EFFECT OF SLEEP DEPRIVATION ON VISUAL AND AUDITORY EVOKED POTENTIALS IN FEMALE NIGHT SHIFT PERSONNEL OF A TERTIARY CARE HOSPITAL

Abstract

Background: Night shift personnel are required to stay awake when their circadian rhythm is preparing them for sleep and to sleep when preparing for wakefulness. Circadian rhythm changes due to sleep deprivation can lead to deleterious effects on normal neurophysiological functioning. Visual Evoked Potentials (VEP) and Brainstem Auditory Evoked Potentials (BAEP) are non-invasive methods of assessing the integrity of visual and auditory pathway respectively. Their abnormalities can reflect subclinical involvement of visual and auditory pathway functioning respectively.

Aims and objectives: To compare the changes in VEP and BAEP between day and night shift personnel working in a tertiary care hospital.

Materials and methods: 68 healthy female shift workers in a tertiary care hospital between the age 20-40 years were divided into two groups : Group I- Day shift workers and Group II- Night shift workers. Level of sleepiness was assessed by Stanford sleepiness scale. Amplitude and Latency of P100 wave of VEP was recorded. In BAEP, the peak latencies of Wave I,II,III,IV and V and interpeak latencies Wave I-III, III-V, I-V were recorded. The results were expressed as Mean±SD. Statistical significance among study groups were carried out by using SPSS-16.0 version software, by applying unpaired student 't' test.

Results: The analysis showed statistically significant (p<0.05) prolongation of mean latency of P100 wave of VEP in night shift personnel when compared with day shift. No significant changes observed in the amplitude of P100 wave of VEP between both day and night shift personnel. Waves III, IV and V of BAEP showed increased mean latency in night shift personnel when compared with day shift. Interpeak latencies between
Waves III-V and I-V showed significant increase in night shift personnel when compared to day shift.

**Conclusion:** Sleep deprivation among night shift personnel can lead to significant changes in VEP and BAEP compared to day shift.

**Key words:** Sleep deprivation, Visual Evoked Potential, Brainstem Auditory Evoked Potential, Shift work