

P-1351 - SLEEP AND CARDIAC REGULATIONS UNDER CIRCADIAN RHYTHMS COULD DETERMINATE SLEEP OR WAKE STATES

F.Jurysta, M.Dramaix, J.-P.Lanquart, P.Linkowski

¹Sleep Laboratory, Department of Psychiatry, Erasmus Academic Hospital, ²Centre de Recherche Epidemiologique, Biostatistique et Recherche Clinique, Free University of Brussels, Brussels, Belgium

Introduction: Circadian rhythms were reported for sleep and cardiac activities. Moreover, chronotropic cells were found in brain stems implied in sleep and cardiac regulations. In healthy men, modifications in cardiac vagal activity appeared before those in delta power band.

Objectives: We tested if the delay between modifications in cardiac vagal activity and delta power band was maintained across nocturnal sleep and, whether dominance between vagal and delta activities was preserved before spontaneous awake in the morning.

Aims: Circadian rhythms between heart and sleep could explain evening sleep and morning awakening.

Methods: Thirteen healthy men without sleep, somatic or psychiatric disorders were recorded across three successive nights. Sleep architecture was composed by five NREM-REM cycles at least. Sleep stages, spectral components of heart rate variability (HRV) and sleep, coherence analysis between cardiac vagal component of HRV and each sleep power band were performed and compared between two periods: the first and the last three NREM-REM cycles.

Results: NREM, REM and awake durations were similar between both night periods. Heart rate was shortened during first cycles and NREM sleep. Cardiac sympatho-vagal balance did not demonstrate major changes between periods and sleep stages. At the end of the night, phase shift between changes in HRV and sleep power bands were more variable. Interaction between cardiac vagal influence and sigma power was increased as well for alpha power, and dominated all other interactions.

Conclusions: Circadian rhythms influence the link between cardiac and sleep activities to allow sleep during night and awake in morning.