Excessive daytime sleepiness and driving: regulations for road safety

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ABSTRACT – Individuals who fall asleep at the wheel usually do so because they are sleep deprived. It is likely that they are aware of the circumstances leading to sleepiness and of feeling sleepy before the event. Nevertheless, sleepiness sufficient to cause or contribute to an accident may involve a disorder of sleep, and little attention has been given to such disorders in the consideration of accident prevention. In this context, the Department for Transport brought together a group to explore the potential significance of sleep disorders in accidents. The Driver and Vehicle Licensing Agency has clarified existing regulations, particularly those that concern vocational drivers.

KEY WORDS: medical licensing, regulation, road vehicle accidents, sleep disorders

Individuals fall asleep at the wheel usually because they are sleep deprived. It is likely that they are aware of the circumstances leading to sleepiness and of feeling sleepy before the event.[1,2] Nevertheless, sleepiness sufficient to cause or contribute to an accident may well be multifactorial in origin. The possible contribution of a sleep disorder in causing sleepiness may not have been given sufficient weight in the investigation of accidents.

With neurological conditions, the effects of poor nocturnal sleep on daytime function, the increased liability to sleepiness, *per se*, and the cataplectic manifestation of the narcoleptic syndrome may all increase the risk of an accident.[3,4] Patients with Parkinson's disease may have poor quality and shorter nocturnal sleep, together with inappropriate or unexpected sleep during the day.[5–10] Further, patients with some neuro-degenerative diseases are at risk of developing chronic respiratory failure as a result of diaphragmatic weakness and, in this way, may also develop daytime sleepiness.

Drivers with the obstructive sleep apnoea syndrome are known to have an increased rate of accidents.[11–18] Individuals with sleep apnoea do not necessarily appreciate that sleepiness could have been the cause of their particular accident. Most realise they are sleepy, but many may not realise that they are unusually sleepy. Indeed, long-term sleepiness during the day can lead to loss of a sense of what is an acceptable level of alertness. Patients with excessive daytime sleepiness may lose their perception or judgement of sleepiness, though some are aware of the problem and try to devise strategies to reduce their exposure to risk. Treatment of patients with obstructive sleep apnoea with continuous positive airway pressure (CPAP) is effective as it reduces both apnoeas during the night and sleepiness during the day,[19–21] but a minority of patients using CPAP still feel sleepy.

Against this background, the Department for Transport convened a workshop of experts in the behavioural and medical aspects of sleep to explore the potential significance of sleep disorders in accidents and to consider the role of a regulatory authority in the medical licensing of drivers with excessive daytime sleepiness.

Recommendations of the workshop

The workshop concluded that drivers with sleep disorders may pose a high risk, and that sleep disorders may make a significant contribution to accidents in the elderly. Further, drivers with sleep disorders may be less able to cope with the sleep disturbance likely to be inherent in a lifestyle involving shiftwork. Particular attention should be paid to those drivers with narcolepsy and sleep apnoea. Vocational drivers (of Large Goods Vehicles (LGVs) and Passenger Carrying Vehicles (PCVs)) requiring CPAP should use a machine that records 'mask on' time, as medico-legal issues could arise with respect to the extent of the use required to have a satisfactory clinical effect. Indeed, the effectiveness of treatment needs to be assessed from time to time.

A key issue is how to address the problem of undiagnosed, but potentially high-risk, drivers with sleep disorders. It is particularly important that the sleep disorder of a driver seeking a vocational licence (LGV/PCV), with the relatively higher exposure to the risk of an accident, is adequately investigated. Vocational drivers tend to spend much longer hours on the road, may be involved in shift work and may feel under pressure to drive when not fit. In this context, companies operating fleets of vehicles may have information that would reveal working practices that may lead to accidents.

Overall, there is a need to improve the recognition and management of the complaint of excessive daytime sleepiness by health professionals, employers and drivers, and for the medical practitioner and the regulatory authority to create a supportive environment in which the health and safety of drivers are improved. Appropriate literature for drivers attending sleep centres should be provided. It is the responsibility of the clinician to advise the driver of the implications of daytime sleepiness and/or the diagnosis of a sleep disorder for road safety. Essentially, the advice to the driver should be 'do not drive when sleepy' and 'inform the regulatory authority that you have been diagnosed with a sleep disorder that increases the likelihood of your suffering from excessive daytime sleepiness'. It is then the responsibility of the driver to advise the regulatory agency. It is not the responsibility of the physician to inform the regulatory authority, except in exceptional circumstances. In this event the physician should follow the advice given by the General Medical Council.[22]

The contribution of the medical causes of daytime sleepiness to road accidents needs to be assessed, and the medical status of individuals involved in sleep-related accidents should be established. The prognosis and accident records of drivers with a sleep disorder, but who are not currently considered a hazard to road safety and so remain licensed, should be followed up. Information with respect to safe driving should be gathered on all patients with narcolepsy. In addition, the prevalence and significance of symptomatic and obstructive sleep apnoea in vocational drivers should be determined.

Response of the Driver and Vehicle Licensing Agency

In response to the deliberations of the workshop, the content of the Medical Examination Report (D4) issued by the Driver and Vehicle Licensing Agency (DVLA) has been revised. This form is completed by all new applicants for a vocational licence (LGV/PCV), and is also required of those renewing such licenses at the age of 45 and at five-yearly intervals thereafter to the age of 65. After this age it is required annually.

Firstly, the form now includes information on disorders of sleep. This addresses the issue of driving when tired and discusses the risks carried by those with a medical condition known to increase liability to excessive daytime sleepiness. When a driver with a history of a diagnosed, but controlled, sleep disorder is licensed, the advice sent to the driver and their doctor has been strengthened to emphasise the need to maintain effective control of the underlying sleep disorder.

The general section now includes the question, 'Does the applicant suffer from the sleep apnoea syndrome?'. If the answer is yes, a further question asks whether it is controlled successfully. Questions concerned with alertness and other matters have been added. These are:

- 'Is there any other medical condition causing excessive daytime sleepiness?' (with the requirement to give full details)
- 'Does the applicant have severe symptomatic respiratory disease causing chronic hypoxia?'

Key Points

Individuals who fall asleep at the wheel usually do so because they are sleep deprived, but sleepiness sufficient to cause or contribute to an accident may well involve a disorder of sleep

Such disorders have not have been given sufficient attention in the prevention of road accidents; the possible contribution of the medical causes of daytime sleepiness to road accidents and the medical status of individuals involved in sleep-related accidents needs adequate study

Improved education of health professionals and the awareness of drivers and employers of the possibility of sleepiness at the wheel would help to ensure the efficient management of disorders of sleep and wakefulness

The Driver and Vehicle Licensing Agency has clarified existing regulations, particularly those that concern vocational drivers, and revised their medical enquiry forms

- 'Does any medication currently taken cause the applicant side effects which impair his/her safe driving?'

In addition, for vocational (LGV/PCV) drivers with obstructive sleep apnoea, a new form has been introduced requiring assessment by a specialist physician. It must confirm that the driver is compliant with effective treatment, and, where appropriate, the licensing authority may require objective evidence of compliance, including mask-on time. Cases involving the use of treatments other than CPAP, including drugs that enhance alertness, are subjected to particularly detailed enquiries so as to satisfy the authority that the treatment effectively controls excessive sleepiness while driving.

The section of the D4 medical form on the nervous system attempts to identify more clearly the features of the narcoleptic syndrome that are likely to pose a driving risk and on which a licensing decision can be based. These include cataplexy and the effectiveness of drugs used to enhance alertness. It now includes the question, 'Does the applicant suffer from narcolepsy/cataplexy?'. If the answer is in the affirmative the doctor is required to give details of the condition. Applicants with confirmed narcolepsy/cataplexy are normally considered unfit for a vocational licence. The medical enquiry addressed to ordinary car drivers with Parkinson's disease and those with other progressive neurological disorders has also been revised to include reference to the manifestations of excessive daytime sleepiness.

Conclusions

An authority concerned with the licensing of drivers has an important part to play in ensuring that road safety is not unduly compromised by medical factors. At the same time, it must ensure that the interests of the driver are given appropriate weight. Further, particularly as far as excessive daytime sleepiness is concerned, it is important that our increasing understanding of sleep disorders is reflected in the approach used to

license vocational drivers. The experience and expertise of physicians engaged in sleep medicine is vital to these considerations and it is hoped that the approach that has now been adopted will balance fairly the interests of the driver and road safety.

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