TELEMEDICINE AND SLEEP

PS7-01 Neurophysiological correlates of dream recall and dream content in blind and sighted

Helder Bertolo, Tiago Mestre, Teresa Paiva. *EEG/Sleep Laboratory, Egas Moniz Studies Center, Faculty of Medicine of Lisboa, Portugal*

Correlations between dream recall/ dream content and EEG spectral content and REMs both in sighted subjects and congenital blind.

10 congenital blind were compared with a control sighted group, through two consecutive home polysomnographic recordings, with periodic awakenings; dream recalls were tape recorded and REM awakenings were selected. FFT power spectra from C4-A1 and O2-A1; REMs detected by visual inspection on both EOG channels and classified as isolated or in bursts. Dream recall, defined by the existence of a report, implied content analysis using the Hall & Van de Castle criteria for visual activity.

Both groups presented equivalent visual activity indexes (VAI); significant negative correlation between VAI and alpha power in the central and occipital derivations; average of REM awakenings per subject and identical the recall ability. Higher delta power in O2 was associated with no dream recall, whereas higher sigma was associated with the presence of dream recall both in C4 and O2.

Blind had lower alpha activity and beta in the central derivation; higher values of delta, theta and sigma activity; lower REM density, bursts and isolated eye movements.

REM dream visual content and recall are associated with changes in EEG frequencies and REMs. Blind and sighted had only minor differences in observed features.

PS7-02 Rhythmic slow oscillations in human medial pulvinar during paradoxical sleep

Hélène Bastuji, Marc Guénot, Jean Isnard, Philippe Ryvlin, François Mauguiere, Michel Magnin. *1. EA 1880-IFR 19, Hôpital Neurologique Lyon, France*

During Paradoxical Sleep (PS) as in wakefulness, the spontaneous thalamic activity is known, from animal studies (see Steriade et al. 1997), to be composed of preponderant fast frequency oscillations. Using intra-cerebral recordings for pre-surgical evaluation in epileptic patients, we disclosed rhythmic slow oscillations (RSO) so far not described in the human medial pulvinar nucleus during PS. RSO were present continuously during all PS episodes. They were clearly observable by visual inspection and yielded a specific peak between 1.3 and 3.3 Hz on spectral analysis. This peak was clearly distinct from the usual one observed between 0.5 and 1 Hz. This phenomenon was present when thalamic electrodes were located more anteriorly within the medial pulvinar, i.e. in 5 out of nine recorded patients. The PS specificity of these RSO is strongly suggested by their absence during both wakefulness and slow wave sleep. The functional significance of such slow oscillations in the medial pulvinar during paradoxical sleep remains to be determined as well as their possible relationships with some equivalent activities in the cortex and hippocampus recently described (Bódizs et al. 2001).

Steriade M, Jones EG and McCormick DA. Thalamus, 1997, Elsevier.
Bódizs et al. Hippocampus, 2001; 11: 747–753.

PS7-03 Excessive daytime sleepiness (EDS) and sleep-disordered breathing in patients with progressive supranuclear palsy (PSP)

M. Merino-Andreu, I. Arnulf, F. Bloch, M. Vidailhet, J.P. Derenne, Y. Agid. *Fédération des Pathologies du Sommeil et CIC, Hôpital Pitié-Salpêtrière, Paris, France*

Introduction: REM sleep dysfunction has been reported in parkinsonian patients, caused by lesions in brainstem structures. In PSP, parkinsonism and ophthalmoplegy are associated with a decrease in REM sleep duration.

Objective: To examine EDS and REM sleep abnormalities in patients with PSP.

Methods: Eighteen patients (aged 55–81 years) with PSP lasting for 1–10 years, underwent polysomnography and multiple sleep latency tests (MSLT). Mean mini-mental score was 22 ± 6. Twelve patients were treated with levodopa (480 ± 170 mg/d), 6 with benzodiazepines and 6 with serotonergic antidepressant drugs.

Results: The percentage of REM sleep was reduced in all patients ($9.7 \pm 1.6\%$) and REM sleep without atonia was present in 7 patients (range: 0–98%). Mean daytime sleep latency was abnormally low (<2 minutes) in 5 patients with no narcolepsy-like pattern and normal values (>8 minutes) were found in 12 patients. Sleep fragmentation was severe (49 ± 24 arousals per hour; range: 20–127), caused by obstructive sleep apnea syndrome in 14 (78%) patients, 6 of whom were receiving benzodiazepines, and periodic leg movement syndrome in 13 (72.2%) patients.

Conclusion: One-third of PSP patients suffered from non-narcoleptic daytime sleepiness caused by sleep-disordered breathing and/or periodic leg movements. The prognostic importance of this finding remains to be evaluated.

PS7-04 Alpha power and maintenance of wakefulness test

Jussi Virkkala, Mikko Härmä, Susan Pihl, Kiti Müller. *Brain and Work Research Units, Finnish Institute of Occupational Health, Helsinki, Finland*

Our aim is to develop methods to predict unintentional sleep onset caused by sleepiness. Most sleepiness tests studies are done using the Multiple Sleep Latency Test (MSLT). However the ability to maintain wakefulness is more relevant in many occupations e.g. professional drivers and industrial operators. Sleepiness was evaluated by calculating eyes open Alpha Power. Ability to maintain wakefulness was tested with Maintenance of Wakefulness Test (MWT). A total of 1076 MWT were recorded and analysed from train drivers and remote controllers. The shortest S1 latency was 1.5 min, mean 32.3 min and in 685 recordings no sleep epochs were detected during the 40 minute MWT test. Power spectrum from O1-A2 channel was calculated from the first minute of MWT recordings. Due to instructions to stay awake it was assumed that eyes were open during the analysed one minute period. A slight but significant correlation was observed between the S1 latency of MWT and the relative alpha power of the first minute of MWT.

PS7-05 Localization of human sleep spindles from whole night sleep

S.-L. Himanen, M. Tenhunen, P. Laarne, J. Virkkala, J. Hasan. *Tampere University Hospital, Tampere and Finnish Institute of Occupational Health, Helsinki, Finland*

Purpose: The majority of slow and frontal sleep spindles are located in the beginning of night (Himanen et al. JSR 1/2002). Therefore the sources of the frontal and central spindles were compared in the beginning and end of night.

Method: All-night 64-channel EEG was recorded from one healthy female. Frontal and central spindles from the first and last NREM-sleep episodes were selected by visual judgment and spectral mapping. Each spindle was modeled by single moving dipole with interval mode by Source program (Neurosoft Inc.). The best fitted time point was taken as a source estimate.

Results: All dipoles were located in the thalamic area. The majority of