

93/04 - "An investigation of effects of dreams on physiological measures of stress"

Instituição/*Institution*: Psychopharmacology Unit, Bristol - UK

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Abstract:

Objectives: Part 1 - to compare morning salivary cortisol response, sleep questionnaires and dream reports between patients with parasomnias, normal subjects and patients with insomnia.

Part 2 – to pilot the use of automatic blood sampling overnight for cortisol assay synchronized with polysomnography in 6 normal subjects, to assess the minute by minute effect of sleep stage on cortisol measures, and to compare morning dream reports with plasma cortisol and salivary cortisol on awakening

Methods: Part 1 - patients with sleep disorders and healthy good sleepers were provided with a pack containing cotton swabs for saliva sampling and overnight sleep and dreaming questionnaires. Patients with parasomnias were sent sample kits for 2 nights, 1 with and 1 without an episode (eg night terror). 16 patients and 15 healthy good sleepers returned the packs and salivary cortisol concentration was measured in-house using radio-immunoassay.

Part 2 - 6 healthy volunteers slept in the sleep laboratory. An automated sampling machine has been developed at Bristol University to minimise interference with study subjects when taking blood samples. They were prepared for polysomnography (PSG) and had an indwelling cannula connected ‘through the wall’ to the sampling machine. Blood samples (1ml) were taken every 10 minutes, synchronised with the PSG recording. Samples were later assayed for cortisol. Sleep was scored and the cortisol levels related to different sleep stages

Results: Part 1- morning cortisol response was as expected in healthy normal sleepers with a rise between waking and 30 minutes later. Insomnia patients and parasomnia patients on a ‘good’ night had a similar response with both readings being slightly higher. On the ‘bad’ nights readings were very variable with no consistent rise between the 2 time periods. Waking cortisol levels correlated with complaints of waking too early. Dream report analysis will be presented.

Part 2 – synchronized hypnograms and cortisol profiles will be presented. Cortisol levels fell during the first few hours of sleep and then showed a rise independent of sleep stage about halfway through the night, consistent with the literature. In addition, both awakenings and REM sleep tended to increase cortisol level. Awakening cortisol response occurred from any stage of sleep and at any time of day.

Conclusions: Part 1 - Insomnia and parasomnia subjects had higher cortisol levels than controls but this was not statistically significant. However we demonstrated a significant relationship between cortisol levels and subjective measures of sleep quality and early awakening. Dreaming effects will be discussed.

Part 2 – The automatic sampling method was reliable and effective in obtaining frequent cortisol samples without interfering with sleep. There was evidence of both circadian and sleep-stage-dependent regulation of night-time cortisol level.

Keywords: Sleep, parasomnias, HPA axis, cortisol, stress