

- night work hours should be reduced from 12 hours to 8 hours to reduce the stress and sideeffects of work.
- the shifts should be clockwise (morning-afternoon-night) and not anticlockwise (morning-night-afternoon).

### P0195

Recurrent hypersomnia – Diagnostic difficulties

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Recurrent hypersomnia represents a rare pathology, with an etiology difficult to identify. This paper presents a female teenager's case, in the 5th hypersomnia episode, which lasts for one week, being awakened by her parents to eat and go to the toilet. The first episode occurred in December, when she was diagnosed with "Encephalitic reaction with cerebral edema and confusive syndrome. Psychoorganic syndrome. Respiratory virosis" and she was treated with cerebral depletive drugs. The following episodes of hypersomnia occurred at regulate periods of time of 3 weeks, remitted without medication; between the episodes the teenager's condition was without any somatic, cognitive alteration.

All the investigations, including cerebral RMN, were normal, except for EEG, indicating a slow course in all the derivations. The anamnesis information indicating that the hypersomnia episodes were followed by the menstrual cycle, together with the ecography discovery of a right ovarian cyst of 4/4 cm, determined us to introduce oral contraceptives treatment, which lead to the disappearance of the hypersomnia episodes.

### P0196

Sleep quality in adolescents with insulin dependent diabetes mellitus

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**Background and Aims:** The incidence of IDDM is increasing in the world. In regard to increasing prevalence of IDDM and probable introduction between IDDM and sleep quality, it was designed this study to evaluate the sleep quality in adolescents.

**Methods:** This case-control study was done in Isfahan Behavioral Sciences Research Center and Endocrine Research Center. The 120 cases were selected from adolescents (11-18 year old) with IDDM referral to Isfahan Endocrine Research Center. Control group were 120 and matched with cases. The criteria for diagnosing diabetes were Classification and Diagnose Committee Criteria. PSQI was used to evaluate the quality of sleep. Data was analyzed with t-test, Pierson coefficient and ANOVA.

**Results:** The mean age in cases and controls was 14.5±2.2 and 14.3±2.3. 46.7% of cases had family history of diabetes, whereas, it was 5.8% in controls. The mean of FBS in cases was 159±68 mg/dl. The mean of HbA1c was 8.8±1.99. 75.8% of diabetic adolescents were PSQI score over 5 (cases=7.3±2.3 & controls=5.7±2.6. p<0.001). Some sleep disturbances: sleep onset latency, poor sleep efficiency and daytime dysfunction are significantly more in diabetic adolescents than controls. There is not any relation between PSQI and BMI. But there was a direct relation between PSQI and HbA1c by regression analysis.

**Discussion:** There is poor sleep in adolescents with IDDM. IDDM causes sleep disturbances probably by some different ways. So, it is very important to consider the quality of sleep in IDDM and manage probable sleep problem.

### P0197

Correlation of insomnia with Cytokine removal in patients undergoing chronic hemodialysis

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Sleep disturbances are usually the outcome of a complex interplay between intrinsic factors and environmental influences. Cytokines are essential in the coordination of central nervous and immune system communication. Interleukin-1 $\beta$  and interleukin-6 in particular play crucial role in sleep regulation. In vitro studies have demonstrated that high-flux membranes avidly remove cytokines. Aim of this study was to investigate the correlation of insomnia with the aforementioned cytokines and the influence of mode of haemodialysis on sleep disorders in dialysis patients. Using Athens Insomnia Scale (AIS), sleeping profile of 35 subjects (23 male, 12 female, mean age 56.2±13.6 years) was evaluated. Twenty five patients underwent hemodialysis (HD) and the rest hemofiltration (HF) using high-flux membrane. No significant difference was observed between the two groups with respect to age, sex, family status, education, self-esteem, coffee and alcohol consumption, psychiatric history, hemodialysis time and laboratory parameters. HF group demonstrated significantly higher AIS scores compared to HD (12.4±6.5 and 4.3±4.7 respectively, p<0.001). The acute effect of hemodialysis on serum cytokine concentrations revealed a slight increase of post-dialysis cytokine levels in HD group (9.8±2.52 to 9.92±6.06 for IL1 $\beta$  and 11.02±4.83 to 11.3±3.78pg/dl for IL6 respectively), but a significant decrease in HF group (from 11.88±3.57 to 8.89±2.07 for IL1 $\beta$  and from 11.66±5.97 to 6.58±4.44pg/dl for IL6 respectively, p<0.05). Moreover, significant correlation has been found between AIS score and IL1 $\beta$  levels of all patients (r=0.42, p<0.01). In conclusion, it seems that the mode of hemodialysis, by affecting cytokine kinetics, could influence sleep quality and quantity in such patients.

### P0198

Comparison of the effects of Eszopiclone and Zolpidem on delta power and NREM sleep in the adult guinea pig

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**Background and Aims:** The guinea pig is a naturally-occurring animal model of insomnia. Therefore, it was of interest to determine, in this species, the effects on sleep and waking states of different hypnotic substances.

**Methods:** Accordingly, in the chronically-implanted adult and aged guinea pigs, we examined changes in NREM sleep, REM sleep, and wakefulness following the administration of eszopiclone and zolpidem.

**Results:** Compared with naturally occurring sleep and wakefulness, the effects of eszopiclone were characterized by the induction of NREM sleep that occurred with a short latency, as well as long duration episodes of NREM sleep that were accompanied by an increase

in delta power. The administration of zolpidem, compared with the responses produced by eszopiclone, resulted in shorter duration episodes of NREM sleep that arose at a longer latency; there was no change in delta power in conjunction with the administration of zolpidem. In addition, compared with zolpidem, lower doses of eszopiclone were required to induce the preceding effects.

**Conclusions:** We conclude that eszopiclone may have an advantage compared to zolpidem in producing homeostatic sleep on the basis of its ability to induce consolidated, long-duration episodes of NREM sleep. Since delta power has been suggested to reflect enhanced sleep-related memory and learning processes, we hypothesize that the increase in delta power that was induced by eszopiclone, which was not present following the administration of zolpidem, may facilitate memory and learning mechanisms during NREM sleep.

Support for this study provided by Sepracor Inc., Marlborough, MA.

## P0199

Eszopiclone prevents apnea-induced programmed cell death (Apoptosis) in the forebrain and brainstem of guinea pigs

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**Background and Aims:** Hypoxia that occurs in conjunction with sleep-related breathing disorders, such as Obstructive Sleep Apnea, as well as processes associated with cerebral ischemia, have deleterious effects on the morphology and functioning of the hippocampus. In previous studies, we determined that a decrease in oxygenation produces neuroexcitotoxicity that eventuates in apoptosis, i.e., programmed cell death, that can be reduced by the activation of GABAergic processes.

**Methods:** In the present experiment, which was conducted in adult guinea pigs, in vivo, we examined the effects of the administration of eszopiclone, which is a hypnotic that activates various GABA subunit receptors, on apoptosis in various CNS sites.

**Results:** Recurrent periods of apnea, which were induced for a period of 3-5 hours, produced significant apoptosis in various brain regions. Compared with control data, there was a highly statistically significant decrease in the number of apoptotic cells in the forebrain (hippocampus, amygdala, and prefrontal, cingulate, and insular cortices) and in the brainstem (e.g., dorsal raphe) in animals that were administered eszopiclone prior to the induction of recurrent apnea.

**Conclusions:** We conclude that eszopiclone is capable of providing neuroprotection for the degradative, apoptotic consequences of a decrease in oxygenation of cerebral tissue that arises as a consequence of disease and disorders that involve hypoxia or ischemia. We therefore suggest, in addition to its hypnotic effects, that eszopiclone produces neuroprotection for hypoxia-induced neurodegeneration in the forebrain as well as in the brainstem.

Support for this study provided by Sepracor Inc., Marlborough, MA.

## P0200

Causes, day-time consequences and treatment of insomnia in the Swiss population- The results of a survey

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**Introduction:** We showed previously that 31% of Swiss population (N=1002) suffers from insomnia (DSM-IV criteria) (Delini-Stula et

al. 2007). We report here the results of the analysis of the causes, day-time consequences and treatments.

**Method:** An 80 items questionnaire was addressed (telephone interview) to a random sample of subjects of both sexes. The recorded responses were either transformed into numerical and categorical values or expressed in percentages of observations. The results were descriptively analyzed.

**Results:** The main causes of insomnia were classified into 6 categories: personal-, professional and financial problems, diseases, alcoholism and environmental factors. The most frequent were personal (32%) and professional (34%) problems. Only 1% of subjects reported financial worries as cause of insomnia. The most prominent day-time consequences were: fatigue (72%,  $p < 0.003$ ) reduced vitality (46%,  $p < 0.002$ ), irritability (54%,  $p < 0.001$ ) depressed mood (44%,  $p < 0.002$ ) and impaired cognition (44-51 %,  $p < 0.001$ ). 70% of insomnia subjects reported never to use any treatment. Only 40% of severe insomniacs used prescribed drugs. Also, of the whole population only 44% believed in the efficacy of the hypnotics, but 56% thought that herbal products are effective.

**Conclusion:** In view of marked day-time consequences and obviously under-treatment, insomnia (defined by DSM-IV criteria) in Switzerland is a problem that needs more attention.

## Reference:

[1] Delini-Stula A, R. Bischof and E. Holsboer-Trachsler, *Somnologie*, 11:193-201, 2007

## P0201

Primary versus secondary chronic insomnia in primary care

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**Background and Aims:** Chronic insomnia (ChI) is a common condition in Primary Care (PC). Regardless that it's often related to psychiatric morbidity it appears to be a strong predictor of future depression and a disabling disorder by itself. The aim of this study was to measure and compare clinical and psychiatric characteristics of both patients with primary ChI and secondary ChI.

**Methods:** A random sample of 225 subjects older than 18 years old, from 3 PC Centres of the area of Madrid (Spain) was interviewed using the Oviedo Sleep Questionnaire, a semi-structured interview for sleep disorders. The subjects completed the Patient Health Questionnaire. Data about medical conditions, drug treatments, days of work lost (last year) and use of health care services (last 3 months), were also collected. Psychiatric and clinical characteristics between groups (primary vs secondary ChI) were compared.

**Results:** 78 patients fulfilled criteria for ChI and 53 (67.9 %) of them were suffering from any psychiatric disorder (including subthreshold conditions). Patients with primary ChI compared to secondary insomnia patients had no significant differences in age, gender, use of health care resources and days of work lost. However, patients with secondary ChI compared to primary ChI had more somatic and depressive symptoms (U-Mann-Witney test;  $p = 0.002$  and  $p < 0.001$ , respectively).

**Conclusions:** There is an important group of patients among PC attendees suffering primary ChI. Patients suffering primary ChI are