



Sleep apnoea and driving: how can this be dealt with?

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ABSTRACT: Excessive daytime sleepiness has long been known to be associated with an increased risk of often particularly severe traffic accidents. Obstructive sleep apnoea (OSA) is among the most prevalent conditions leading to excessive daytime sleepiness, in addition to impaired cognitive function, both of which are likely to impair driving ability.

An increased risk of traffic accidents has been demonstrated repeatedly, in association with OSA, as well its normalisation with effective treatment. However, it seems that not all patients are at equal risk, but it is not clear how to identify when and how at-risk patients can be identified.

Nevertheless, some European countries have made specific regulations concerning OSA and/or excessive daytime sleepiness and the capacity to obtain or to keep a driving license. Most countries have the general rule that “a driving license should not be given or renewed to any candidate or license holder suffering from a disorder ... likely to compromise safety on the road”, without a specific mention of sleepiness and/or sleep apnoea. However, the way in which such a statement is applied and the measures taken to identify unfit drivers vary greatly from country to country. In addition, in those countries that have made specific regulations, no evaluation of their efficacy in reducing sleepiness-related accidents is available.

In practice, it is the physician's responsibility to inform the untreated obstructive sleep apnoea patient about the risk associated with their condition, and about the regulations that prevail in their country, if relevant; only in a few countries, is the physician allowed (or compelled) to report the unfit patient to the licensing authorities. Although it is generally accepted that the treated patient may be allowed to drive, the specific treatment conditions that eliminate the risk are not clearly established.

KEYWORDS: Accidents, cognition, driving, safety, sleep apnoea syndrome, sleepiness

Driving safety has become a major concern in most industrialised countries, where the yearly tolls of several thousands of deaths and severe injuries are no longer acceptable. The effort of public authorities has long been to deal with road infrastructures, as well as obvious drivers' misbehaviours related to excessive speed, alcohol consumption, *etc.* More recently, more subtle misbehaviours, causing inattention while driving, such as eating and telephoning, have also become a concern. Among these, sleepiness at the wheel is increasingly recognised as a potential hazard. Since sleep apnoea is among the most prevalent disorders causing sleepiness, it is clear that sleep apnoea patients deserve special attention. However, the problem is not trivial, mainly because it is clear that all sleep apnoea patients are not at an equal risk when driving. This is best illustrated by a

study showing that half of sleep apnoea patients (as well as half of narcoleptic patients) perform as well as control subjects on a driving simulator task [1]. Therefore, if regulations are to be taken concerning driving and sleep apnoea, they should be based on an adequate selection of the patients to whom regulations should apply. At the present time, this is far from the case, and the regulations across European countries remain heterogeneous.

SLEEPINESS AND ACCIDENTS

The principal daytime manifestation of sleep apnoea is sleepiness, which has long been recognised to be capable of adversely affecting awake functioning. The most serious potential consequence of sleepiness is impaired performance at the wheel while driving and there is now convincing evidence that sleepiness is a

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substantial risk factor for driving accidents. Sleepiness is regarded as a significant contributor to motor-vehicle crashes [2, 3]. The proportion of all vehicle accidents related to sleepiness is in the order of 20% [4–6].

Conversely, it has been shown that sleepiness is prevalent among drivers in general [7]. Estimates indicate that sleepiness causes >20–25% of motorway accidents in the UK [8]. From questionnaires distributed to 4,621 male UK drivers, 29% of them had felt close to falling asleep at the wheel during the last 12 months, and 9–10% had accidents related to tiredness [9]. Furthermore, 26% of US drivers had an Epworth sleepiness score >10 and 2% had a score >15 [10]. Among other causes of sleepiness while driving, sleep disorders such as narcolepsy and obstructive sleep apnoea hypopnoea syndrome (OSAHS) are clearly important contributors and both disorders have been associated with an increased accident risk [11].

Accidents related to driver sleepiness are particularly likely to occur in the early morning or mid-afternoon and, because of the lack of reaction of the sleepy driver to the impending collision, sleepiness-related crashes are likely to be more severe than other crashes and are more often fatal [12, 13]. Furthermore, sleepy drivers report a high incidence of near misses on the road while driving, which suggests that they have an awareness of the driving risks related to sleepiness short of being involved in an actual collision. There is also evidence that occupations, such as long-haul lorry driving, are particularly associated with a risk of sleepiness while driving [14], and an increased risk of accident, particularly where there is evidence of associated sleep apnoea [15]. These findings may not be surprising given the relatively sedentary and monotonous nature of this occupation, and the fact that long-haul lorry drivers frequently drive for many hours at a time. These findings assume particular significance given the likelihood of a fatal accident where an articulated truck driven by a sleeping driver is involved. Many of the spectacular multiple vehicle collisions that have occurred on motorways throughout Europe have been ultimately traced to a driver falling asleep at the wheel.

The evaluation of the contribution of sleepiness to a given traffic accident is not an easy task. Sleepiness is likely to interfere with other possible causes of accidents. An interaction between alcohol and sleepiness is well known [16, 17]; however, when an increased level of alcohol is observed in a driver responsible of an accident, the accident will be misattributed to alcohol, and the role of sleepiness will not be taken into account. This may also be the case for maladapted behaviours. It has been shown that sleepiness impairs the evaluation of the risks of a situation [18], and may therefore be likely to promote excessive speed, or other hazardous behaviours, such as picking up an object that has dropped onto the floor of the vehicle. In these instances, an accident would be misattributed to excessive speed or the maladapted behaviour, rather than to sleepiness. These difficulties are reflected in the fact that attribution of sleep-related causal factors are rather stable, comprising 10–15% of the cases investigated, independent of the availability of specific sleep-related information in an investigation of 1,464 fatal road accidents studied in depth by multidisciplinary investigation teams [19].

ASSOCIATION OF SLEEP APNOEA WITH ROAD TRAFFIC ACCIDENTS

The relationship of sleep apnoea to road traffic accidents has been recognised for over a decade. In 1988, FINDLEY *et al.* [20] reported that patients with sleep apnoea had a seven-fold greater risk of road accidents than normal subjects and, furthermore, the automobile accident rate of sleep apnoea patients was 2.6 times the rate of all licensed drivers in Virginia, USA. In addition, 24% of sleep apnoea patients reported falling asleep at least once per week while driving. In a community study of 1,001 males in England, STRADLING *et al.* [21] found that regular snorers were significantly more likely to “almost have a car accident due to sleepiness” than others (odds ratio (OR) 5.8).

As part of the ongoing Wisconsin Cohort Study, YOUNG *et al.* [22] have reported that subjects with an apnoea/hypopnoea index (AHI) >15 events·h⁻¹ have a substantially greater risk of having a motor vehicle accident than those with no sleep-disordered breathing (OR 7.3). In a prospective controlled study, BARBE *et al.* [23] confirmed the increased risk of road accidents among 60 patients with sleep apnoea compared with a group of matched controls. In another Spanish study, TERAN-SANTOS *et al.* [24] also found a substantial excess risk for driving accidents in patients with sleep apnoea. A total of 102 drivers admitted to a primary care centre after a road traffic accident were compared with 152 controls randomly selected from primary care centres matched for sex, age and geographical location. All patients were screened using home respiratory polygraphy, complemented by confirmatory laboratory polysomnography as needed. The risk for having an accident was increased 6.3-fold (95% confidence interval (CI) 2.4–16.2) when comparing patients with AHI <10 *versus* those with AHI >10 events·h⁻¹.

Patients with sleep apnoea also perform worse in simulated driving situations than controls [25], and the performance on one of these simulated driving situations (Steer Clear) has been demonstrated to correlate with accident risk. However, the demonstration was made using comparisons between groups, and little is known concerning the within-group variability of the relationship between poor performance on the simulator and real-life accidents.

IMPACT OF TREATMENT OF OSAHS ON ACCIDENT RISK

A particularly important aspect of the relationship of sleep apnoea with accident risk is the potential impact of treatment. ENGLEMAN *et al.* [26] found that patients with sleep apnoea reported 0.93 sleep-related driving incidents (including accidents and near accidents) per 16,000 km prior to continuous positive airway pressure (CPAP) and 0.14 after CPAP therapy was initiated. CASSEL *et al.* [27] also reported a similar reduction in accident rate in sleep apnoea patients after 1 yr of nasal CPAP therapy, as did KRIEGER *et al.* [28]. A recent report by GEORGE [29] provides particularly convincing evidence of the benefits of CPAP therapy on accident risk. The study [29] evaluated 210 patients with sleep apnoea treated with CPAP together with an equal number of randomly selected control drivers and evaluated motor vehicle collision (MVC) rates comparing the 3-yr period before and after CPAP therapy for patients and for the corresponding time frames in controls. They found an approximately three-fold higher frequency of

MVCs in sleep apnoea patients before therapy compared with controls, but the MVC rate fell to similar levels to the control population in the 3-yr period after instituting CPAP therapy. However, little is known as to the time course of the improvement in driving ability and the minimal compliance to treatment. A recent driving simulator study suggested that driving performance was improved as early as 14 days after treatment initiation, but that there was a need for investigating larger cohorts of patients so that current recommendations for driving licensing can be modified and permission to drive can be given earlier than the 6 weeks presently recommended by the German Society for Sleep Medicine and Research [30].

SLEEP APNOEA AND DRIVING ABILITY

The above data clearly identify sleep apnoea as a significant independent contributing factor to road traffic accidents with important consequences for public safety, particularly since accidents involving a patient with sleep apnoea are more likely to be associated with major injury. These considerations raise the question of the suitability of patients with sleep apnoea to hold a valid driving licence unless the condition is adequately treated. This question has previously been addressed by an *ad hoc* committee of the American Thoracic Society who, in their report [31], emphasised the difficulty in formulating rigid criteria to determine the suitability of a patient with sleep apnoea to hold a valid driver's licence. These difficulties are underlined by the widely accepted view that the diagnosis of sleep apnoea should not depend on a particular level of AHI alone, but should also take into account the degree of functional impairment associated with the condition, particularly sleepiness.

The objective assessment of sleepiness by multiple sleep latency testing or maintenance of wakefulness testing is cumbersome and not practical for widespread clinical use, which further complicates the issue of adequately assessing driving risk. However, a recently described simplified objective test of sleepiness may be useful in some settings [32] as soon as valid normative data are available for this technique. While there are validated subjective measures of sleepiness, such as the Epworth sleepiness scale [33], that are easy to administer, these measures are open to manipulation by a patient who does not wish to have their driving licence endorsed. However, it should be kept in mind that sleepiness is not the only factor involved in impaired (driving) performance in sleep apnoea patients: the impact of impaired cognitive function, especially executive function, remains to be evaluated. The multiple components of driving ability suggest that driving simulators may be better suited for the evaluation of driving ability than mere vigilance tests [25], possibly after a calibration of driving simulators against real driving [34], although the predictability of real-life accidents from driving simulator performance is weak [35]. In addition, it should be kept in mind that half of the patients perform as well as controls on driving simulators [1].

Given the high prevalence of sleep apnoea and related breathing disorders during sleep in the general population, and the evidence that treatment decreases the risk of accidents in treated patients, it seems legitimate to try to reduce the occurrence of sleepiness-related accidents in affected patients by regulating the access to a driving license in those patients.

In order to be able to inform sleep specialists, as well as patients, on the current regulations in European countries, a European Task Force undertook a systematic inquiry to collect the relevant information [36].

DRIVING REGULATIONS CONCERNING SLEEP APNOEA AND/OR EXCESSIVE DAYTIME SLEEPINESS IN DIFFERENT EUROPEAN COUNTRIES

In European Union (EU) countries, driving licenses are specific to the vehicle driven, according to the following classes: class A: motorcycles (A1 <125 cm³ and 11 kW); class B: automobiles <3,500 kg, fewer than eight seats excluding the driver (B1: tri- and quadri-motorcycles); class C: automobiles >3,500 kg (C1 <7,500 kg); class D: more than eight seats (D1 <16 seats); and class E: trailer >750 kg. These classes are pooled into the following two groups: group 1, which includes classes A, B and B+E (and A1 and B1); and group 2, which includes classes C, C+E, D, D+E (and C1, C1+E, D1, D1+E) and class B professional drivers (e.g. taxi and ambulance drivers).

EU countries

At the EU level, the common regulation is the Directive of the Council taken on July 29, 1991 (Journal Officiel (JO) 24/08/91 No. L237/1-24), applicable since July 1, 1996. Its Annex III lists disorders that are not compatible with driving. These disorders involve vision, audition, locomotion, cardiovascular system, diabetes, neurological and mental disorders, alcohol, drugs, renal disorders and transplantation, but there is no mention of sleepiness or sleep apnoea.

The last paragraph of the Directive states that “as a general rule, a driving license should not be given or renewed to any candidate or license holder suffering from a disorder (not mentioned above) likely to compromise safety on the road, except if by authorised medical advice”.

This regulation is applied as such in nine (Austria, Germany, Denmark, Luxembourg, Finland, Greece, Italy, Ireland and Portugal) out of the 15 EU countries for which data were available [36]; the data date back to 2000–2001, and are currently being updated by an EU funded working group (European Cooperation in the field of Scientific and Technical research working group 2, Action B26). Five countries (Belgium, Spain, France, Sweden and the United Kingdom) had specific regulations involving sleep apnoea or narcolepsy, in addition to idiopathic hypersomnia or insomnia. In the Netherlands, sleep disorders are included in a category of loss of consciousness other than epilepsy, and comprise narcolepsy as well as sleep apnoea. These regulations have been introduced recently between 1994 (the Netherlands) and 1998 (Belgium and the UK), and very recently updated in one country (France in 2005). The general rule is that the presence of the disorder contraindicates the acquisition and/or the maintenance of the driving license. In most cases, drivers or candidates are allowed to obtain or to keep their driving license only if they are effectively treated. This applies to Group 1 as well as to Group 2 drivers, but generally the regulations are more restrictive for Group 2 drivers. In no case is effective treatment clearly defined, but in some countries the duration of effective treatment is specified, ranging from 1–6 months, with the exception of a requirement of 5 yrs without an “attack” applying to narcolepsy as well as to sleep apnoea

(the Netherlands). Similarly, the frequency with which a treated driver requires re-evaluation varies from 1–3 yrs. One exception is the recently updated French regulation, which requires that treatment was effective for at least 1 month, and, for Group 2 drivers, that efficacy has been confirmed by maintenance of wakefulness test. However, no data are available for any country concerning the efficacy of such regulations in reducing the number of sleepiness-related accidents. It is even hard to know to what extent the regulations are applied.

Obviously, the efficacy of such regulations depends on the quality of the information available to the licensing authorities. In most countries, this is left to the sincerity of the license holder or applicant, who completes a form, which includes questions concerning sleep or sleepiness in a few countries (Belgium and the UK). In some countries, however, the license applicant must produce a medical certificate either systematically (Denmark, Luxembourg and Portugal), or only depending on the responses in the questionnaire (Belgium), or even undergo a specific series of tests (Spain). The frequency with which the procedure is repeated varies widely, from never to every 2 yrs (often depending on the driver's age and the license group).

Some specific situations are worth mentioning. In the UK, an initial version of the document restricted the application of the regulation to "sleepiness leading to sudden and disabling event at wheel" but this was later changed to "excessive awake time sleepiness". OSAHS is not specifically mentioned, but "sleep disorders" appear in the section on respiratory disorders.

In Sweden, a medical certificate is mandatory to apply for a driving license and is usually completed by the general practitioner. This must be renewed after the age of 65 yrs for C, D, E license holders, which therefore indicates that the physician decides whether a patient is fit to drive.

In Spain, a psycho-technical examination is performed by a private office accredited by licensing authorities at the first application, then every 10 yrs before the age of 45 yrs, every 5 yrs until the age of 60 yrs, every 3 yrs until an age of 70 yrs, then yearly. The examination includes a test on a driving simulator in addition to sight, hearing and blood pressure testing. A questionnaire on general health includes medication taken and possible sleepiness. If any abnormality is detected, a report to the licensing authorities is made and the candidate is referred to a sleep centre.

In Belgium, a questionnaire is completed on the initial application for a license. If, at a later date, OSAHS is diagnosed, the driver must send their license to the licensing authority, but may get it back when able to provide a medical certificate stating that they are being adequately treated.

In Germany, there is no mention of sleepiness in the law concerning disabilities incompatible with a driving license, but under the general rule that any driver should be fit, recommendations were issued by the Ministry of Traffic stating that sleepy OSAHS drivers should not be allowed to drive and specify criteria for adequate treatment for Group 2 drivers.

In Italy, although a formal response from the National Licensing Authorities was not obtained, indirect information indicated that there are no specific regulations concerning OSAHS, *i.e.* the general rule concerning fitness to drive applies.

In Finland, it has become mandatory, since the end of 2004, for physicians to declare unfit drivers, including sleepy drivers, to the licensing authorities. The impact of such a measure remains to be evaluated.

Non-EU countries

With respect to driving regulations concerning sleep apnoea and/or excessive daytime sleepiness in non-EU countries, answers were obtained from Norway and Switzerland only. In Switzerland, doctors are allowed to report a sleepy driver to the vehicle licensing authority. Federal law authorises (but does not force) a physician to report any individual judged to be medically unable to drive to the authorities.

RECOMMENDATIONS CONCERNING DRIVER LICENSING

The available data make it clear that there are no uniformly accepted regulations within Europe concerning driving licensing and sleep apnoea, and indeed many national European licensing authorities make no specific mention of sleep apnoea or excessive daytime sleepiness. A similar heterogeneity worldwide has recently been stressed [37]. These deficiencies underline the importance of adequate measures being taken and regulations put in place to protect both the patient with sleep apnoea and the wider community from death or injury related to road traffic accidents caused by sleepy drivers with untreated sleep apnoea. Any such regulations concerning driver licensing in sleep apnoea must be based on a definition of the condition that relates to likely driving risk rather than some arbitrary AHI level.

Particular attention needs to be given to certain high-risk driver occupations, such as commercial long-haul truck drivers. Furthermore, given the fact that such a definition should include some measure of sleepiness, care must be taken that unrealistic demands are not made on either the sleep disorders centre that establishes the diagnosis of sleep apnoea or on the primary physician responsible for the patient's management to determine an individual patient's suitability to hold a valid driving licence. While such a decision would be unlikely to present difficulties in patients with symptomatic severe sleep apnoea, this may not be the case in many patients with mild-to-moderate disease, where moderately high AHI levels may not be associated with significant levels of sleepiness and *vice versa*. These considerations indicate that education of those concerned with implementing driving license policy to produce a greater level of awareness of the problem would be more important and likely to be more successful than arbitrary regulations dictating licensing policy based on certain subjective or objective criteria of either sleep apnoea or sleepiness.

Regulations concerning driver licensing in sleep apnoea should include a shared responsibility among the physician, patient and licensing authority. A distinction can be drawn between private and professional drivers, and it seems appropriate that more strict regulations should be applied to

the professional driver because of the increased risk to the general public from sleepiness in this category of driver. Given the high prevalence of sleep apnoea in Europe, public health and safety make it imperative that practical and realistic guidelines be implemented, preferably on a Europe-wide basis to ensure that patients with sleep apnoea who present a driving risk are precluded from driving unless given adequate treatment for their condition. Specific regulations for licensing that would exclude sleepy subjects from access to a driving license pose many questions. Philosophically, the choice is between individual freedom and the protection of society against a potential risk. This choice of society has been handled in different ways in different countries, but obviously the debate is still open in many places. Morally, such regulations pose the question of how licensing authorities will obtain the relevant information. The choice is between relying on the driver's honesty, which is open to cheating, or on a third party, usually a doctor, to provide a certificate of medical competence. In this regard, it may be difficult for the patient's own physician to provide a negative certificate or for an external doctor to gather the relevant information.

Economic considerations indicate that the cost of sleepiness-related accidents should be compared with the cost of unemployment/decreased quality of life due to the loss of a driving license, but such comparisons have never been made. Ethically, the dilemma of driver certification in sleep apnoea poses the question of medical power *versus* medical responsibility. Clearly, specific regulations might give doctors the power to prevent sleepy drivers from driving, which might enhance the general recognition of sleep medicine and of sleep centres. However, the criteria that could be used to decide a driver's medical fitness before or, even more so, after treatment are not yet clearly established, particularly in view of the difficulties in the objective evaluation of sleepiness, and more generally of fitness to drive when the incapacity is not permanent, but highly dependent upon the circumstances. Furthermore, the reality is that the diagnosis of sleep apnoea is usually made after months or years of driving while sleepy, and often after an accident (or a near-miss). Therefore, education of nonspecialised doctors and the general population in the recognition of the disorder would appear to be at least as important as issuing specific regulations. It also poses the question of the confidence between patients and doctors. The risk exists that if the doctor is allowed to report a given patient to the licensing authorities, patients will be tempted to hide their symptoms and not go to the doctor. One could argue that it is better to treat a confident patient without declaring the disorder to the authorities than to deal with a suspicious and uncooperative patient.

Finally, from a practical point of view, it appears that education and information of the professionals involved in road safety plays a critical role. Having specific regulations concerning sleepy drivers would be meaningless if police and other law officers are not aware of the details. All sleep specialists have seen patients who have had car accidents due to falling asleep at the wheel in which the police, and sometimes the court, have taken legal measures against the offender but have failed to recommend medical intervention. While it is far from clear that specific regulations concerning sleepiness and driving are effective in reducing road accidents

related to sleep apnoea, such specific regulations, where applied, deserve further evaluation and updating. This is particularly the case, since there are no objective data on the prevalence of sleepiness-related accidents from those countries that have introduced such regulations. However, whatever the legislation, the clinician has a responsibility to inform his patient of the risks related to sleepiness, and to discourage him from driving as long as he is not effectively treated. In some countries, it may also be the doctor's responsibility to inform the licensing authorities.

RESOURCE IMPLICATIONS FOR THE INVESTIGATION AND MANAGEMENT OF SLEEP APNOEA SYNDROME

Measures to reduce the impact of sleep apnoea and the related driver sleepiness on road traffic accidents have little meaning if there are inadequate facilities available to investigate and manage patients with the disorder. Such facilities are inadequate in most countries throughout Europe, which reflects the high prevalence of the disorder and also the fact that sleep apnoea is a relatively recently recognised clinical problem. Thus, hospital administrators and clinicians from other disciplines may not recognise the importance of providing appropriate facilities for the practice of sleep medicine. Even many sleep specialists have been surprised at the high prevalence of the disorder and most clinical sleep centres have long waiting lists of patients awaiting investigation and/or treatment. Current epidemiological data indicate that there are likely to be at least 5 million patients suffering from sleep apnoea throughout Europe, and this disorder is second only to asthma in the prevalence league table of chronic respiratory disorders. Thus, the provision of appropriate clinical facilities to investigate and manage these patients represents a major challenge for the health services in each European state.

While it may be understandable that healthcare providers in some countries are hesitant to commit substantial resources to the investigation and management of patients with sleep apnoea, such hesitancy is inappropriate for a number of reasons. First, the cost of investigation of these patients compares favourably with the costs of investigation in many other medical specialties, such as the cost of endoscopy in gastrointestinal disorders. This is particularly so where ambulatory sleep studies or two-stage strategies [38] are performed. The cost of nasal CPAP therapy principally relates to the one-off cost of the CPAP device, which compares very favourably with the ongoing cost of inhaled therapy in chronic asthma. Secondly, the benefits of CPAP therapy in sleep apnoea are now clearly established in terms of improved quality of life, personal and public safety, and more recently, reduced morbidity.

While there are few validated figures available, there appears to be little doubt that in straight financial terms, the economic benefit in terms of increased productivity, reduced accident risk, and reduced healthcare utilisation from related morbidity would substantially outweigh the economic cost of investigating and treating the disorder. A recent position statement of the American Academy of Sleep Medicine [39] unequivocally supports the cost justification for diagnosis and treatment of sleep apnoea, particularly the cost benefit of sleep monitoring in the diagnosis. There is evidence that prior to diagnosis, patients with sleep apnoea incur higher healthcare costs than

matched control subjects [40–43]. RONALD *et al.* [40] reported that sleep apnoea patients used more than twice as many healthcare services in the 10-yr period prior to diagnosis compared to controls, and the excess cost compared with control subjects was in the region of 4,265 Canadian dollars per patient. Furthermore, the same group reported a significant reduction in healthcare costs in the 2-yr period after introduction of CPAP therapy compared with the 5-yr period before diagnosis and also compared with matched controls during the same 7-yr period of follow-up [42]. KAPUR *et al.* [43] reported an annual healthcare utilisation cost of 2,720 US dollars for sleep apnoea patients prior to diagnosis compared with 1,384 US dollars among matched control subjects. A recent estimation, based on a meta-analysis of accident data in sleep apnoea patients led to the conclusion that treating all drivers with CPAP would cost 3.2 billion US dollars, and save 980 lives and 11.1 billion US dollars in collision costs annually in the USA [44]. It is clear from the foregoing discussion that much remains to be done to educate healthcare workers, health administrators and politicians on the importance of disorders, such as OSAHS, and the practical value in providing the resources needed to adequately manage the disorder in Europe. This aspect of sleep medicine appears ideally suited to a targeted approach to the European Commission, which has identified public health as a key area for attention in the coming years.

CONCLUSION

Undoubtedly, it is the physician's responsibility to inform a sleep apnoea patient that they suffer from a disorder associated with an increased risk of traffic accidents, and to warn against the hazards of driving while untreated. The physician should also inform the patient about the current regulations in his country, if relevant. In some countries (to the best of the present author's knowledge, presently only Finland) it is also the physician's duty to inform the licensing authorities.

The more difficult question is how to advise the patient once he is treated. Although it has been shown that treatment decreases the risk of accident, there are at present no criteria that make it possible to decide when (after how long a period of treatment, with which compliance to treatment and after the normalisation of which test) driving may be considered to be safe. Nevertheless, in some countries, the regulations clearly dictate these conditions.

The unsolved problem in most countries is the patient who refuses treatment, whatever his reasons. In some countries, the physician is allowed to report such patients to the licensing authorities, but in most countries the rules of confidentiality protect the patient from any report. In this case, discussion with the patient and, if possible, with his family may help to solve the problem.

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