation. Doctors should actively enquire if their elderly patients are driving, be aware of the current recommendations from the DVLA on fitness to drive, and provide advice as required.

1

Road traffic act. London: HMSO, 1988; sections 92 and 93.

2

Graca JL. Driving and ageing. *Clin Geriatr Med*, 1986; 2: 577–89.

3

Retchin SM, Cox J, Fox M. Performance based measurements among elderly drivers and non drivers. *J Am Geriatr Soc* 1988; 36: 813.

4

Shepard RJ. Gross changes of form and function. In: *Physical activity and aging*. Rockville, MD: Aspen Publishers, 1987; p44.

5

Spirduso WW. Reaction and movement time as a function of age and physical activity level. *J Gerontol* 1975; 30: 435.

6

Welford AT. Psychomotor performance. *Annu Rev Gerontol Geriatr* 1984; 4: 237.

7

Cerrelli E. *Older drivers, the age factor in traffic safety*. Washington, DC: National Highway Traffic Safety Administration (NHTSA Technical Report No DOT-HS 807402) Feb 1989.

8

For Medical Practitioners at a Glance. Guide to current medical standards to fitness to drive. Issued by Medical Advisory Branch Driving and Vehicle Licensing Agency, Swansea, UK, September 1993.

9

Moskowitz RW, Howell DS, Goldberg VM, eds. *Osteoarthritis. Diagnosis and management*. Philadelphia: WB Saunders, 1984.

10

Underwood M. The older driver. Clinical assessment and injury prevention. *Arch Intern Med* 1992; 152: 735–40.

11

King D, Benbow SJ, Barrett JA. The law and medical fitness to drive – a study of doctors' knowledge. *Postgrad Med J* 1992; 68: 624–8.