



International Sleep Medicine Training Course

October 11 and 12, 2019 - Bogota, Colombia





Biologist María Lourdes Galicia Polo, Mexican specialist in sleep studies, she addresses the importance of PSG/HST home exams - Page 2

Experts Highlight Merits of the Sleep Medicine Update Symposium - Page 6

Dra. Ximena Pirafan Speech Therapy Dr. Maria Angélica Bazurto D Neumologist A

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Biologist María Lourdes Galicia Polo, Mexican specialist in sleep studies, addresses the importance of home PSG/HST exams

fter graduating with a biology degree, María Lourdes became a technician in polysomnography and sleep medicine at the School of Sleep Medicine in Palo Alto, California. She obtained certification as a RPSGT by the Mexican Academy of Research and Sleep Medicine, in addition to completing a diploma in respiratory disorders during sleep at the National Institute of Respiratory Diseases (INER).

Neurovirtual News: Tell us about your professional and academic career.

Maria Lourdes Galicia: I'm a biologist by profession. Early in my career, I conducted sleep studies in basic animal research at the National Institute of Neurology in Mexico. There was also space for clinical sleep medicine practice, and I ended up focusing on this area. Given that biology is a very broad area, which includes medicine and biological rhythms, I ended up being interested in work focused on the clinical field rather than on research, and then I started doing social work at the Sleep Disorders Clinic at the National Institute of Neurology.

NN: You began your work with cats and mice at the National Institute of Neurology. What kind of studies included animals? Were there studies related to sleep at that time?

MLG: Yes, we were already doing research, led by Dr. Anabel Jiménez and Dr. René Drucker. Dr. Drucker, a very important scientist in the sleep field, also one of the pioneers in basic sleep research and founder of the Sleep Clinic at UNAM (Universidad Nacional Autónoma of Mexico). At the time, we investigated the areas responsible for the different stages of sleep and studied certain substances, neurotransmitters and brain structures related to REM sleep – the phase of sleep in which rapid eye movement occurs. We analyzed certain waves generated in cats, especially during REM, to identify what would happen to these animals if certain brain structures were injured, thus being able to extrapolate basic research to clinical research. Another line we followed with mice was to inject sleep-inducing substances, such as serotonin receptors, and observe the effects on their behavior.

NN: Is the sleep structure of cats similar to humans?

MLG: They have REM and non-REM sleep, but their sleep is not structured in stages like ours. The REM sleep would be equivalent in terms of muscle atony, rapid eye movement and mixed frequencies, as in all mammals. Non-REM sleep can be divided into light or deep, but it lacks the graph elements that we can see in humans.

NN: How is the work that you developed with major Mexican institutions working in the field of sleep?

MLG: I was lucky to have been invited to work with pioneers of sleep medicine in Mexico, having worked in different institutions and with different doctors, lines of research, and specialties. I worked with neurology at the National Institute of Psychiatry with Dr. Rafael Salin. Then, invited by Dr. Drucker, with whom I had already collaborated, I went to work at the Faculty of Medicine at UNAM. In parallel, Dr. Pérez Padilla, the person responsible for the creation of the National Institute of Respiratory Diseases (INER), also invited me. Although I was more focused on neurological



and psychiatric sleep issues than on respiratory, I accepted INER's offer, while accepting another shift in medical school. I believe that my love for sleep made all of these people invite me to work on these projects, which gave me a very comprehensive and broad perspective abut sleep disorders, as I was able to study it related to neurology, psychiatry, respiratory and cardiology.

NN: In these institutions, in addition to the clinical part, observing patients to help people suffering from sleep disorders, do you also conduct research? And what kind of research do you lead?

MLG: I have collaborated on many research projects. What we have done is validate a series of equipment for the study of sleep, substantiating different equipment brands. We were also in charge of making these confirmations, especially of type 3 and type 1 equipment, with different age groups. As we are specialists in respiratory disorders it has given much relevance to this place. I also participated in investigations with the UNAM focused on neurodegenerative diseases such as patients with spinocerebellar ataxia type 2, whom we observed sleep disorders in. We saw problems with ambulation, insomnia and movements during sleep. We also did a study in Cuban and Mexican groups, for which we reviewed a series of studies with Dr. Luis Velázquez, who is a great specialist in this line of research in ataxia. We reviewed studies of patients that started with this disease, who were in the middle of the disease and at the end of the disease, and we have seen the changes and which areas were most affected in each group. These patients have many movement disorders. During the day they cannot walk; they tremble a lot. But at night they have more movement than during the day, resulting in a very fragmented sleep and affecting REM sleep. We analyzed the microstructure of sleep, reviewed how the sleep spindles were found, the K complexes, and we saw that there is a decrease in the number of sleep spindles. We know that sleep spindles are related to the IQ level in certain people; with that we can see the correlation of how memory deteriorates in these people.

NN: What are the impacts of a change in the stage of REM sleep and its fragmentation in these patients?

MLG: The REM sleep stage is that moment when muscle atony occurs, which means that the muscle activity is reduced to its minimum function. At this stage, there is no motor activity, as the entire motor system is completely depressed to prevent dreams from being acted upon. In fact, if we slept standing up, we would fall into the REM phase, because we would completely lose muscle tone.

What happens in these patients is a decrease in the amount of REM and the fragmentation of that sleep. Contrary to what happens with these people during the day, when they have limited mobility and are unable to control their movements, in REM sleep they end up having excessive motor activity, moving more than individuals without this condition. They start to act in dreams, with movements



in the lower and upper limbs, even making movements as if they were walking or fighting. This type of change is observed mainly in patients who suffer from neurodegenerative diseases, mainly Parkinson and ataxia.

NN: What other research do you do?

MLG: Another line of research that has been followed here is related to the effects observed in respiratory disorders and cognitive changes

that occur in different age and gender groups, verifying which differences prevail in sleep disorders.

We also investigate adherence to CPAP treatment in patients with obstructive sleep apnea, and whether there are differences on which adherence to treatment depends on the socioeconomic level, on academic level, gender, or age. There is a CPAP clinic where patients are monitored in a personalized way and are called periodically. Until a year ago we had a social worker here who was in charge of calling them regularly, asking how they were, why they had not gone to their consultation, how long they had been using the equipment, how many hours, if they had changed their masks, if they had not done so. This allowed patients to maintain CPAP treatment by up to 90%.

Another line of monitoring we have here at INER is carbon dioxide levels and their impacts on a population such as that of Mexico City, which has an altitude of 2240 meters above sea level. We observed that the levels of CO₂ are much higher than those reported in other countries of the world, which is why the cutoff points in relation to the levels of CO₂ are published both in the academy's manuals and in the manuals of other societies. In Europe, for example, the cuts are different. It is said that levels above 50 mm of mercury are those that should be considered to diagnose an individual with nocturnal hypoventilation. However, what we are studying here is that when considering an individual to have hypoventilation, carbon dioxide levels should be above 45 mm of mercury, when the normal cutoff point would be 35, unlike other populations.

NN: What about research with children?

MLG: At UNAM we also work with children. We have developed research lines with newborns. We studied many children with respiratory problems and found an important relationship that has also been reported in other countries. We found a higher occurrence of children with central apnea problems, children of very young mothers, mothers almost in adolescence, and of mothers over 45 years of age. In many cases, the apnea disappears. But we did not follow the neurocognitive development of these children in the long term. We think it is probably a physiological event, which is part of the development or neurodevelopment of these children and will not affect them, but it really needs to be studied further. Something that we have observed in this type of child is that they show a lot of intermittent hypoxemia. This means that the percentage of oxygen goes up and down during sleep, with a very high hourly rate of sleep. Children with obstructive sleep apnea with intermittent hypoxemia have significant cardiopulmonary damage, which can cause pulmonary hypertension, especially in those who are not treated.

We still need to deepen our studies. But we have limitations with this type of population. It is difficult to register babies all night to be studied, especially if we want to keep a record for longer nights. Parents do not always want to go to the lab.

NN: Do you think home testing can make patients who do not have access to a polysomnography exam today be able to get a

"A prior clinical evaluation is also relevant, and very important. As we know, there is a high prevalence and a greater study regarding respiratory disorders associated with sleep. However, there are other disorders, so a comprehensive assessment is needed. There are many tools we can use, questionnaires that tell us that other sleep disorders may be associated with movement disorders, such as complaints and strange sensations in the extremities."

quality diagnosis?

MLG: Of course. Sleep medicine is simplifying and becoming more accessible, aiming to reduce waiting lists in public health institutions, especially here in Mexico. We have waiting lists of up to one year, with daily studies from Monday to Sunday with full schedules. What we have established in recent times is to identify adults who have respiratory disorders, such as obstructive sleep apnea without comorbidities, and

we offer them home studies. This allows speeding up the diagnosis, bringing good results and reducing the time to receive treatment for their problems.

Another demand we see is for patients with respiratory and neurodegenerative diseases. Dr. Martha Torres, head of the clinic at INER, has a large population of patients with neurodegenerative diseases, mainly Duchenne. These patients are born apparently normal. However, in their development, they begin to lose ambulation, to have mobility problems, to lose the ability to move limbs and to have a problem with muscle weakness, especially at the level of the rib cage, as well as have respiratory problems not obstructive, but rather restrictive. What happens to this type of patient? For many of their family members, it is very difficult to transport them to the laboratory. What Dr. Martha Torres did was study these patients in the long term, accompanying a large population. These patients came with complicated illnesses, worsened with pneumonia, and they arrived at the emergency room when they were already very committed, and it was then that they received attention. The working group opened a consultation for this group and began to observe that these patients have problems with CO2 retention during sleep, especially during REM sleep, because they begin to have problems of nocturnal hypoventilation, only at night. Therefore, when these patients went to the neurological consultation, they presented no problem. So, the working group proposed a study every six months to understand the point of the disease when patients start to retain CO2 in REM sleep. We started to provide ventilatory support in these stages of sleep in the early stages of the illness, impacting on cost reduction for both the family and institutions, as there was less need to go to the emergency service and reduced complications. This means that a good diagnosis of patients with simplified studies is feasible and can be obtained.

Currently, Dr. Torres has been carrying out work in which these patients are followed up with simplified studies. First, they carry out simplified validation studies in the laboratory and subsequently conduct the others at home, avoiding frequent commuting and reducing costs. The simplified diagnosis is extraordinary. Thus, we bring to the clinic only those individuals who have other types of diseases, such as ALS (Amyotrophic Lateral Sclerosis), more complicated neuromuscular patients, or patients with movements associated with sleep.

NN: In your opinion, to what extent can home-based studies replace one-on-one type 1 lab tests, especially in the face of a growing reality of sleep disorders?

Nowadays, we observe that we generate our disorders ourselves, as we are sacrificing sleep for social reasons, work and, above all, the advancement of technology, such as video games, cell phones and tablets. We are losing our circadian sleep rhythms, always waiting to see if a message has arrived, if someone has published something, to review social media. Light is a fundamental factor in inducing sleep, the main biological clock to indicate that it is time

to go to sleep. And light stimuli at a very short distance creates confusion in the brain and we delay sleep until we create insomnia. Among young people, for example, there is an increasing number complaining of insomnia or daytime sleepiness, and parents are worried. Many end up taking a hypnotic drug to sleep, because there is no way back to the previous cycle, or end up compensating for sleep on the weekends. Now there are some multicyclic sleep cycles in which people sleep when they can or want. And what happens is that they take hypnotics to sleep or activators of the central nervous system to keep them awake, which is not healthy. With the possibility of a type 2 exam at home, we were able to put equipment on a teenager, leave it all night, check how much he woke up at night, how many activations he had, identify if there is any social disturbance related to sleep, see how sleep was behaving, what time he wakes up, and how many naps he takes during the day. Thus, we manage to give a more precise treatment to the problem, which most likely is due to bad sleep habits. Now we know that there is an insufficient sleep syndrome and if we do not give a person a sleep inducer activator, I believe that in the long term we will have health consequences. It is important in this type of individual.

Other patients for whom home polysomnography is useful are those with periodic movements, those with sleep-related epilepsy

and who are difficult to control, and to those adolescents who have had parasomnias and who again suffer from parasomnias. Normally they arrive at the sleep laboratory and do not present any type of parasomnia as they know they will be observed, so it is more difficult for these events

to occur and so they do not respond to the usual treatment of parasomnias. Therefore, in this type of population, doing a type 2 polysomnography at home would be great.

A home polysomnography can also be done in people who have other comorbidities, and who have no place to perform the polysomnography, or when the service is saturated. Also, in people who are already being treated and who remain ill, with symptoms – in these patients we can find another type of parasomnias associated mainly to REM sleep when doing a polysomnography at home.

NN: What aspects should physicians pay close attention to when performing the home polysomnography and interpreting results?

MLG: A comprehensive and prior clinical evaluation is very relevant, because although there is a high prevalence and further studies in relation to respiratory disorders associated with sleep, there are other types of disorders too. There are many tools we can use, questionnaires that tell us that other sleep disorders may be associated, movement disorders, complaints and strange sensations in the extremities, and the occurrence of movements in the beginning or at the end of sleep. All the symptoms associated with the patient give us an important guideline.

When the study is done, what should we see? Firstly, a study of more than six hours of recording would be a diagnostic tool, otherwise it will not work. Another is to have at least four hours of sleep in which we have at least two cycles of sleep, non-REM sleep and REM sleep, that have complete sleep cycles, that the oximetry signals are not lost, at least 80% of good quality respiratory signs, and a warning button – for example, if there is an event in the patient's case, the option to press the button so we see these signs during registration. Video is also something that can contribute a lot and be a great support in in-home studies of polysomnography. There should be a highly qualified technician who knows the signs and how to identify the artifacts so that when the doctor does the analysis of all the signs registered, he can have reliable signals and high technical quality, identifying which are the bad signals or artifacts. This is critical.

NN: You had the opportunity to work with Neurovirtual equipment for a while, with the BWIII PSG and BWMini. Could you tell us about your experience with the equipment, software and the technical service, as well as experience with Neurovirtual in general?

MLG: Compared to other equipment with the same characteristics, Neurovirtual has many advantages in terms of collection, on how to do the study, how easy it is to access the software, to generate, to evaluate, to interpret, and to visualize events that did not appear before, and how easy it is to generate the reports. But what I like the most is the technical support. Neurovirtual's support is the most sensational I've ever seen. They solve the issues very quickly. They connect to the machine and to avoid losing the study where you are. Among the brands of suppliers of polysomnography equipment here in Mexico, Neurovirtual is the one that has the best technical support. We do not have to call them by phone, and they answer us at any time, whether it is 1:00 AM or 5:00 AM. That's great. It

delights me.

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are the bad signals or artifacts.

I had the opportunity to work with the Mini, the type 2 equipment. I think it is a revolutionary device. We are dedicated to studying any sleep pathology, not just the respiratory. However, I am fortunate to work here in this center, which I dare say is one of the most important centers

in our country that deals with respiratory disorders, which is why they are very interested in arterial blood gas during sleep. The Mini enchants me because I can do a complete study, all the assembly 10-20 and more. Something I had always asked that could be done in a device type 2 was to be able to connect auxiliary signals as electrical signals – for example, carbon dioxide, either aspirated or transcutaneous. Because of the type of population we have here, that is, the hypoventilated patients I mentioned earlier, with some other comorbidities, or the patients hypoventilated due to obesity or some other situation, this equipment has the option of connecting an exhaled capnography and allows us to see the signs of the study at home, which is sensational. Before, we had to take a capnographer to the patient's home and ask a relative to take notes. Now, having signs of direct current is a differential in home polysomnography.

This gives us a lot more information and we can continue with type 2 home studies, especially in those patients with parasomnias associated with REM, the elderly, or in epilepsies that are difficult to control. The convenience of having extended studies that do not require being in the laboratory all day or two is essential. The truth is that I am satisfied and grateful for having offered me the opportunity to try the Mini.

NN: Would you recommend the Neurovirtual/ Sleepvirtual brand to other doctors, especially in the area of sleep, and neurology in general?

MLG: Yes, I would recommend it. Both here at INER and UNAM, there is a highly specialized course for medical specialists in the field of sleep medicine. Many of them come to me and ask, "What kind of equipment do you buy?" and I always tell them about Neurovirtual products. I say if they have a problem, they can communicate with technical support and solve it. Without a doubt, I recommend Neurovirtual.



Neurovirtual enhances product quality at **Colombian Symposium**

Promoted by the Colombian Association of Neurology, the Symposium on Refractory Epilepsy and Epileptic Status - A Look at Current Evidence was held in Cartagena on September 19th and 20th, 2019. Different from similar health events, the Symposium featured a programming session completely dedicated to patients, as opposed to the central focus on discussions and presentations aimed at medical professionals.

The patient session was free of charge upon registration and covered topics such as epilepsy basic concepts, patient law protection and regulation, medications and recommended diets. The session for doctors and other specialists brought together national and international speakers and dealt with issues such as crises; refractory epilepsy and its impact on sleep; EEG video in refractory epilepsy; new frontiers in the management of epilepsy in children; diagnosis and management of seizure status, among other topics.

Neurovirtual was present at the Symposium with a booth, presenting the equipment BWIII EEG PLUS, accessories and



supplies for EEG exams. Another highlight of the company was the presentation of a study on Epilepsy, which stimulated the flow of visits, arousing public interest and reinforcing the quality of records obtained through the technology present in Neurovirtual solutions. Renowned professionals came to the booth, such as Dr. Laura Guió, a highly influential neurology specialist from Hospital De La Misericordia, one of the largest in Bogota.

Representing Neurovirtual during the Symposium was Latam Sales Manager Andrea Parra and commercial assistant Angie Medellin.

LACE holds congress of great scientific value in Buenos Aires



nternationally renowned speakers, and more than 300 participating experts, with their exchange of knowledge and extensive networking, marked the LACE 2019 Congress, organized by the Argentine League Against Epilepsy in Buenos Aires on September 19th and 20th, 2019.

The rich programming was composed of conferences, symposiums and case reports, bringing together the main topics on the agenda, such as: Effectiveness and tolerance to medicinal cannabis in patients with refractory encephalopathies: preliminary results; Genetics and epilepsy; Updates on the treatment of epilepsy; Imaging studies in drug resistant epilepsy; and, The way to precision medicine in epilepsy.

Among foreign guests, Dr. Ruben Kuzniecky, neurology professor at Northwell Heatlh (USA), Dr. Samuel Berkovic, neurology professor at the University of Melbourne (Australia), and Dr. Manuel Toledo, neurologist at Vall d 'Hebron (Spain), were all present. Dr. Orrin Devinsky, neurology professor at New York University (USA), participated via teleconference.

During the event, in recognition of two scientific papers, an award was given, and the prize to the winners were two scholarships to the American Congress of Epilepsy. Neurovirtual, represented by collaborators Dubraska Quevedo, Andres Losada and Marcela Cañon, was one of 10 exhibiting companies and brought to the public the BWIII PSG Plus, BWIII EEG and the compact and lightweight BWMini EEG, as well as accessories and supplies. The company featured important presenters at the booth, such as Dr. Daniel Vilariño, Dr. Walter Silva and Dr. Maria Del Carmen Garcia, as well as a considerable number of prospects for future business.

LACE is a 70-year-old civil entity that aims to disseminate knowledge related to epilepsy, especially in scientific aspects. Through these events, it proposes to update the interrelated aspects of the diagnosis and treatment of epilepsy, addressing seizure classification, clinical and neurophysiological diagnosis, medication or surgical therapy.



Experts Highlight Merits of the International Sleep Medicine Training Course



"Sleep medicine is a very dynamic discipline and every day there is new information that needs to be shared", said **Dr. Marco Aurelio Venegas**, scientific director of the event.

xperts are unanimous: Sleep medicine is a booming specialty that is increasingly piquing the interest of students and professionals. Aware of this demand, Neurovirtual, in partnership with the Colombian Sleep Medicine Association (ACMES), promoted, on October 11th and 12th, the International Sleep Medicine Training Course, bringing together 140 specialists, including doctors, residents, technicians and physiotherapists who already work with polysomnography (PSG) and are interested in updating their knowledge on the subject.

Through a complete program, consisting of more than 15 lectures conducted by Colombian and foreign experts widely recognized in their fields, the event was a great success, confirmed by the satisfaction survey conducted at the end of the Symposium,



Latin America Sales Manager Andrea Parra

in which the rate of retention, participating in a new edition exceeded 90%.

"This kind of symposium delivers value not only to physicians, but to all sleep-related specialties who can access updates, treatment alternatives, new diagnostic techniques, and the latest technology in the industry", highlighted Dr. Sandra Zabala, specialist in Otorhinolaryngology and Maxillofacial Surgery and President of ACMES.

During the two days, the topics most relevant to the PSG sector presented were, highlighting best practices, innovations, and releases. "Sleep medicine is a very dynamic discipline and every day there is new information that needs to be shared", said Dr. Marco Aurelio Venegas, scientific director of the event. "These spaces are ideal because they allow different specialties to participate, interact, and inform each other," he added. In addition to organizing, Neurovirtual took the opportunity



to reinforce its position in promoting innovative solutions for the sector. During his opening remarks and welcome to the participants, CEO Ed Faria reinforced Neurovirtual's support for education and the relentless pursuit of solutions that humanize diagnosis and support the training of sleep medicine specialists throughout the world.

During the event, the company promoted its latest release, the HST Compass, and showcased its portfolio of sleep medicine solutions, highlighting the BWIII PSG PLUS, as well as the BWIII PSG and BWMini PSG/HST. Neurovirtual was represented during the symposium by its CEO Ed Faria, the Latin America Sales Manager Andrea Parra and the Marketing Coordinator Jéssika Brito.

"Many people suffer from the condition unknowingly, while it is still difficult for some doctors to identify the syndrome, which I would say is the main neurological disorder responsible for some type of sleep disorder," **Dr. Diego Garcia Borreguero**







Speakers

Neurovirtual talked to some speakers, who commented on the importance of attending the forum and gave details of their lectures.

Dr. Sandra Zabala addressed the topic "Are sleep medicine apps useful?" and explained the importance of her approach. According to her, technology is increasingly accessible to patients through their smartphones, and it is critical that experts learn to deal with this dynamic environment and act in a consultative manner. "We often receive patients with information regarding their quality of sleep and how they are sleeping, and we need to know about these applications in order to properly advise our patients," she said. In parallel, Dr. Diego Garcia Borreguero was quite emphatic in commenting about restless leg syndrome. This condition, which was considered a rare disease 30 years ago, is still not receiving all the necessary attention today, even though it is evolving. "Many people suffer from the condition unknowingly, while it is still difficult for some doctors to identify the syndrome, which I would say is the main neurological disorder responsible for some type of *sleep disorder,* " he explained. Fortunately, research is increasing and pointing to new perspectives: "There are already new criteria and methods for using polysomnography to aid in the diagnosis of these patients," he affirmed.

Dr. Maria Angelica Bazurto spoke about "Type 2 and Type 3 Home Studies" and emphasized the advantages of this type of diagnosis. According to the specialist, "home-based polysomnography type 2, allows patients faster access to diagnosis, speeding up treatment when needed."



The event was a great success, confirmed by the satisfaction survey conducted at the end of the Symposium, in which the rate of retention, participating in a new edition **exceeded 90%.**

In the lecture about "Indications and techniques: Multiple Sleep Latency Test and Wake-Up Test", Dr. Lina Tavera stressed the importance of creating protocols and the possibilities of performing the same actions done worldwide for this type of exam in Colombia as well.



CALENDAR OF EVENTS

Neurovirtual participates on average in 20 to 30 congresses and conferences in different countries around the globe. Taking our goal to humanize the diagnostic, we pride ourselves in being part of this community and to be able to give our contribution to clinicians and patients.

Below you will find the list of events for 2020, where Neurovirtual will be presenting its solutions to make neurology and sleep diagnostics more human! We hope to see you there!

USA	XXIX Brazilian Congress of Neurology	Congress Mexican Society of Pediatric Neurology	CHILE
SLEEP 2020 Philadelphia, PA	August 30 - September 2, 2020	Querétaro May 18 - 23, 2020	II "Sueños Sur 2020" Conference of Puerto Montt Hospital
June 13 - 17, 2020	XVIII Brazilian Sleep Congress	XI National Congres of Medicine of the Sleep	Puerto Varas March 20 - 21, 2020
American Epilepsy Society's Annual Meeting	Foz do Iguaçu - PR December 3 - 5 , 2020	August 12 - 14, 2020	1st Practical Theoretical Course of Clinical
 Seattle, Washington December 4 - 8, 2020 	COLOMBIA	ARGENTINA	Electroencephalography "From semiology
DD A 711	Sleep Disorders	XII Conference of the University Center of Neurology ♥ Buenos Aires June 12 - 13, 2020	Santiago April 2 - 3, 2020 VII Congress of the Chilean Society of Sleep Medicine
II Course for	Symposium - Present and Future Bogota February - 21 - 22, 2020		
Technicians São Paulo - SP May 1 - 5, 2020	XIV National Congress of sleep medicine Ducaramanga	IX International Workshop Course and Respiratory Disorders of	Santiago September 3 - 5, 2020
XVIII Paulista Congress	• October 14 - 17, 2020	Sieep and VNI Suenos Aires August 29 - 30, 2020	LATAM
São Paulo - SP May 1 - 5, 2020	MEXICO 1st International	Lace Epilepsy Congress 2020	Latin American Diploma in Sleep Medicine O Lima, Peru May 18 - 29, 2020
38th Congress of the Brazilian League of	Symposium of Neonatology	Buenos Aires October 15 - 16, 2020	
Epilepsy Curitiba - PR June 10 - 13, 2020	February 6 - 8, 2020	57th Argentine Congress of Neurology ♥ Mar del Plata	
		November 10 - 13, 2020	

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