Killer in the Cab?

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Introduction

The most recent UK prevalence data for Obstructive Sleep Apnoea (OSA) indicate an estimated 4% of the middle aged male workforce is affected[1]. However, in the years since this study was reported, levels of obesity have significantly increased and it would be a reasonable assumption that this should result in an increase in the prevalence of OSA. More importantly, studies have shown that commercial vehicle drivers have a higher prevalence of OSA[2]. Evidence has shown that OSA increases the risk of a motor vehicle collision (MVC) by 2- to 7-fold[2].

'More people are killed annually in road accidents in Great Britain involving someone driving as part of their work than are killed in static workplace accidents. They account for 30% of all road deaths[3]'.

Currently, little is known about the prevalence of OSA in UK Large Goods Vehicle (LGV) drivers or about the impact this disorder has on UK roads. Given the high number of UK MVCs, identifying the current prevalence of this disorder is of particular importance in this group.

Aim

The aim of this study was to identify the prevalence of OSA in UK LGV drivers, whilst evaluating a protocol, to provide a rapid and accurate diagnosis of OSA.

Methods

In total, 940 (939 male) LGV drivers, from 5 UK medium/large haulage companies, were sent a combination of previously validated, and commonly used, sleep questionnaires, plus an additional partner questionnaire. Completion of the questionnaires were voluntary and individual results were not disclosed to employers of the study participants. Returned questionnaires were then entered into a database. This scored and analysed the data using a priori algorithm, classifying participants into 4 categories: ***negative, equivocal, probable*** and ***positive,*** for OSA. After this preliminary diagnosis, participants were asked to use an overnight domiciliary 7-channel polysomnography device. Operating Instructions and a troubleshooting service were provided for participants.

Methods cont.

The studies were then analysed by a blinded, qualified RSPGT and a sleep physician who confirmed a final diagnosis. Participants who were diagnosed with OSA that required treatment using the Scottish Intercollegiate Guidelines Network (SIGN)[4] were then asked for written permission to contact their GP to confirm if they had any contraindications to Positive Airway Pressure (PAP) therapy. Participants who had no contraindications were all provided with therapy within 1 week of diagnosis. Compliance to therapy was monitored and participants were actively encouraged to notify the Driver and Vehicle Licensing Agency of the diagnosis and their therapy regimen.

Results

Of the 940 drivers who agreed to provide their details, 371 LGV drivers (39.5%) returned questionnaires. All were diagnostically naïve.

FIGURE 1
Analysis of questionnaires into four categories negative, equivocal, probable and positive, for OSA using a priori algorithm.

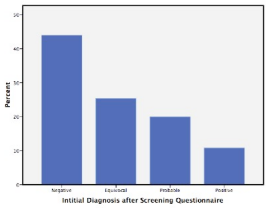

Figure 1 above gives the percentage in each category based on the questionnaires. Of note, 114 (30.7%) were identified as being probable or positive OSA cases (95% of whom were confirmed as true cases on PSG, see abstract *'Are questionnaires a useful supplement to medical examinations or not worth the paper they are written on?'* Marshall et al.). Of the 371, 120 (32.4%) underwent an overnight cardio-respiratory polysomnogram. The data was then grouped into: 1. Individuals requiring treatment (Symptomatic and AHI > 15 events/hr or AHI > 30 events/hr or ODI (≥ 4%) > 10 per hour) and 2. Individuals not requiring treatment.

Table 1
Mean and standard deviations of age at time of study (yrs), BMI and collar size (inches) for both groups

	AGE AT TIME OF STUDY (YEARS)	BODY MASS INDEX	COLLAR SIZE (INCHES)
N = 371 Mean (SD)	47.15±9.45	28.71±4.76	16.48±1.23
N= 120 Mean (SD)	48.38±8.63	29.12±4.41	16.55±1.19

Results cont.

There were no significant differences in mean age, body mass index (BMI) or collar size (inches) between the group who returned the questionnaires, and the subgroup who underwent overnight PSG (p = .206, p = .404 and p = .585, respectively), suggesting that those who agreed to overnight study were generally representative of the sample who completed the questionnaires. Statistical analysis of the PSG data suggests a 61% (95% CI 52 to 70) prevalence of moderate to severe OSA in this group of LGV drivers.

Discussion

This study supports previous studies in confirming a higher prevalence of OSA in commercial vehicle drivers than the general UK population. Whilst this study population was limited to England and Wales, it is reasonable to assume these data apply equally to Northern Ireland and Scotland. It could be argued that the prevalence is overestimated due to study bias, i.e. only participants who believed they had a problem enrolled in the study. It could also be counter-argued that participants only enrolled in the study if they were confident they did not have any sleep issues. Even if we had identified all of the moderate/severe OSA individuals who completed questionnaires, this would still give a prevalence rate of 20% (i.e. 73/371) (95% CI 16 to 24). Likewise if we had identified all of the moderate/severe OSA individuals who agreed to receive a questionnaire, this would result in a prevalence rate of 8% (95% CI 6 to 10).

Although recent changes have been made to the UK licensing medical examination report (D4) which must be undertaken when first applying for a provisional LGV license or to renew an existing license at the age of 45 or over the D4 still only asks one specific question relating to OSA - Does the applicant have sleep apnoea syndrome? This poses an important question - Are our current medical and licensing procedures allowing killers in the cab?

References

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