

EFFECTS OF SLEEPINESS ON EMERGENCY PHYSICIANS' TECHNICAL AND NON-TECHNICAL SKILLS.

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1. INTRODUCTION

Sleep deprivation due to extended work hours has long been a concern in medicine (1). Emergency physicians (EP) commonly experience sleep deprivation in stressful situations (2). Regularly scheduled on-call duty is often 24 to 36 hours long. In addition, many trainees work more than 75 hours a week. Several studies in different domains have demonstrated the impairment of performance under sleep deprivation (3,4). In one well-known study, the effect of sleep deprivation after 24 hours of sustained wakefulness on a task has been shown to be equivalent to the effect of alcohol concentration of 0.10 percent (5). In medicine, although issues related to house-staff fatigue have been raised for many years (6,7), regulation have, until recently, been very limited. In 2010, Belgium adopted regulation that limit residents' work hours.

2. OBJECTIVES

The goal of this study was to evaluate the effect of sleep deprivation on emergency physicians' performance using the distinction between technical and non-technical skills. These non-technical skills are not directly related to the use of medical expertise, drugs or equipment. They encompass both social and cognitive skills e.g. communication, team working, leadership, situation awareness and decision making (ANTS) and have been shown as critical for crisis management.

3. MATERIAL AND METHODS

We used a full scale in situ simulator (Gaumard high fidelity HAL 3201) to assess physicians' performance. After the approval of the ethical committee, 14 Emergency physicians from 2 hospitals have agreed to participate in the prospective multicenter study. We used 2 critical scenarios: the first one was a respiratory failure and the second was a severe bradycardia. Participants were randomized in 2 groups: Group A: scenario 1 before the night on call and scenario 2 after the night on call; In group B, the scenarios were reversed.

Before the experiment (2 nights before they were on call) the participants were asked some demographic data (sex, age, experience) and the average hours of sleeping.

We used the Karolinska Sleepiness Scale to measure the subjective fatigue on a 10 points scale (from 1: extremely alert, 2:very alert, 3:alert, 4:rather alert, 5: neither alert nor sleepy, 6:some signs of sleepiness, 7: sleepy, but no effort to keep awake,8 : sleepy, some effort to keep awake, 9: very sleepy, great effort to keep awake, struggling against sleep, 10: extremely sleepy, falls asleep all the time.)

The emergency physicians' performance during the simulations was recorded using an audio-video system. Each video has been assessed by two judges by consensus, using the ANTS grid (8), a behavioral marker system rating anesthetist's non-technical skills. The physicians' response latencies to the patient's degradation during the 2 scenarios were also calculated.

4. RESULTS

We will present in details the impact of sleep deprivation on EP(s) performance using the distinction between technical (routine) and non-technical skills and comparing the participants through their level of experience.

5. REFERENCES

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