

# GENERAL PHYSICIANS' PERSPECTIVE OF SLEEP APNEA FROM A DEVELOPING COUNTRY

Syed Fayyaz Hussain, Sumaiya Zahid, Raana Haqee and Javaid Ahmed Khan

Section of Pulmonary Medicine, The Aga Khan University, Hospital, Karachi, Pakistan

**Abstract.** To assess the knowledge of general physicians about the diagnosis and management of obstructive sleep apnea (OSA), a self-administered questionnaire, containing 15 questions, was distributed to 160 doctors attending a pulmonary CME program in March 2002. After 15 minutes of response time, the questionnaires were collected. The data were entered and analyzed using SPSS (Version 10.0) software. One hundred and twenty (75%) questionnaires were returned. Only 41% of responders had ever read an article about OSA and 36% had suspected it at least once in their practice. The majority (61-77%) of responders were aware of the common symptoms of OSA, but 55% did not recognize its association with hypertension. A significant number of doctors were not aware that OSA could occur in non-obese individuals (33%), women (42%) and children (39%). Only 25% of responders recognized that a history and blood tests were insufficient to make a reliable diagnosis of OSA. Half of the responders were aware of CPAP therapy for OSA, whereas 18% would have prescribed sedatives to treat sleep disturbances in OSA.

## INTRODUCTION

Obstructive sleep apnea (OSA) is defined as the periodic reduction (hypopnea) or cessation (apnea) of breathing due to narrowing or occlusion of the upper airway during sleep. OSA is characterized by episodes of upper airway obstruction during sleep that result in repetitive hypoxemia and sleep disruption. OSA leads to various neuropsychological and cardiovascular complications, including daytime hypersomnolence, cognitive impairment, systemic and pulmonary hypertension and cardiac arrhythmias (Kimoff *et al*, 1991).

Sleep-related breathing disorders are common in the community, affecting 9% of women and 24% of men (Young *et al*, 1993). A limited number of studies have evaluated the knowledge of primary care physicians and their referral patterns of patients with OSA (Ball *et al*, 1997; Kramer *et al*, 1999; BaHammam, 2000; Chung *et al*, 2001; Elliott, 2001). It was noted that most

primary care physicians lacked training in the diagnosis and management of OSA patients and there was significant under-recognition of this condition. Very few physicians had attended a teaching session on OSA and most of the referrals from the community were made by a small number of practitioners. It was estimated that physicians were referring only 0.13% of their potential OSA patients for polysomnography, and it is likely that they are not identifying patients with mild disease, and may be missing patients with moderate to severe disease (Kramer *et al*, 1999).

There is lack of data on the awareness of physicians from developing countries about sleep-related breathing disorders. The aim of the study was to evaluate the knowledge of practicing doctors about the diagnosis and management of obstructive sleep apnea.

## MATERIALS AND METHODS

The study was conducted at The Aga Khan University Hospital during a pulmonary CME program held in March 2002. A self-administered questionnaire, containing 15 questions, was distributed to 160 doctors attending the program. After 15 minutes of response time the questionnaires were collected. The questionnaire elicited

---

Correspondence: Dr Syed Fayyaz Hussain, Section of Pulmonary Medicine, The Aga Khan University Hospital, Stadium Road, PO Box 3500, Karachi 74800, Pakistan.

Tel: 92 (21) 4859 4682; Fax: 92 (21) 493 4294

E-mail: fayyaz.hussain@aku.edu; fhussain@akunet.org

information about awareness of OSA among general physicians, along with their knowledge about its clinical features, diagnosis and treatment. The data were entered and analyzed using SPSS (Version 10.0) software.

## RESULTS

A response rate of 75% (n=120) was achieved among the 160 doctors attending the program. Their graduation years extended from 1952-2001, with two-thirds (65%) having graduated for less than 10 years. The majority (82%) of the practitioners had heard of OSA, but only 49 (41%) had read an article about it, and 43 (36%) had suspected a diagnosis of OSA at least once during their practice.

In response to questions about clinical features, 88 (73%) considered snoring an important feature of OSA, 11 (9%) did not regard it as such and 21 (18%) were not sure about it. Excessive daytime sleepiness was not recognized as a symptom of OSA by 26 (22%) and a further 19 (16%) doctors were not sure about it. The fact that OSA leads to loss of concentration and memory impairment was recognized by 78 (65%), denied by 30 (22%) and not known by 15 (13%) doctors. Only 54 (45%) doctors recognized the association of OSA with hypertension and 72 (60%) the increased risk of motor vehicle accident.

Over one-third of doctors were not aware that OSA could also occur in children (39%), women (42%) and non-obese individuals (33%). Nearly half (47%) of the doctors believed that OSA could be reliably diagnosed by history and arterial blood gas analysis. Similarly, 57 (47%) thought that continuous positive airway pressure (CPAP) applied through a nasal mask was a commonly-used therapy. Sedatives to treat sleep disturbance in OSA would have been prescribed by 21 (18%) responders.

## DISCUSSION

This study was conducted among general physicians who had actively enrolled themselves for CME and were likely to have better knowledge than those who were unable to attend teaching sessions. Only 41% of the responding doc-

tors in our study had ever read an article about OSA and 36% had suspected it in their clinical practice. The fact that it has never been suspected in clinical practice by up to two-thirds of practicing doctors signifies serious under-recognition of the condition. Doctors who have never attended a teaching session on OSA were shown to be less likely to refer patients with OSA for further evaluation (BaHammam, 2000). In a recent questionnaire-based study, an overall average of 69% was scored by Canadian primary care physicians, denoting that physicians were relatively under-informed about the clinical features and medical and social ramifications associated with OSA (Chung *et al*, 2001).

Snoring is seen in almost 90% of patients with OSA. Over 85% of patients with the condition will admit to falling asleep at least once a day when not in bed (Whyte *et al*, 1989). Our study found a lack of recognition of snoring (27%) and excessive daytime sleepiness (38%) as important features of OSA. OSA is typically seen in obese middle-aged males who snore habitually (Partinen and Telakivi, 1992). Snoring is common among children with upper airway obstruction and OSA can occur at any age and in non-obese individuals. OSA may be more common in women than previous reports suggest. Women are more likely than men to complain of morning fatigue and morning headache, and less likely to report restless sleep or to have been told of apnea during sleep. Difficulty initiating sleep was twice as common in women as in men (Ambrogetti, 1991). Over one-third of the physicians in our study were not aware of the fact that OSA can occur in children, women and non-obese individuals.

In the diagnosis of OSA, no single clinical factor is reliably predictive of disease. However, combining clinical features and oximetry data, where appropriate, approximately one-third of patients could be confidently designated as having obstructive sleep apnea or not. The remaining two-thirds of patients would still require more detailed sleep studies, such as full polysomnography, to reach a confident diagnosis (Deegan and McNicholas, 1996). Nearly half of the doctors surveyed believed that a reliable diagnosis of OSA

can be made on clinical history and were not aware of the need to perform definitive tests. A similar number of physicians were not familiar with the current treatment modality of OSA and may have prescribed therapy (sedative) that can worsen OSA. During drug-induced sleep, patients with OSA showed significantly stronger collapsibility in the area of the base of the tongue compared with simple snorers (Steinhart *et al*, 2000). Avoidance of sedatives, hypnotics and alcohol is suggested in patients with OSA.

Sleep disordered breathing has been increasingly recognized as an important medical condition leading to significant morbidity and mortality. This is related to the presence of twice as much hypertension, three times as much ischemic heart disease and four times as much cerebrovascular disease in patients with OSA (Partinen and Guilleminault, 1990). Only 45% of practitioners in our study and 50% in Saudi Arabia (BaHam-mam, 2000) were aware of the cardiovascular consequences of OSA. In a recent Swedish cross-sectional study of over 3,000 obese subjects, based on questionnaire data, it was found that a history of loud snoring and witnessed apnea was associated with increased frequency of admission to hospital with chest pain, myocardial infarction and hypertension, independent of other confounding factors (Grunstein *et al*, 1995).

Drowsiness and lack of concentration may contribute to traffic accidents. There is a strong association between sleep apnea, as measured by the apnea-hypopnea index, and the risk of traffic accidents. As compared with those without sleep apnea, patients with an apnea-hypopnea index of 10 or higher had an odds ratio of 6.3 (95% confidence interval, 2.4 to 16.2) for having a traffic accident. This relation remained significant after adjustment for potential confounders (Teran-Santos *et al*, 1999). CPAP therapy has been shown to improve performance during a test designed for the determination of sustained attention in patients with OSA (Randerath *et al*, 2000), thereby reducing daytime sleepiness and the risk of accidents (Minemura *et al*, 1993). Over one-third of physicians in our study (40%) and in the Saudi study (37%) were not aware of an increased risk of accidents in patients with OSA.

Continuing medical education for general practitioners is needed to encourage vigilance for the early detection and reporting of symptoms associated with OSA. Early counseling for change in lifestyle, and the timely use of modern modalities can improve the functional capacity of individuals and help them to contribute to their country's progress.

In conclusion, sleep-related breathing disorders are common in general population and likely to be as prevalent in developing countries as in the West (Haqee, 2002). This study highlights deficiencies in the knowledge about OSA among practicing physicians of a developing country. The majority of physicians were not familiar with the diagnosis and management of OSA, and did not recognize its association with hypertension. Continuing medical education is needed to encourage vigilance for early detection and management of patients with OSA.

## REFERENCES

- Ambrogetti A, Olson LG, Saunders NA. Differences in the symptoms of men and women with obstructive sleep apnoea. *Aust NZ J Med* 1991; 21: 863-6.
- BaHam-mam AS. Knowledge and attitude of primary health care physicians towards sleep disorders. *Saudi Med J* 2000; 21: 1164-7.
- Ball EM, Simon RD Jr, Tall AA, Banks MB, Nino-Murcia G, Dement WC. Diagnosis and treatment of sleep apnea within the community. The Walla Walla Project. *Arch Intern Med* 1997; 157: 419-24.
- Chung SA, Jairam S, Hussain MR, Shapiro CM. Knowledge of sleep apnea in a sample grouping of primary care physicians. *Sleep Breath* 2001; 5: 115-21.
- Deegan PC, McNicholas WT. Predictive value of clinical features for the obstructive sleep apnoea syndrome. *Eur Respir J* 1996; 9: 117-24.
- Elliott AC. Primary care assessment and management of sleep disorders. *J Am Acad Nurse Pract* 2001; 13: 409-17.
- Grunstein RR, Stenlof K, Hedner JA, Sjoström L. Impact of obstructive sleep apnea and sleepiness on metabolic and cardiovascular risk factors in the Swedish Obese Subjects (SOS) Study. *Int J Obes Relat Metab Disord* 1995; 19:410-8.

- Haqque R, Hussain SF, Mujib M, Ahmad HR. A hospital based preliminary report on sleep disordered breathing in Pakistani population. *J Ayub Med Coll Abbottabad* 2002; 14: 2-4.
- Kimoff RJ, Cosio MG, McGregor M. Clinical features and treatment of obstructive sleep apnea. *CMAJ* 1991; 144: 689-95.
- Kramer NR, Cook TE, Carlisle CC, Corwin RW, Millman RP. The role of the primary care physician in recognizing obstructive sleep apnea. *Arch Intern Med* 1999; 159: 965-8.
- Minemura H, Akashiba T, Yamamoto H, *et al.* Traffic accidents in obstructive sleep apnea patients and effect of nasal CPAP treatment. *Nihon Kyobu Shikkan Gakkai Zasshi* 1993; 31: 1103-8.
- Partinen M, Guilleminault C. Daytime sleepiness and vascular morbidity at seven-year follow-up in obstructive sleep apnea patients. *Chest* 1990; 97: 27-32.
- Partinen M, Telakivi T. Epidemiology of obstructive sleep apnea syndrome. *Sleep* 1992; 15 (suppl 6): S1-S4.
- Randerath WJ, Gerdesmeyer C, Siller K, Gil G, Sanner B, Ruhle KH. A test for the determination of sustained attention in patients with obstructive sleep apnea syndrome. *Respiration* 2000; 67: 526-32.
- Steinhart H, Kuhn-Lohmann J, Gewalt K, Constantinidis J, Mertzlufft F, Iro H. Upper airway collapsibility in habitual snorers and sleep apneics: evaluation with drug-induced sleep endoscopy. *Acta Otolaryngol* 2000; 120: 990-4.
- Teran-Santos J, Jimenez-Gomez A, Cordero-Guevara J. The association between sleep apnea and the risk of traffic accidents. Cooperative Group Burgos-Santander. *N Engl J Med* 1999; 340: 847-51.
- Whyte KF, Allen MB, Jeffrey AA, Gould GA, Douglas NJ. Clinical features of the sleep apnoea/hypopnoea syndrome. *Q J Med* 1989; 72: 659-6.
- Young T, Palta M, Dempsey J, Skatrud J, Weber S, Badr S. The occurrence of sleep-disordered breathing among middle-aged adults. *N Engl J Med* 1993; 328: 1230-5.