



AUDIT, RESEARCH AND GUIDELINE UPDATE

Variability in clinicians' opinions regarding fitness to drive in patients with obstructive sleep apnoea syndrome (OSAS)

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ABSTRACT

We evaluated clinicians' current practice for giving advice to patients with obstructive sleep apnoea syndrome.

Clinicians were invited to complete a web-based survey and indicate the advice they would give to patients in a number of scenarios about driving; they were also asked what they considered to be residual drowsiness and adequate compliance following CPAP treatment. In the least contentious scenario, 94% of clinicians would allow driving; in the most contentious a patient had a 50% chance of being allowed to drive. Following treatment with CPAP, clinicians' interpretation of what constituted residual drowsiness was inconsistent. In each vignette the same clinician was more likely to say 'yes' to 'excessive' than to 'irresistible' (71%±12% vs 42%±10%, $p=0.0045$). There was also a lack of consensus regarding 'adequate CPAP compliance'; 'yes' responses ranged from 13% to 64%. There is a need for clearer guidance; a recent update to the Driver and Vehicle Licensing Agency guidance, and a statement from the British Thoracic Society, making it clear that sleepiness while driving is the key issue, may help.

INTRODUCTION

Obstructive sleep apnoea syndrome (OSAS) is a well-recognised cause of road traffic accidents (RTAs).¹ A meta-analysis has shown that OSAS carries the highest risk for RTAs among a variety of medical conditions.² Clinicians diagnosing OSAS are required to advise patients about driving, with an obligation to discourage those patients from continuing to drive who are at high risk of causing an accident or to report them to the Driver and Vehicle Licensing Agency (DVLA). The clinician also has a responsibility to recognise that suspension of driving will have major implications for many; an overcautious approach can cause considerable mobility difficulties for patients. Furthermore, clinicians are often asked by the DVLA and employers to make recommendations about a patient's fitness to drive (details of DVLA regulations are provided in the online supplement). We carried out a survey to gauge the advice patients are likely to be given by clinicians about driving.

METHODS

Subjects

Clinicians were invited to participate in a web-based survey, conducted by the British Thoracic Society (BTS) in collaboration with the British Sleep Society

(BSS) and the Association for Respiratory Technology and Physiology (ARTP, UK).

Survey questionnaire

The survey was divided into two parts. The first was completed by all the respondents and included six vignettes that presented a variety of patients with OSAS. For each the respondent chose from one of five recommendations regarding the patient's driving ranging from no restriction to advising not to drive at all. The second part was limited to clinicians who completed DVLA medical forms (SL2C (standard) and SL2VC (vocational)). Respondents were presented with further vignettes of patients who had been offered CPAP, focusing on the questions posed by the DVLA. Additional information was requested, including on the use of objective tests for assessing fitness to drive. Three sleep specialists from the BTS Specialist Advisory Group reviewed the vignettes and confirmed that they were reflective of everyday clinical practice. Respondents were reminded twice to answer as if there was a real patient before them and not how they thought they would be expected to respond.

Primary objective

To assess the degree of variation in advice a patient with OSAS might receive in everyday clinical practice at diagnosis and after starting CPAP.

Secondary objectives

To establish which factors, if any, influenced the advice given, to evaluate the use of objective tests in assessing fitness to drive and whether clinicians report patients to the DVLA.

Statistical analysis

The statistical analysis was carried out using Graph Pad Prism 6 software (San Diego, California, USA) and SPSS (V20). Statistical significance was set at $p<0.05$. χ^2 tests were used to evaluate which factors influenced the advice given. As the respondents were matched pairs of subjects, McNemar's test was used to establish the significant difference in the residual drowsiness. Binary logistic regression analysis was performed to estimate associations.

RESULTS

Approximately 3150 members of the BTS, BSS and ARTP were invited to complete the survey only if they see patients with OSAS. Four hundred and

sixty-seven (15%) respondents completed the first stage of the survey, 210 said they completed forms for the DVLA and of these 178 completed the second stage. The demographics of the respondents are described in the online supplement where the vignettes are also presented and more details about the results provided.

Advice given at diagnosis of OSAS

There was wide variability in the advice given by the clinicians in all the six vignettes. To a patient, what matters is whether driving is permitted or not, so for ease of presentation and analysis, responses such as 'would not give advice' and 'other' are omitted. Respondents who provided these responses were specialist nurses or non-medically qualified professionals including sleep physiologists. Conflicting advice was given by different clinicians for each vignette. In the least contentious (vignette 1) 94% of clinicians would allow driving. In the most contentious (vignette 3) a patient had a 50% chance of being allowed to drive.

Female clinicians were more likely to allow patients to drive, significant in three out of six vignettes. Clinicians with a special interest in sleep medicine were more likely to allow patients to drive compared with clinicians with no special interest, significant in three out of six vignettes.

Advice given following treatment with CPAP

Two hundred and ten (45%) clinicians completed forms for the DVLA: 178 were analysed after 32 responses were excluded as the questions were unanswered or were incomplete.

CPAP compliance

Across the vignettes there was disagreement between clinicians regarding whether they felt the patient was compliant with CPAP; 'yes' responses ranged from 13% to 64% (table 1).

Residual drowsiness

The DVLA forms enquire whether the patient still suffers from 'irresistible' (SL2C) or 'excessive' (SL2VC) drowsiness. There was inconsistency in the clinicians' assessment of residual drowsiness. The advice depended on whether the word 'irresistible' or 'excessive' was used on the DVLA form. In each vignette, the

same clinician was more likely to say 'yes' to 'excessive' than to 'irresistible' (71%±12% vs 42±10%, $p=0.0045$; table 1).

Drivers reported to the DVLA

Seventy-four per cent of the clinicians who completed the second part of the survey had never reported patients to the DVLA, 23% had reported one to four times and 3% had reported more than five times.

Use of objective tests

One per cent of clinicians always and 4% frequently use objective tests to help in their assessment. Professional drivers are more likely to undergo objective tests than non-professional drivers (52% vs 38%, $p=0.0002$, OR 1.75).

DISCUSSION

This survey has shown that there is considerable variability in clinicians' opinions regarding whether a patient with OSAS should drive or not. The vignettes were deliberately chosen to be contentious; less variability may have been seen if less contentious vignettes had been presented. However, all were within the range of what is seen regularly in sleep clinics. Although the response rate of 15% appears low, it should be stressed that those who received the e-mail were told they should only complete the survey if they saw patients with OSAS and advised them about driving; for reference, 538 BTS members indicate that sleep medicine is one of their three specialty interests. In the European Respiratory Society, there are 461 members affiliated to group 4.02 (sleep and control of breathing) as their main group, among which 27 are from UK. We believe, therefore, that the survey results are reflective of the views of clinicians working in this field.

Objective tests are seldom used, and while it could be argued that this is because of lack of access, there is little evidence that these tests are useful in determining whether a patient is safe to drive or not. The lack of reliable objective tests means that the clinician is dependent on the account given by the patient. Clinicians do not appear to differentiate between sleepiness generally and specifically while driving; a number of vignettes (7, 9, 10 and 11) described patients with general sleepiness, but who denied problems while driving. Guidance from the American

Table 1 The key factors in the vignettes of patients after CPAP treatment and the McNemar's test showing significant variability in what a patient will be told by the same clinician depending on whether the Driver and Vehicle Licensing Agency (DVLA) form asks about 'irresistible' or 'excessive' drowsiness

Vignette	Pre CPAP AHI	Pre CPAP ESS	Post CPAP AHI	Post CPAP ESS	CPAP use	Other factors	'Compliance' 'Yes'	'Excessive' 'Yes'	'Irresistible' 'Yes'	McNemar's test	
										p Value	OR (95% CI)
7	35/h	22	10	14	3.2 h	Had stopped driving (his decision) but has now restarted	38 (21%)	116 (65%)	46 (26%)	<0.001	6.8 (3.7 to 13.7)
8	28/h	15	3	5	6 h	Does not use CPAP during weekend	65 (37%)	94 (53%)	69 (39%)	0.0009	2.3 (1.4 to 4.1)
9	45/h	14	7	9	4 h	Does not use CPAP for 2 days in a week	45 (25%)	128 (72%)	92 (52%)	<0.001	2.7 (1.6 to 4.7)
10	80/h	22	10	12	N/A	No longer having any problems driving but continues to fall asleep watching television, while reading and if a passenger in a car	114 (64%)	140 (79%)	77 (43%)	<0.001	6.7 (3.5 to 14)
11	35/h	13	Nil	12	N/A	Intolerant to CPAP, lifestyle modifications, weight loss 4 kg	24 (13%)	151(85%)	87(49%)	<0.001	13.8 (5 to 43)

AHI, apnoea/hypopnoea index; ESS, Epworth sleepiness scale.

Thoracic Society³ suggests that moderate or severe drowsiness during everyday activities and a history of accidents or near misses in the 'recent' past are 'so compelling that the physician is obliged to intervene'. The DVLA is concerned specifically with sleepiness while driving and updated guidance from the BTS and the DVLA, published since this survey was completed, makes this clearer.⁴

What constitutes adequate compliance with CPAP and residual drowsiness are both contentious. Clinicians are more likely to consider drowsiness 'excessive' (vocational form) than 'irresistible' (standard form) consistent with a higher standard being applied to vocational drivers, as intended by the DVLA.

The DVLA is the ultimate arbiter of whether an individual can hold a license or not, but they are heavily dependent on the advice given by clinicians. Under measures currently being considered by the European Union,⁵ drivers will be asked questions which raise the possibility of a diagnosis of OSAS as part of the licensing and relicensing process. If the answers to these questions suggest OSAS, patients will be given a restricted license unless a clinician states otherwise. This will place responsibility very clearly with the clinician. Depriving an individual of their license has major implications for them and society. That this decision may be so dependent on which clinician the patient sees is not acceptable. Clear guidance should be given. This must make it clear that moderate or severe sleepiness, particularly while driving (this is made clear in the more recent guidance from the DVLA), and a history of accidents or near misses

in the recent past are key issues³ and what is meant by 'adequate compliance' with treatment.

Research needs to be directed towards a better understanding of what factors in OSAS impair driving performance, how these can be assessed and the development and use of objective tests which can inform decision making and lead to greater consistency. If not patients will lose confidence in a process that is inconsistent and therefore unfair.

Contributors AD: design of study, data collection, analysis and writing the paper. MT: design of the study, analysis and writing the paper. DG, SLJ: design of study and writing the paper. PDB: statistical analysis and writing the paper. MWE: original concept, design of study, analysis and writing the paper.

Competing interests None.

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REFERENCES

- 1 George CF, Smiley A. Sleep apnoea and automobile crashes. *Sleep* 1999;22:790–5.
- 2 Vaa T. Summary: impairments, diseases, age and their relative risks of accident involvement: results from a meta analysis. *TØI report 690/2003*. Oslo, Institute of Transport Economics, 2003. *Eur Respir Mon* 2010;50:216–24.
- 3 Strohl KP, Brown DB, Collop N, et al. An official American thoracic society clinical practice guideline: sleep apnoea, sleepiness, and driving risk in non commercial drivers. *Am J Respir Crit Care Med* 2013;187:1259–66.
- 4 BTS Position Statement on Driving and Obstructive Sleep Apnoea (OSA)/Obstructive Sleep Apnoea Syndrome (OSAS), June 2014. <https://www.brit-thoracic.org.uk/clinical-information/sleep-apnoea>
- 5 Rodenstein D. Driving in Europe: the need of a common policy for drivers with obstructive sleep apnoea syndrome. *J Sleep Res* 2008;17:281–4.