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Editorial

Welcome address

Dear Colleagues and Friends,

On behalf of the World Association of Sleep Medicine (WASM) and the Spanish Sleep Society (SES), we are delighted to welcome you to our joint congress: the 5th International World Association of Sleep Medicine Congress and the 22nd Annual Congress of the Spanish Sleep Society in Valencia, Spain, from September 28th to October 2nd, 2013. The congress provides an international discussion forum of sleep professionals from the entire world. It focuses particularly on the interdisciplinary character of our field. Sleep clinicians, technologists, trainees, educators and scientists from around the world will meet here to advance knowledge on sleep science; sleep in public health; sleep health; and the sleep–wake disorders, diagnosis, and treatments. We seek to maximize learning both from formal presentations by the leading experts in their fields and from informal discussion groups emphasizing opportunities for your participation. The social events and the Mediterranean magic of Valencia also support productive professional and personal interactions. The global character and reach of WASM in collaboration with the knowledge of the local Spanish Sleep Society brings the best of sleep medicine to Valencia.

Your involvement in this congress will be greatly valued. You may learn and also share knowledge and skills that will advance sleep health around the world.

We hope that you'll enjoy the science, learning, collegiality, and social events at our world sleep conference in this lively city with great history, architecture, art, and music. Sunny weather matching the warm Spanish hospitality is nearly guaranteed. Welcome to Valencia!

Warm Greetings,

Claudia Trenkwalder
World Association of Sleep Medicine, Spain

Diego Garcia-Borreguero
Spanish Sleep Society, Spain

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5th World Congress on Sleep Medicine, 28 September to 2 October 2013, Valencia, Spain – Symposium Information

S1: New Diagnostic Technologies for Sleep Disordered Breathing

Chair:
Thomas Penzel (Germany)
Speakers:
Thomas Penzel (Germany), Robert Thomas (USA), Robert Poirrier (Belgium), Ludger Grote (Sweden), Pierre Escourrou (France), Chen Lin (USA0029)
Learning Objectives:
New methods for portable diagnosis of sleep apnea – possibilities and limitations

Modern diagnostic methods give new chances to investigate pathophysiology in sleep apnea and cardiovascular consequences in order to improve predictors for outcome

Therapy compliance monitoring does become a part of diagnostic follow up studies
Target Audience:
Sleep physicians who want to learn about new options in diagnostic tools. Sleep physicians who want to see the state of the art in technological developments supporting the diagnosis of sleep disordered breathing. Sleep technologist who want to learn about upcoming developments for the sleep laboratory environment.
Summary:
The symposium educates about new technical developments for the diagnosis of sleep disorders. This includes education on sleep disordered breathing with consequences for cardiovascular disorders and for sleep fragmentation.

One talk is addressing the issues of new technologies in the follow up of compliance with therapy again in patients with sleep disordered breathing. New telemedicine techniques allow a rapid check of patient adherence to therapy with CPAP and other ventilation techniques. In addition to these pathophysiological and technical issues, the management of sleep centers is addressed. Do we need full sleep centers which cope with all sleep disorders? Do we need specialized sleep centers which focus on respiratory or neurological problems alone? Do we need centers which only perform portable sleep studies?

Introduction
Thomas Penzel (Germany)

Cardiopulmonary coupling in the diagnosis of instable sleep and sleep disordered breathing
Robert Thomas (USA)

Sagittal movement recording for the detection of sleep disordered breathing and sleep stages
Robert Poirrier (Belgium)

Autonomic state indicator for the assessment of cardiovascular risk in patients with sleep disorder
Ludger Grote (Sweden)

Telemedicine approach to assess CPAP compliance
Pierre Escourrou (France)

Different activation of autonomic nervous system with flow limitation
Chen Lin (USA)

Management of sleep disordered breathing inside and outside the sleep laboratory
Thomas Penzel (Germany)

S2: Cognitive Behavioral Therapy for Insomnia (CBT-I): Knowledge Transfer and Treatment Dissemination

Co-chairs:
Charles M. Morin (Canada), Yun Kwok Wing (China)
Speakers:
Charles M. Morin (Canada), Yun Kwok Wing (China), Josee Savard (Canada), Rachel Manber (USA), Colin Espie (United Kingdom)
Learning Objectives:
Describe innovative methods to deliver treatment and transfer knowledge

Summarize recent findings on the impact of these treatment delivery models and web-based technologies to disseminate interventions for insomnia/sleep disturbances
Target Audience:
This symposium is likely to be of significant interest for both sleep clinicians providing insomnia treatment and investigators conducting clinical trials on insomnia therapies.
Summary:
There is solid evidence that cognitive-behavioral therapy for insomnia (CBT-I) is effective, produces sustained benefits over time, and is well accepted by patients. An important challenge that remains, however, is to translate this evidence into practical applications and to disseminate it to potential users, i.e., individuals with insomnia and health-care practitioners who work with sleep patients in diverse settings. The main objectives of this symposium are to describe innovative methods and technologies to disseminate CBT-I and optimize knowledge transfer. Five speakers from different part of the world will present evidence from recent clinical trials documenting the impact of self-help therapies using the Internet and web-based applications, training workshops, and sleep education programs as implemented in community, hospital, and school settings.

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asked on age, gender, heredity, affected body parts, symptom severity, sick leave, disablement, diagnosis, current and previous RLS treatment, co-morbidity treatment and sleep disorders. With regard to diagnosis, patients were asked to indicate when their symptoms began, how many years it took before they were diagnosed with RLS, and how many doctors they visited before the diagnosis was made.

Results: The majority of RLS respondents (75%) were between 60 and 89 years old (average 69.7, SD 12, range 12–102). Female:male ratio was 68:32. 47% reported a family history of RLS: 1st degree parents 36% and children 22% with RLS. 52% of the respondents visited more than 1 doctor before they were diagnosed with RLS. The average number of visits before diagnosis was 2.4, range 1– 50, SD 2.8 (note: maximum of 50 visits for one respondent) Years from first symptom to diagnosis: average 15.6, SD 15.7, range 0–73 (69% of the respondents had to wait more than two years for a correct diagnosis.)

Conclusion: The authors conclude that physicians should be better educated about RLS in order to significantly decrease the many unnecessary consultations, misdiagnoses and long-term untreated suffering. If this were to be achieved, the total saving on health care cost would be 1.1 visits less per RLS patient. Extrapolated to 3% of the general population, this would result in a significant reduction in social costs and work time lost.

Acknowledgements: The authors wish to acknowledge the dedication of the thousands of RLS patients worldwide who helped complete this questionnaire and provided us with detailed and accurate information not hitherto known.

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Sick leave and absence from work due to restless legs syndrome

J. Jaarsma, S. Sevborn
EARLS – European Alliance for Restless Legs Syndrome, The Netherlands

Introduction: In order to assess the impact of RLS on their working life, members of RLS patient organizations were asked to provide information on the total time they had to spend at home due to their RLS symptoms – RLS only, no other illness.

Materials and methods: A detailed questionnaire was sent to 11,731 members of RLS patient organizations in Austria, Belgium, Finland, France, Great Britain, Italy, Norway, Spain, Sweden, The Netherlands, Canada and the USA. 4278 questionnaires were returned, of which 4107 (35.0%) could be analyzed. Questions were asked on a variety of topics, among which sick leave and disabllity benefit.

Results: Sick leave 165 respondents (4.0%) are/have been on sick leave due to RLS. Symptoms in sick leave respondents compared to 3942 respondents not on sick leave are more severe (range 0–40). Average without treatment 24.58 (21.27), SD 9.08 (8.75), p 0.000022. Average with treatment 12.96 (9.70), SD 8.50 (7.00), p 0.000028. Time from onset to diagnosis was shorter for sick leave respondents. Average 13.16 (15.61) years (SD 13.07 (15.74) p 0.0232). Treatment of sick leave respondents is not optimal. Dopamine agonists were given in only 68.5% (72.3%) of cases, antiepileptics in 16.4% (13.9%). Sick leave respondents showed a higher use of antidepressants: 23.0% (17.5%), p 0.00017. Disability insurance benefit – DIB 75 (1.8%) of all respondents receive DIB due to RLS. Symptoms in DIB respondents compared to 4032 respondents not on DIB are more severe (range 0–40). Average without treatment 25.90 (21.31), SD 9.39 (8.76), p 0.00018. Average with treatment 13.29 (9.77), SD 9.14 (7.05), p 0.0046. Time from onset to diagnosis was longer for DIB respondents: average 16.53 (15.49), SD 16.01 (15.64), p 0.592. Treatment of DIB respondents is not optimal: Dopamine agonists were given in 70.7% (72.2%) of cases, antiepileptics in 16.0 % (13.9%). DIB respondents showed a lower use of antidepressants: 9.3% (17.9%), p 0.00008. Despite treatment an overall 2–4% of patents report sick or are on disability benefits because of RLS.

Conclusion: The authors conclude that correct and early diagnosis and optimal medical treatment may lead to decreased sick leave as well as disability insurance benefits in severe RLS and thus reduce health care expenditure and increase quality of life for these patients.

Acknowledgements: The authors wish to acknowledge the dedication of the thousands of RLS patients worldwide who helped complete this questionnaire and provided us with detailed and accurate information not hitherto known.

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Dosing patterns of dopamine agonists for restless legs

J. Jaarsma, S. Sevborn
EARLS – European Alliance for Restless Legs Syndrome, The Netherlands

Introduction: In order to find out the total consumption of medicines by RLS patients, members of RLS patient organizations in Europe and North America were asked to supply this information.

Materials and methods: A detailed questionnaire was sent to 11,731 members of RLS Patient organizations in Austria, Belgium, Finland, France, Great Britain, Italy, Norway, Spain, Sweden, The Netherlands, Canada and the USA. 4278 questionnaires were returned, of which 4107 (35.0%) could be analyzed. Questions were asked on a variety of topics, including the total daily of the various medicines used.

Results: 73% of pramipexole doses and 80% of ropinirole doses reported were in line with internationally approved doses, (<=0.75 mg/day for pramipexole, and <=4.0 mg/day for ropinirole. Respondents in the USA tend to take significantly ($p < 0.01$) higher total daily doses of the dopamine agonists than do respondents in Europe; mean pramipexole, Europe 0.53 mg, USA 1.05 mg, Ropinirole, Europe 3.06 mg, USA 3.97 mg. There is no difference in respondent satisfaction with treatment in relation to dose.

Conclusion: In view of the most recent scientific data on the intake of the dopamine agonists and the current opinion on optimal dosages of these medicines, the study indicates that both medicines are used in abundance, leading to significant over consumption, a much higher risk of augmentation and other side effects, lesser quality of life for these patients, as well as overspending of the healthcare costs worldwide.

Acknowledgements: The authors wish to acknowledge the dedication of the thousands of RLS patients worldwide who helped complete this questionnaire and provided us with detailed and accurate information not hitherto known.

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Sleep quality and associated factors in residents of a major teaching hospital in Iran

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Introduction: Residency is a challenging part of medical training among different specialties.. Long work hours and shift work and

(95%CI = 57.2–76.7) in Dominican Republic. A statistically significant association between insomnia and mortality (crude HR = 1.15; 95%CI = 1.02–1.28) was found, which was not explained by socio demographic characteristics (adjusted HR = 1.15; 95%CI = 1.02–1.29). The model adjusted for adverse health behaviors had the highest impact in the initial model (HR = 1.05; 95%CI = 0.92–1.17), followed by the model adjusted for mental disorders (HR = 1.10; 95%CI = 0.97–1.23) and for the model adjusted for physical conditions (HR = 1.13; 95%CI = 1.00–1.27).

Conclusion: In Latin American urban catchment areas there is a strong association between insomnia and mortality, which is not explained by socio demographic factors alone. Adverse health behaviors had the strongest effect on this association compared to mental and physical conditions.

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Serial electrical stimulations of hypothalamic Orexin-containing neuronal regions lead to elevation of CSF OrexinA concentration, shorten anesthesia time and fasten recovery of normal sleep cycles from deep anesthesia induced sleep

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Lab. Neurobiology of Sleep-Wakefulness Cycle, I. Beritashvili Center of Experimental Biomedicine, Georgia

Introduction: The aim of the study was to assess the hypothalamic Orexinergic system as the neuronal substrate for speeding up regulation of disturbed sleep homeostasis and recovery of sleep-wakefulness cycle in different behavioral states from some pathological conditions, namely from deep anesthesia induced sleep. Pre-clinical evidence in relation to this question are very sparse and therefore their investigation is highly topical.

Materials and methods: In white wild rats ($n = 12$) after Surgical implantation of recording electrodes and postoperative recovery deep anesthesia was induced by chloralhidrate and/or sodium ethaminal. EEG registration was started immediately and lasted continuously for 48 h. 10 min after administration of anesthetic drugs serial electrical stimulations (8–12 v, 200 c/s, 0.1 ms) of dorsal, lateral, posterior and perifornical hypothalamic Orexin-containing neurons were started. Stimulations lasted for 1 h with the 5 min intervals between subsequent ones applied by turn to the left and right side hypothalamic parts. CSF OrexinA concentration was measured by ELISA method. Statistical processing was made by Students' *t*-test.

Results: Spontaneous recovery of the first fragments of EEG wakefulness from deep anesthesia-induced sleep required 5.0–5.5 h depending on the depth of narcosis. Serial electrical stimulations of dorsal, lateral, posterior and perifornical hypothalamic Orexin-containing neurons significantly speed up wakefulness recovery from both types of narcotic sleep with the first fragments of wakefulness appearing 3.5–4 h after deep anesthesia. The first fragments of wakefulness were rapid (20–30 min) followed by normal deep slow wave sleep episodes. Especially strong influence of serial electrical stimulations of hypothalamic Orexin neuron containing parts was manifested in the recovery of REM sleep. Spontaneous recovery of this behavioral state took 23–24 h after deep anesthesia but under the impact of electrical stimulations of above mentioned hypothalamic parts REM latency became more than two times shorter. Significant elevation was noted in CSF OrexinA concentration in stimulated animals.

Conclusion: Serial electrical stimulations of hypothalamic Orexin-containing neuronal regions significantly elevate CSF OrexinA concentration and speed up recovery of normal sleep-wakefulness cycle behavioral states from deep anesthesia-induced sleep.

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Efficacy and tolerability of Zolpidem in a group of Venezuelan patients with insomnia undergoing hemodialysis

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Introduction: Assessing the efficacy and tolerability of a simple dose of Zolpidem LC in a group of patients undergoing hemodialysis and afflicted by insomnia.

Materials and methods: A screening test was performed on patients of the hemodialysis unit at the Central Hospital and the Social Security Hospital in San Cristobal, Venezuela. The patients included had scored 5 or above in the Athens Insomnia Scale, and had not received treatment for insomnia in at least the last three months. During week 1, a simple dose of placebo was administered to all patients; during week 2, a 12.5 mg simple dose of Zolpidem LC was given to patients under 65 years old and a 6.25 mg dose to patients above 65 years old. The following instruments were applied: the Athens Insomnia Scale, the Pittsburgh Sleep Quality Index, the International Restless Legs Scale, the Beck Inventory for Depression, and the UKU Side Effect Rating Scale.

Results: One hundred and thirty-three patients were evaluated and 24 were included in the study. The average age was 57.33 (24–83). Males represented the 58.3%. The average time of hemodialysis was 3.92 months and the time with insomnia 12.92 months. Scores for the Athens scale during the basal period and after Zolpidem were 12.58 versus 4.63 ($p < 0.0001$) and after Zolpidem as compared to placebo 9.50 versus 11.75 ($p < 0.0001$). Sleep latency with Zolpidem was 42.08 min, as compared to the basal latency, which equaled 79.17 min ($p = 0.035$), whereas placebo latency was 68.96 min ($p = 0.133$). Sleep hours with Zolpidem were 6.29 as compared to basal 3.68 ($p < 0.0001$) and to placebo 4.81 ($p = 0.004$). The most frequent side effect was drowsiness (4.10%).

Conclusion: After a simple dose, Zolpidem improved the different sleep patterns of the patients with insomnia undergoing hemodialysis, such as sleep latency and number of sleep hours, being well tolerated. Zolpidem LC could represent an alternative to be taken into account in this group of patients.

Acknowledgements: Department of Psychiatry and Sleep Medicine, University of Los Andes, San Cristóbal, Venezuela.

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Prevalence and risk factors of the obstructive sleep apnea among Iranian patients with type 2 diabetes mellitus

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Introduction: Obstructive sleep apnea (OSA) is prevalent in diabetes mellitus patients. This reveals the importance of evaluation of the risk factors of sleep apnea in diabetic patients.

changes in sleep are not well characterized. This cohort was set up to study prospectively the factors that moderate the sleep development and its disturbances and to study whether the large variability has an impact on child's development.

Materials and methods: The CHILD SLEEP cohort is based on a random sample of 2245 families from Tampere, Finland during 2011–2012. Parental questionnaires with a focus on development of sleep, emotions, and family environment were collected prenatally, at 3, and 8 months of age; the 24 month -survey is currently ongoing. A sub-sample of infants was assigned into two sleep registration groups (actigraphy with/without ambulatory polysomnography). Blood/saliva samples were collected for genetic analyses. A protocol for prevention and treatment of children's sleeping difficulties was developed and a systematically selected sample of families was assigned in the prevention group and its control group. After the labor the mothers were interviewed about their labor experiences. All data was stored in one database maintained by Institute for Health and Welfare at secured net system of Technology Center of the Finnish Institute for Molecular Medicine (FIMM).

Results: 75% (1678 mothers, 1645 fathers) of the families from the initial recruitment agreed to participate to the study. The cord blood samples were gathered from 1501 babies and blood or saliva samples were collected from 1589 mothers and 1519 fathers. The PSG + ACG group covers 92 and the ACG group 283 infants. The registrations are performed at 1, 3 and 8 months. The prevention study consists of 406 families (199 in the prevention program, 207 in the control group), and half of them are followed up by ACG and sleep diary (98/199 (49%) and 98/207 (47%)), and the rest with sleep diary.

Conclusion: The CHILD SLEEP birth cohort will provide a unique possibility to evaluate multiple biological, developmental, prenatal and environmental factors that affect the sleep development in the childhood and the intertwining sleeping difficulties in the family.

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Evaluation of sleep disorders in flight crew and ground staff worker in Iran private flight airline

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Introduction: Sleep disorders in pilots due to its impact on flight safety, flight crew and passenger health are important. This study evaluates the frequency of sleep disorders in pilots by standard questionnaires and compares it with ground staff.

Materials and methods: This was a cross-sectional study on flight crew and other workers of a private flight airline. The cases were selected randomly. All participants were asked to fill 2 standard questionnaires: ISI (Insomnia Severity Index) and ESS (Epworth Sleepiness Scale). Excessive daytime sleepiness and insomnia were considered by ESS > 10 and ISI > 8, respectively.

Results: The frequency of insomnia and sleepiness in flight crew was 66% and 24%, respectively compared to the 60% and 27% in other workers, respectively.

Conclusion: It is proved in this study that excessive day time sleepiness has high frequency in pilots and also insomnia is the main complication in this group.

Acknowledgements: Staff of baharloo sleep clinic ans staff of iranian airline.

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Sleepiness, fatigue and road traffic accidents

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Introduction: Road traffic accidents are one of main problems in Iran. Multiple factors cause traffic accidents the most important of which is fatigue and sleepiness. This factor is given less attention in our country.

Materials and methods: In this study, all road traffic accidents which were reported by police to have been caused due to fatigue and sleepiness were studied in the three provinces (Tehran, Qazvin and Semnan) over a three-year period (2006–2008).

Results: The risk of road traffic accidents due to fatigue and sleepiness, which were reported by police, increased by more than sevenfold (Odds ratio = 7.33) in low alertness hours during circadian rhythm (0–6 A.M) compared to other times during the day. The risk of road traffic accidents due to fatigue and sleepiness decreased 0.15-fold (Odds ratio = 0.15) in hours with maximum of alertness (18–22 h.) of circadian rhythm compared to other times during the day.

Conclusion: The occurrence of road traffic accidents due to fatigue and sleepiness have significant statistical relation with driving on highways and freeways and it has a 2.6-fold increase compared to driving on the other types of roads.

Acknowledgements: Police officers work in the three provinces (Tehran, Qazvin and Semnan).

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More complex dreams with emotions or aggressions are associated with longer reports

I. Saez-Uribarri

Introduction: Report length is an indicator of dream recall, cognitive activity of the dreamer and biases due to recording data in the laboratory as opposed to at home. The aim was to investigate the way in which the number of characters, aggressions and emotions affect report length.

Materials and methods: Hall and Van de Castle's normative data were taken from DreamBank.net, composed of the dreams of 491 women and 499 men, all of them university students. Data were extracted on the number of characters, aggressions and emotions in the dreams. Subsequently, the relationship between these variables and report length was analysed. A multiple correspondence analysis was also carried out to explore the relationship of emotions and aggressions involving the Dream Self with the number of characters and report length.

Results: A significant relationship was found between report length and the number of characters ($r = .47$, $p < .001$), the number of aggressions ($r = .21$, $p < .001$) and the number of emotions ($r = .26$, $p < .001$). The correspondence analysis showed that report