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Original Article

Attitudes and knowledge about obstructive sleep apnea among Latin American primary care physicians

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ABSTRACT

Objectives: We aimed to evaluate Latin American primary care physicians' knowledge and attitudes about obstructive sleep apnea (OSA) using a Spanish-language version of the OSA Knowledge and Attitudes (OSAKA) questionnaire and to evaluate its psychometric properties.
Methods: We used a cross-sectional survey of general practice physicians in Ecuador, Peru, and Venezuela who completed the Spanish-language version OSAKA questionnaire.
Results: Of 684 primary care physicians surveyed, 367 (65%) responded (mean age, 45 years; range, 21–75 years). Mean total knowledge (proportion of 18 items correctly answered) was 60% (range, 0–100%). Less than half of physicians correctly answered the questions about the association between OSA and hypertension. We found no significant differences in overall knowledge in gender or time since graduation (⩽5 years vs >5 years). Although 73.5% of the physicians felt confident in identifying patients at risk for OSA, only 35.4% felt confident in managing those patients and 22.1% felt confident in managing patients with continuous positive airway pressure (CPAP) therapy. The Spanish-language version of the OSAKA questionnaire had comparable psychometric properties to the English-language version.
Conclusions: This Spanish-language version of the OSAKA yielded considerable variance in Spanish-speaking physicians' knowledge about OSA and confidence in identifying and managing patients with OSA. Focused OSA education for Latin American general physicians is needed.

1. Introduction

Recognition of obstructive sleep apnea (OSA) as an important health risk factor has grown over the last 20 years [1]. It is estimated that 2–5% of the adult population is at risk for OSA, defined as an apnea-hypopnea index (AHI) >5 events per hour [2–4]. The prevalence of OSA might increase in parallel with the rise in obesity and in a generally longer lifespan [5–7]. A high frequency of sleep-related symptoms has been reported in the general Hispanic population [8].

OSA is an independent risk factor for cardiovascular diseases, depression, and diabetes mellitus [9,10], with a substantial societal economic burden [11]. Following treatment for OSA, healthcare expenditures were found to significantly decrease among patients who were adherent to treatment [12]. Therefore, OSA can lead to a multitude of consequences when left undiagnosed or untreated. Unfortunately, an estimated 82% of men and 93% of women with moderate or severe OSA have remained undiagnosed [13,14], which may be attributed to a lack of sleep health knowledge among patients and also among physicians [15].

Despite the high prevalence and clinical significance of OSA, little is known about primary care Latin American physicians' ability to identify and manage patients with OSA [16]. The aim of our study was to evaluate the knowledge and attitudes of OSA among Latin American primary care physicians using a Spanish-language

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version of the OSA Knowledge and Attitudes (OSAKA) questionnaire, which was originally developed in the United States [17,18]. We also evaluated the psychometric properties of this Spanish-language version of the OSAKA questionnaire.

2. Methods

2.1. Study design

We conducted an anonymous cross-sectional survey of primary care physicians (family practitioners and residents training in this discipline) who were attending scientific medical conferences in six cities, including Quito and Guayaquil, Ecuador (July 2010 to September 2010); Lima, Peru (June 2011); and Caracas, Valencia, and Maracaibo, Venezuela (May 2010 to September 2010). The surveys were administered during international meetings of allergy, asthma, and respiratory medicine in Guayaquil, Lima, and Caracas. In Valencia and Maracaibo, the study was conducted during local conferences about allergy and respiratory medicine. We consulted with our institutional committee who approved the study. After receipt of participants' verbal consent, the survey was voluntarily completed; no financial incentive was offered.

2.2. Study survey

We used the OSAKA questionnaire to measure physician's knowledge and attitudes about OSA [17,18]. The OSAKA questionnaire was developed and validated in the United States to assess physicians' knowledge and attitudes concerning the identification and management of patients with OSA [17,18]. We used a rigorous method of validation of the translated version of the OSAKA [19], which we briefly described. Two of the investigators translated the OSAKA to Spanish. Next the Spanish-language version was translated to English by a third investigator who did not know the original version of OSAKA. Then the back-translated English-language version of the new Spanish-language questionnaire was compared with the original English-language version; each item on the back-translated English-language version was ranked by 30 individuals who were bilingual and independent of the study team for comparability and similarity of interpretability with the same item on the original English-language version. Any translated item with a mean score >3 (seven was the worst agreement and one was the best agreement) was formally reviewed and corrected. The revised item was then translated back to English and compared again with the original English-language version of that item. This process continued until the mean scores for each item indicated a valid version ($\leqslant$3 on each of the comparability and interpretability rankings, and preferably <2.5 on the interpretability rankings) [19].

The OSAKA questionnaire consisted of 18 knowledge items and 5 questions related to attitudes about OSA. The knowledge items covered OSA domains, including epidemiology, pathophysiology, symptoms, diagnosis, and treatment. Options for response to the OSAKA knowledge questions were true or false with a third option of do not know, which was scored as an incorrect response. The total knowledge score was computed as the percentage of correct answers to the 18 knowledge questions and ranged from zero to 100%. The first two attitude questions asked about the importance of OSA, and responses were scored on a five-point Likert scale, ranging from one (not important) to five (extremely important). The remaining three attitude questions dealt with one's confidence in diagnosing and treating patients with OSA, and responses were scored from one (strongly disagree) to five (strongly agree). Mean scores were computed for each of the two attitude scales.

In addition to the OSAKA questionnaire, the survey included questions related to age, gender, year of medical school graduation, and years in medical practice.

2.3. Data analysis

We used descriptive statistics to summarize responses to the individual questions on the OSAKA questionnaire. We used χ^2 tests to compare proportions across countries, gender, and years in practice after medical graduation (stratified by $\leqslant$5 years after graduation or >5 years). Spearman rank correlation coefficients were used to assess the relationships between the OSAKA knowledge total score and attitudes about sleep apnea. Statistical tests were performed using SPSS version 13 (SPSS, Inc, Chicago, IL, 2000). A P value of less than .05 was considered significant for all tests.

3. Results

Of the 684 primary care physicians who received a survey, 367 (65%) returned a completed questionnaire. The mean (standard deviation [SD]) age of respondents was 45 years (SD, 11 years; range, 21–75 years), with 53% being women. The mean (SD) number of years in practice was 18 years (SD, 11 years; range, 0–47 years), with 81% who reported having graduated more than 5 years ago.

3.1. Knowledge

The mean total knowledge score (proportion of 18 items correctly answered) was 60.0% (range, 0–100%) among the 367 general practice physicians in our sample, using the Spanish-language OSAKA questionnaire compared with 73.4% among the 108 participants in internal medicine, pediatrics, and family medicine in the original study, using the English-language version [17,18]. Mean knowledge scores significantly differed using χ^2 tests among physicians surveyed in Peru, Venezuela, and Ecuador (Table 1). Cronbach α for the 18 items on the knowledge measure was 0.58 using the Spanish-language version of the OSAKA compared with α of 0.69 reported using binary data of the English-language version [17].

Less than 50% of physicians correctly answered the questions about the association between OSA and hypertension, uvulopalatopharyngoplasty as curative therapy in OSA, continuous positive airway pressure (CPAP) therapy produces nasal congestion, women with OSA may present with fatigue alone, and a collar size of 17 inches or larger is associated with OSA. Less than 30% of the physicians correctly answered that <5 apnea or hypopnea per hour is normal in adults and that laser-assisted uvuloplasty is an appropriate treatment for severe OSA (Table 1). We found no significant differences in overall knowledge in gender or by time since graduation ($\leqslant$5 years vs >5 years).

There were differences among the participants in the three countries in the proportions of correct answers to specific items about the physician's knowledge about OSA (Table 1). Lower proportions of physicians in Ecuador compared with physicians in Peru and Venezuela correctly answered the questions about uvulopalatopharyngoplasty being curative therapy for the majority of patients with OSA, the relations between OSA and car accidents, and between OSA and collar sizes of 17 inches or larger.

A lower proportion of physicians in Venezuela compared with physicians in Peru and Ecuador correctly answered the question about estimated prevalence of OSA. Lower proportions of physicians in Venezuela compared with physicians in Peru and Ecuador correctly answered the questions about CPAP producing nasal congestion and about the prevalence of OSA. As shown, 5 of the 18