

Category H—Sleep Deprivation

eoxyuridine (BrdU) approach indicated that there was a reduction in BrdU-positive cells in the adult hippocampus after chronic cocaine treatment.

Conclusion : These findings indicate that chronic cocaine administration from the period of brain development to adulthood had a marked effect on genital events and possibly on neurocognitive deficit in adulthood.

Support (optional): AFIP, FAPESP, CEPID

0371

EFFECTS OF PROGESTERONE BLOCKADE OVER COCAINE-INDUCED GENITAL REFLEXES OF PARADOXICAL SLEEP DEPRIVED MALE RATS

Andersen ML, Tufik S

Psychobiology, Univ Federal de Sao Paulo, Sao Paulo, SP, Brazil

Introduction : Paradoxical sleep deprivation (PSD) enhances cocaine-induced genital reflexes (penile erection [PE] and ejaculation [EJ]) in male rats and induces a significant increase in progesterone concentration. As progesterone treatment facilitates PE in PSD castrated rats, we may speculate that progesterone appears to be a relevant hormonal factor eliciting genital reflexes in PSD males.

Methods : different doses of antiprogesterin mifepristone (vehicle, 2.5, 5, 10 and 20mg/kg, s.c.) were administered to PSD rats at the end of a four-day period of PSD one hour prior to cocaine administration (7mg/kg, i.p.) and placed in observation cages for the evaluation of genital reflexes.

Results : Pretreatment with vehicle induced PE in all rats and this effect was significantly reduced by mifepristone at 5 to 20 mg/kg doses that lowered the proportion to 40% of the rats. The frequency of PE was also significantly reduced for all doses used. There were no significant differences between vehicle and mifepristone in EJ behavior. As for hormone concentrations, mifepristone reduced progesterone concentrations at the 5-20 mg/kg doses compared to vehicle group. At 20 mg/kg it also elevated testosterone concentrations. In addition, mifepristone administration induced a significant decrease in the duration of PS episodes at all doses.

Conclusion : These data suggest that progesterone exerts an essential role in erectile response induced by cocaine in PSD male rats.

Support (optional): AFIP, FAPESP, CEPID

0372

THE EFFECTS OF SHIP MOTION ON THE SLEEPING PATTERNS OF CREWMEMBERS ABOARD A HIGH SPEED NAVAL VESSEL

MATSAGAS P,¹ MILLER NL²

(1) C3 DIRECTORATE, HELLENIC NAVY, ATHENS, Greece, (2) OPERATIONS RESEARCH, NAVAL POSTGRADUATE SCHOOL (NPS), MONTEREY, CA, USA

Introduction : Sleep of crewmembers aboard high speed Naval vessels may be disrupted by the unusual conditions caused by ship motion. The sleep debt that accumulates in such conditions has major implications for the safety and performance of the crew. The current study was conducted on the HSV-2 SWIFT to determine what factors contribute to sleep quality of its crew. The relationship between sleep and motion was of particular interest.

Methods : Data were collected over a 14-day Atlantic transit including a 7-day sea-keeping trial. A questionnaire was administered to 19 participants (48% of the crewmembers) at the beginning and ending of each watch rotation. The questionnaire included questions about motion sickness, sleep quantity, subjective sleepiness, and light exposure. Sleep amount and quality, and overall activity were evaluated by actigraphs and self-reported sleep log.

Results : Sleep deficit (more than 1 hour on average per day) was evident

in more than 25% of the participants. The cumulative deficit was increasing by time although ship's schedule was relatively decreased workload. Factors significantly interfering in crew's sleep, was a) noise originating from other crew members in the compartment or from outside, b) the need to use the restroom, c) ship's motion. Sleep fragmentation and disruption were significantly correlated to ship's motion and increased during rough weather or when the ship was travelling at high speeds. Fatigue Avoidance Scheduling Tool predicted performance decreased faster over the initial seven-day period than the increase during the following six-day decreased workload period. Wakefulness periods were significantly extended (42% larger than 16 hours and 8% larger than 20 hours).

Conclusion : Over the study period, sleep debt continued to accrue in the crewmembers. It was evident that ship motion due to high speed and sea state significantly influenced sleep quality. However, other factors that almost certainly affect sleep quality in the ship berthing spaces remain to be explored. The decline in predicted effectiveness of crewmembers coupled with an increased workload caused by reductions in crew size raises the question of safety and acceptable performance during periods of extended operations.

Support (optional):

0373

MEMORY FOR COGNITIVE AND AFFECTIVE STATE DURING A SINGLE NIGHT OF TOTAL SLEEP DEPRIVATION: HOW BAD WAS IT?

Thacher PV, Casamento N

Psychology, St. Lawrence University, Canton, NY, USA

Introduction : A single night of total sleep deprivation (SN-TSD) is typically remembered as being a highly aversive state. Much research, however, has indicated that memory for visceral states, for example, is particularly poor. Do memories for SN-TSD accurately reflect experiences of sleep deprivation? Our study examined memory for affective, physical, and cognitive states one month after a SN-TSD.

Methods : 20 participants completed measures of cognitive, physical, and affective state at four times during a SN-TSD. One month later, we asked them to remember how they felt during the SN-TSD and to complete the mood questionnaires twice more, to reflect how they remembered feeling at the "worst" and at the "best" points of the night. We then compared the real-time and retrospective profiles; one-way ANOVAs were calculated for each of the 6 sub-scales during the night and for retrospective ratings. Total word counts for open-ended questions were transformed into standardized percent scores to compare across participants and across time of night.

Results : We compared retrospective with real-time profiles for POMS subscales (Anger, Depression, Tension, Fatigue, Vigor, and Confusion). Retrospective ratings for "worst time of the night" were statistically significantly worse compared to real time ratings in all cases, especially for Anger (overall $F = 9.47$, $p < .0001$), Tension (overall $F = 14.72$, $p < .0001$) and Depression (overall $F = 12.03$, $p < .0001$); posthoc comparisons were significant at .05. Analysis of word counts revealed no differences across time of night.

Conclusion : Participant retrospective ratings of affective and cognitive states were not consistent with real-time ratings. Data reveal a pattern of either minimizing during real-time experience, or exaggerating during retrospective reporting. Another possibility is that participants are unable to accurately report emotional state in conditions of sleep deprivation. These data may represent methodological dilemmas for researchers who rely on self-report of affective or cognitive state during or after sleep deprivation protocols.

Support (optional):