

Overview of sleep disordered breathing management in 12 latin american sleep centers

Panorama do gerenciamento dos distúrbios respiratórios de sono em 12 centros latino-americanos de sono

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ABSTRACT

Objective: Sleep Disordered Breathing (SDB) still remains unrecognized by the medical community, health-care providers and patients despite its high prevalence and association with other major health conditions. The aim of this study was to describe data about the SDB management, collected from 12 different Latin American sleep centers. **Methods:** Thirteen physicians from these sleep centers completed an electronic survey about SDB recognition, number of Sleep Physicians and Sleep Centers, as well as Sleep Medicine training in their respective countries. **Results:** Seventy-seven percent of the participants responded that Sleep Medicine is not recognized as a medical specialty in their country but despite that, 69% reported that there is specific and official training in Sleep Medicine and for Sleep Lab technicians in their countries. Sleep labs are officially registered only in Brazil and Colombia and only in Brazil sleep labs are certified by a scientific society. The 12 sleep centers studied summed up more than 45.500 sleep studies performed every year with an average of 60-80% positive studies for SDB. Most of the sleep centers (85%) perform Home Sleep Testing and use unattended AutoCPAP for home titrations. Eighty-five of the sleep centers have a CPAP clinic to support their patients with the PAP therapy set up. **Conclusions:** Sleep Medicine is still not recognized as a medical specialty in most of Latin America and all participants agree that education should be number one priority to grow SDB awareness in Latin America.

Keywords: apnea, latin america, sleep, sleep disorders, sleep medicine specialty.

RESUMO

Objetivo: Os distúrbios respiratórios do sono (DRS) ainda permanecem desconhecidos pela comunidade médica, provedores de serviços de saúde e pacientes, apesar de sua alta prevalência e as-

sociação com outros problemas graves de saúde. O objetivo deste artigo foi descrever informações sobre o gerenciamento dos DRS, coletados de 12 diferentes centros de sono da latinoamericanos. **Métodos:** Treze médicos desses centros de sono completaram uma pesquisa eletrônica sobre o reconhecimento dos DRS, clínicas de sono e treinamento em medicina do sono em seus respectivos países. **Resultados:** Setenta e sete por cento dos participantes responderam que a medicina do Sono não é reconhecida como especialidade médica em seu país, apesar disso, 69% dos participantes relataram que existe em seus países treinamento específico e oficial em medicina do sono e para técnicos de laboratórios do sono. Laboratórios do sono são oficialmente reconhecidos no Brasil e Colombia e somente no Brasil os laboratórios são certificados por uma sociedade científica. Os 12 centros de sono estudados somam mais de 45.500 estudos de sono por ano com, em média, 60%-80% dos estudos positivos para DRS. A maioria dos centros de sono (85%) realizam estudo de sono domiciliar e usam AutoCPAP para titulações em domicílio. Oitenta e cinco por cento dos centros de sono possuem uma clínica de CPAP para apoiar seus pacientes com a adaptação à terapia. **Conclusão:** A medicina do sono ainda não é reconhecida como especialidade médica na maioria dos países latino-americanos e todos os participantes concordam que educação deve ser prioridade número 1 para aumentar o conhecimento dos DRS

Descritores: américa latina, apnéia do sono, distúrbios do sono, medicina do sono.

INTRODUCTION

Sleep Disordered Breathing (SDB) is recognized as a major public health concern⁽¹⁾. Considering the higher prevalence of sleep disorders⁽²⁻⁸⁾ and its major risk for public health due to its associated factors, such as sleepiness^(9,10), neuropsychological and mood alterations⁽¹¹⁻¹³⁾,

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cardiovascular diseases⁽¹⁴⁻¹⁹⁾, increased risk of automobile or workplace accidents⁽²⁰⁻²²⁾ and metabolic dysfunction^(23,24), basic knowledge in sleep medicine is expected by medical clinicians. However, studies have shown that sleep disordered breathing still remain not well recognized by the medical community or health-care providers⁽²⁵⁻³⁰⁾, suggesting that people who suffer from sleep disorders do not receive adequate treatment. This lack of knowledge and attitudes toward sleep disorders may be attributed to the negligence in incorporating sleep medicine as part of medical education⁽³¹⁻³⁶⁾ and relative areas.

Sleep Centers in different countries have sought to fill this gap through fellowship programs in sleep medicine or even through outreach programs designed for health-care professionals⁽³¹⁻³⁶⁾. Other factors contributing to sleep disorders under diagnosis are the patient's misperceptions of symptoms⁽³⁷⁻⁴⁰⁾ and high demand and cost of diagnosis and treatment⁽⁹⁾.

There is scarce information on the Latin American situation of Sleep Medicine. During the XII Congress of the Federation of the Latin American Sleep Societies and the I Congress of the Peruvian Association of Sleep Medicine held in Lima, Peru, in October 2008 a meeting of representatives from different countries of Latin America was organized to implement a plan of actions for Sleep Medicine in Latin America. Participants from Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay described the organization of their societies, sleep study facilities, care and research in the area of sleep medicine, human resources and training events as well as their participation into education in each country.

At that time, very few countries like Argentina, Colombia, and Uruguay had health systems that cover polysomnographic studies or continuous positive airway pressure therapy. In the majority of countries, there was no formal training in sleep medicine, neither an inclusion of sleep medicine courses in medical school curricula. The development of Sleep Medicine in Latin America was clear to be very uneven and the availability of resources very different between countries. The analysis of the region as a whole indicated a major deficiency in the practice of sleep medicine, an underserved population, and very few participation of sleep medicine in undergraduate and postgraduate medicine programs. Sleep medicine, as a field, is still young and with great development potential⁽⁴¹⁾.

Since 2008, no data from Sleep Medicine in Latin America was collected. The aim of this manuscript is to describe the data collected from different Latin American sleep centers during the III KOLLA group meeting in October 2011.

METHODS

On October 8, 2011 the III KOLLA (Key Opinion Leaders from Latin America) group meeting was held in Miami. The KOLLA group consists of sleep physicians who help develop and shape Sleep Medicine in the various countries of Latin America. The group and the meet-

ings are sponsored by ResMed Corp with the main goal of promoting discussions and exchanging of experience to further develop Sleep Medicine in Latin America. The III KOLLA group meeting had the objective of creating a document that states the panorama of the Sleep Disordered Breathing Management in Latin America and that can serve as an important local reference.

Thirteen physicians attended the meeting, 4 from Brazil, 2 from Argentina, 2 from Mexico, 2 from Colombia, 1 from Peru, 1 from Uruguay and 1 from Chile. These participants had to complete an electronic survey about Sleep Medicine recognition, Sleep Physicians, Sleep Center and Sleep Medicine training in their respective countries.

RESULTS

The results here presented belong to 12 Sleep Centers from 7 different countries in Latin America (Table 1).

Table 1. Twelve participant Sleep Centers.

| |
|---|
| 1. Centro de estudios de Altercimes del Sueño - Buenos Aires - Argentina |
| 2. Laboratorio del Sueño IADIN - Buenos Aires - Argentina |
| 3. Centro de Transtornos del Sueño Clínica Alemana - Santiago - Chile |
| 4. CENTRES Clínica Anglo Americana - Lima - Peru |
| 5. Instituto do Sono de São Paulo - Sao Paulo - Brazil |
| 6. Laboratório do Sono do Instituto do Coração, HC FMUSP - São Paulo - Brazil |
| 7. SLEEP Lab - Centro Médico Barra Shopping - Rio de Janeiro - Brazil |
| 8. Laboratorio del Sueño del INER - Mexico City - Mexico |
| 9. Clínica de Trastornos del Dormir, INCMNSZ/UNAM - México City - Mexico |
| 10. Laboratório del Sueño CASMU - Montevideo - Uruguay |
| 11. Clínica ONDINA - Bogota - Colombia |
| 12. Fundación Neumología Colombiana - Bogota - Colombia |

From 13 KOLLA participants, 77% responded that Sleep Medicine is not recognized as a medical specialty in their country. Sleep Medicine is officially recognized just in Brazil and Mexico. Despite that 69% of the participants reported that there is specific and official training in Sleep Medicine in their country. The different types of training in Sleep Medicine are shown in Figure 1. Most of the Sleep Specialists on the countries studied are Neurologists and Pulmonologists as reported on Table 2.

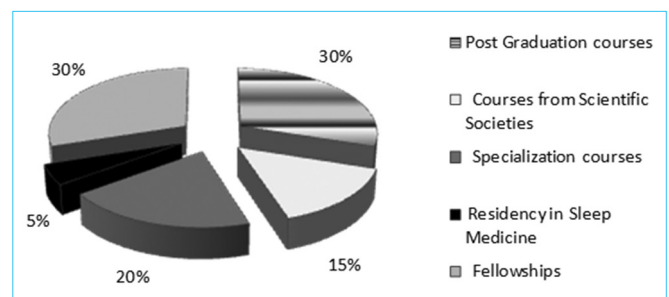


Figure 1. Types of training in Sleep Medicine reported from the participant countries.

Table 2. The estimated rate of each medical specialist who is also a Sleep Specialist.

| | 0-20% | 20-40% | 4-60% | 60-80% | N/A |
|-------------------|----------|----------|----------|----------|----------|
| Pulmonologists | 3 23% | 4 31% | 4 31% | 1 8% | 1 8% |
| Neurologists | 5 38% | 3 23% | 4 31% | 0 0% | 1 8% |
| ENTs | 5 56% | 0 0% | 2 22% | 1 11% | 1 11% |
| Other Specialties | 7 88% | 0 0% | 0 0% | 0 0% | 1 12% |

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.

When asked about what needs to be done so that Sleep Medicine can grow more in Latin America all 13 KOLLA members agreed that Education should be the number one priority. Other challenges to increase SDB awareness in Latin America are cited by the participants as being:

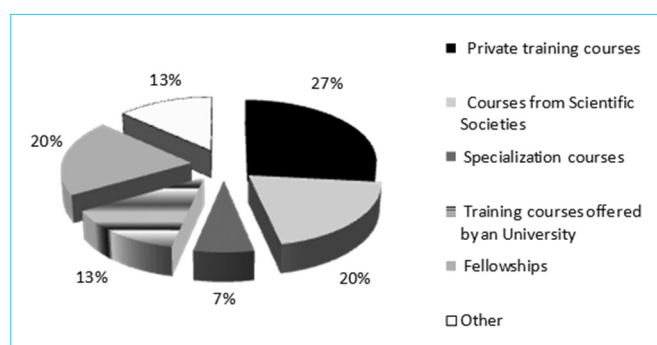
The need of better education for General Physicians and Medical students

Lack of public awareness

The need for public and private policies for sleep studies and PAP therapy reimbursement/coverage - Lack of government support

Lack of local Clinical guidelines for Sleep Medicine
Simplified sleep studies should become more popular

69% of KOLLA group participants answered that there are specific trainings for Sleep Lab technicians in their country. The types of training for Sleep Lab technicians are shown on Figure 2.

**Figure 2.** Types of training reported for Sleep Lab technicians.

From the seven countries studied there seems to be a Sleep lab registry only in Brazil and in Colombia, and only in Brazil Sleep Labs are certified by a scientific society.

The average cost for a private patient of full PSG is between US\$ 250 - US\$ 1,000, with Argentina having the lowest cost and Mexico the highest. On all of the countries investigated there's a partial or complete reimbursement of a full PSG by public and private health insurances. Public health insurances in Latin America pay Sleep Labs an average of US\$ 200 for a full PSG and private health insurances an average of US\$ 300. In Mexico these

values can be as high as US\$ 800 for public insurances and US\$ 1,000 for private. The reimbursement of a full PSG in the referred countries according to the different payer systems are listed on Table 3.

Table 3. Reimbursement of a full PSG in the countries studied according to different payer systems.

| | 100% reimbursed | Partially reimbursed | Not reimbursed | N/A |
|--------------------------------|-----------------|----------------------|----------------|----------|
| Public Health System | 5 42% | 4 33% | 2 17% | 1 8% |
| Prepaid Health Systems | 8 62% | 5 38% | - 0% | - 0% |
| Social Security Health Systems | 6 60% | 1 10% | 2 20% | 1 10% |

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.

The 12 Sleep Centers surveyed summed up 145 Sleep beds and more than 45,500 sleep studies performed every year. From these sleep studies on average 60%-80% are positive for sleep apnea according to the participants.

Children are studied in 8 of the participant sleep centers (62%). Most of the sleep centers (77%) perform in-lab simplified sleep studies (respiratory polygraphy) when appropriate and almost every lab (85%) offers the Home Sleep Testing (HST) services to their patients. When it comes to the titration of positive pressure in the lab, manual titrations are more common (69%) than automatic attended titrations with an AutoCPAP (46%), but for titrations at home, unattended AutoCPAP is most used (69%). Bilevel positive pressure titrations are performed in all of these labs for cases of Overlap Syndrome, Hypoventilation, Neuromuscular Diseases and when high (usually above 15cmH₂O) positive pressure is required. Adaptive Servo Ventilation (ASV) titrations are performed in 85% of the labs for cases of Periodic Breathing, Complex Sleep Apnea and Central Sleep Apnea.

Eighty five % of the sleep centers have a CPAP clinic to support patients with the PAP therapy set up. The management protocols of the clinics include mainly the following steps:

Formal education on SDB and PAP therapy management with the aid of audio visual and printed materials. Educational sessions can be performed individually or in groups and they are usually conducted by Respiratory Therapists or Nurses.

Desensitization for PAP therapy which includes different masks fitting and trying PAP therapy in different pressure levels (which sometimes begin on the night of the titration study)

Psychological consultations are scheduled when necessary

Follow up calls or visits after the first week of treatment, then 1 month and after 6 months of PAP therapy initiation

DISCUSSION

The main and perhaps the most alarming result of this survey, is the fact that Sleep Medicine is still not recognized as a medical specialty in most of the Latin American countries, despite the increasing demand of sick patients and availability of scientific data showing that Sleep Disorders are a major public health burden⁽⁴²⁾.

Many studies addressed the lack of knowledge in sleep medicine as part of medical education⁽³¹⁻³⁶⁾. Schotland & Jeffe in 2003 showed that in a sample of 115 physicians very few of them considered SDB as a clinically important problem⁽⁴³⁾. The problem is even worse for SDB in children. Uong et al. in 2005 and Tamay et al. in 2006 concluded that there a need for education on SDB for both undergraduate and graduate medical students⁽⁴⁴⁾, as well as for Pediatric medical residents⁽²⁹⁾. Sleep Centers in different countries have sought to fill this gap through fellow programs in sleep medicine or even through outreach programs designed for healthcare professionals⁽³¹⁻³⁶⁾.

In 2011, Averbuch et al. reported that there was no formal training in sleep medicine in the majority of Latin American countries, neither an inclusion of sleep medicine courses in medical school curricula. The development of Sleep Medicine in LA was clear to be very uneven and the availability of resources very different among countries. The analysis of the region as a whole indicated a major deficiency in the practice of sleep medicine, an underserved population, and low inclusion of sleep medicine in undergraduate and postgraduate medicine programs⁽⁴¹⁾.

Three years after this report, 69% of the KOLLA group participants reported that there is specific and official training in Sleep Medicine and for PSG technicians in their countries. Most of them are post graduate fellowship and specialization courses.

Sleep specialists from the LA countries are mainly Neurologists and Pulmonologists. It's remarkable to find out such an increase in the offering of training in Sleep Medicine in LA. It may reflect the increase in the demand for specific knowledge in these countries.

Other challenges to increase SDB awareness in LA are cited by the participants as being: lack of public awareness; the need for public and private policies for sleep studies and PAP therapy reimbursement/coverage - Lack of government support; lack of local Clinical guidelines for Sleep Medicine and simplified sleep studies should become more popular. Perhaps, a future survey should include investigation on whether this scenario has changed.

Patients often approach their primary care physicians with a variety of symptoms, and it may take several visits and/or referral to a pulmonologist, neurologist or otolaryngologist to uncover the root cause. Too often, time is wasted treating superficial signs of SDB with medications or other ineffective methods. Specialists and generalists alike have an opportunity to improve this process by adopting a proactive approach to identifying and screening for SDB⁽⁴⁵⁾.

Full night attended polysomnography is still the gold standard diagnosis tool⁽⁴⁶⁾ but ambulatory cardiopulmonary monitoring for SDB diagnosis has recently gained ground^(47,48).

The cost of diagnosis and treatment of sleep disorders is high. A full PSG can cost a private patient in LA somewhere between US\$ 250 - US\$ 1.000 and we wonder whether simplified in-lab or home diagnostic tests could reduce costs. Most of the LA sleep centers (77%) perform in-lab simplified sleep studies (respiratory polygraphy) when appropriate and almost every lab (85%) offer the Home Sleep Testing (HST) services to their patients.

It has been shown that the setting of unattended respiratory monitoring (home or sleep laboratory) influences neither the number of valid studies nor the results of the respiratory parameters measured with the advantage that most patients prefer home studies⁽⁴⁹⁾.

Despite the high costs to the patients, on average Public Health Insurances in Latin America pay Sleep Labs US\$ 200 for a full PSG and Private Health Insurances an average of US\$ 300, which is very low considering the maintenance and personnel costs of a sleep lab.

The PSG full night CPAP manual titration is the best practice recommended⁽⁵⁰⁾. This routine in LA is more common (69%) than automatic attended titrations with an AutoCPAP (46%), but for titrations at home, AutoCPAP is most used (69%). It has been shown that home unattended titrations with AutoCPAPs are efficacious and cost-effective for patients with moderate to severe OSA without significant comorbidities⁽⁵¹⁾. Perhaps newer equipments with better algorithms to recognize central apneas would also help improve the accuracy of unattended AutoCPAP titrations.

Clinical pathways utilizing PSG and portable monitoring and autotitration have shown to result in similar CPAP treatment acceptance, adherence, and clinical outcomes. Similarly, a systematic pathway using HST and unattended autotitration (AutoCPAP) can be effective in patients with a high likelihood of having OSA⁽⁵²⁾.

Education about CPAP use is the most important factor to improve the treatment adherence⁽⁵³⁾. In agreement with this assumption 85% of the LA sleep centers have a CPAP clinic to support their patients with the PAP therapy set up. The management protocols include desensitization, formal education on SDB and PAP therapy management, psychological consultations and follow up calls or visits. Most of the studies published about CPAP education found better results when a robust program is used compared with a simple approach⁽⁵³⁾. This result suggests that sleep centers in Latin America are investing in their patients' education as a way of increasing treatment acceptance and compliance.

In conclusion, Sleep Medicine is not recognized as a medical specialty in most Latin American countries, despite of that, there are specific and official training for physicians and technicians. Education in Latin America should be a priority for the growth of Sleep Medicine in the region.

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