

rate and tidal volume. The descending limbic pathways were, apparently, not interrupted and emotional stimuli led to modulation of automatic respiration. Automatic respiratory control was, in turn, disrupted by the bilateral pontine lesions and this led to the development of apneustic breathing. The most striking feature of the apneustic pattern was that the

inspiratory spasms could only be precipitated by emotional outburst. This finding would support the view that the descending limbic pathway directly influences automatic respiratory control. It also demonstrates that emotional input may precipitate apneustic respiration in the presence of disrupted automatic control due to pontine disease.

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Syncope: driving advice is frequently overlooked

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Summary

Consecutive referrals to a syncope clinic were asked about the frequency of enquiries about driving status by referring general practitioners and/or hospital specialists. Although 40% were drivers, only 13% of patients had been previously asked about driving, and 12% of drivers had experienced symptoms whilst driving. This represents an important oversight on the part of referring doctors.

Keywords: syncope, driving

Drivers who suffer from recurrent syncope may be a hazard on the road, yet the importance of syncope as a cause of driving accidents has received little attention in the literature.^{1,2} In the UK, it is the patient's responsibility to notify the Driving and Vehicle Licensing Agency (DVLA) if they have experienced an episode of loss of consciousness.³ Doctors should advise their patients of this.⁴ The DVLA may approach the attending physician for a report once the patient's consent has been obtained. A licence may be issued if the disorder can be controlled.⁴ Attending physicians are often unclear about their responsibilities in reporting syncope or advising about syncope and driving and physicians generally have scant knowledge of medical regulations on driving.² Our objective was to determine

how often patients with recurrent syncope were asked about driving status by either general practitioners or hospital specialists.

Methods and results

Consecutive referrals to the syncope clinic during a two-month period all completed a semi-structured questionnaire. Patients were asked about the frequency of enquiries about driving status by referring general practitioners and/or hospital specialists. Patients were also asked about their driving status and whether they considered that they were safe to drive. Presenting symptoms and their attributable causes were also detailed.

Sixty-four referrals were studied: median age 72 years (range 21 to 91 years), 34 male. All were secondary or tertiary referrals. Symptoms had been present for an average of four years (range one month to four years) with an

Hospital specialists who had investigated patients for symptoms of syncope

- general physicians 58%
- cardiologists 27%
- ear, nose and throat surgeons 9%
- neurologists 4%
- psychiatrists 2%

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average of 16 episodes (range one to 100 episodes). Only 13% had been previously questioned about driving. Those not asked included two drivers of heavy goods vehicles (34 and 43 years old, respectively). All patients had been reviewed for symptoms of syncope by a general practitioner. In addition, 60 patients

had been reviewed on one or more occasions by hospital specialists (box).

Twenty-five patients (40%) were drivers; mean age 62 years. All experienced syncope. Only 12 drivers had experienced a prodrome prior to syncope; in five, symptoms occurred during head-turning or whilst sitting. In two

Table DVLA recommendations for cardiovascular syncope (adapted, with permission, from ref 3).

<i>Cardiovascular disorder</i>	<i>Group 1 entitlement</i>	<i>Group 2 entitlement</i>
<p>Arrhythmia Including any significant disturbance of cardiac rhythm, ie, bradycardia due to atrioventricular block (including congenital heart block) or sinus node disease; or a supraventricular (including atrial flutter and fibrillation), junctional or ventricular tachyarrhythmia NB Transient arrhythmias occurring within the acute phase of a coronary event or heart surgery normally will not debar and the recommendations for arrhythmia for Group 1 and 2 entitlement therefore do not apply to events in the acute phase</p>	<p>Driving must cease with an arrhythmia which may distract the driver's attention or render him/her liable to sudden impairment of cerebral function. Driving will be permitted when satisfactory control of symptoms is achieved. Short period licence subject to regular medical review for patients with history of idiopathic ventricular tachyarrhythmia</p> <p>Licence retained till 70 (ventricular tachyarrhythmia excepted) provided there are no other disqualifying conditions</p>	<p>Recommended refusal or revocation if persistent or recurrent arrhythmia or conduction defect within the past 5 years and has caused within the past 2 years or is likely to cause sudden impairment of consciousness or distracts the driver's attention. If the arrhythmia does not cause such symptoms, may be licensed if there is no significant structural cardiac abnormality, ie, no documented significant echocardiographic abnormality is present, and exercise testing can be completed as per national guidelines. In exercise testing for arrhythmias medication need not be discontinued before test is undertaken</p> <p>Medication prescribed to control or prevent the arrhythmia is not a bar provided it does not cause symptoms likely to impair driver's performance (see Drug treatment)</p> <p>Where rhythm disturbance is treated by aberrant pathway ablation relicensing may occur 3 months after procedure provided: no recurrence and no anti-arrhythmic medication required and no other disbaring aspect/condition is present.</p>
<p>Malignant vasovagal syndrome and cardiogenic syncope</p>	<p>Cases individually considered by DVLA</p>	<p>Cases individually considered by DVLA</p>
<p>Simple syncopal attack(s) – physiologically provoked and postural hypotension</p>	<p>Need not be notified and driving need not cease if not associated with heart disease</p>	<p>As for Group 1</p>
<p>Drug treatment – side-effects from medication likely to impair driving performance</p>	<p>If causes symptoms which will affect driving ability or sudden and disabling vertigo or syncope, driving must cease until satisfactory control of symptoms achieved</p>	<p>Applicants or licence holders suffering symptoms causing or likely to cause sudden impaired consciousness or significant constitutional symptoms should be regarded temporarily unfit until the symptoms have completely resolved. If symptoms are likely to be recurrent or permanent, recommended refusal or revocation</p>
<p>Loss(es) of consciousness in which investigations have not revealed a cause, ie, there is an open-ended liability for recurrence, and the cause is unexplained</p>	<p>With a single episode at least one year off driving with freedom from such attacks during this period. Review licence for 1/2/3 years. Retained till 70 after 4 years free (ie, treated as for solitary fit)</p>	<p>Recommended refusal or revocation. After 5 years freedom from such episodes, specialist assessment may be undertaken to decide when driving may restart</p>

Group 1 = Motor cyclists and car and light vehicle group drivers

Group 2 = Goods Vehicle Drivers, driving vehicles in excess of 3.5 metric tons laden weight, bus drivers and coach drivers. Group 2 standards are also generally applied to emergency police, firemen and ambulance drivers as well as taxi drivers

patients, symptoms occurred when driving and one was involved in a fatal motor accident. Most (84%) drivers considered themselves safe to drive and 88% reported that driving was important to them.

The attributable diagnoses in drivers were carotid sinus syndrome in 10 patients (cardioinhibitory in seven and mixed cardioinhibitory or vasodepressor in three), vasovagal syncope (seven patients), atrioventricular block, ventricular tachycardia, orthostatic hypotension, and epilepsy (one each), while in four patients the syncope was unexplained.

Comment

Although 40% of patients attending a syncope clinic were drivers, only 13% had been previously asked about driving and 12% of drivers had experienced symptoms whilst driving. This represents an important oversight on the part of referring doctors.

Attending physicians are often unclear about their responsibilities in reporting such attacks, and about the advice they should give to patients on when to report symptoms and when to drive (table).¹ Doctors in the UK should advise patients with syncope to inform the DVLA and should document such discus-

sions. Direct contact with the DVLA is only allowed if there is evidence of continued driving which constitutes a hazard to others. This contrasts with the position in the USA and certain provinces in Canada where the doctor is bound by law to report patients to the licensing authorities. Compliance of patients with reporting requirements to the licensing authorities is also a problem. There is evidence that a significant proportion of patients with epilepsy have driven illegally and have failed to inform the licensing agency.⁵ Certain insurance companies will abrogate responsibility for damages in accidents involving individuals who fail to report their medical condition. This information should be given to patients when advising about driving.

Advice is not always negative. A diagnosis can be made in many patients with syncope and, after appropriate intervention, patients may resume driving. For syncope which remains unexplained, at least one year off driving with freedom from attacks (for a single episode) or five years off driving with freedom from attacks (for recurrent episodes), is recommended.⁴

Thus, general practitioners and hospital doctors should routinely ask patients with syncope about driving status and provide advice appropriate to the current guidelines.

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