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Influence of night shift work on heart rate variability reflecting psychophysiological strain: A pilot studyYuka Omura¹, Yuki Yamagami^{1,2}, Tomomi Tsujimoto¹ and Tomoko Inoue¹¹Osaka University, Japan²Research Fellow of Japan Society for Promotion of Science, Japan

Aim: This study was aimed to investigate the influence of night shift work on Heart Rate Variability (HRV) reflecting psychophysiological strain.

Methods: This study was conducted in Japan in August 2017. We gathered 24-hour HRV recordings from a non-smoking female nurse in her 30s and in a follicle period, using a portable electrocardiograph (RF-ECG; GMS, Japan). The HRV spectral analysis was performed using the HRV software (Bonaly Light, GMS, Japan) on the basis of a maximum entropy method. HRV is the standard variation in the time intervals between consecutive heartbeats. The primary outcomes of the analysis are Low-Frequency Power (LF) and High-Frequency power (HF), in the range of 0.04-0.15 Hz and 0.15-0.40, respectively. The LF to HF ratio (LF/HF) is a convenient index of sympathovagal balance status. The mean of the LF/HF was calculated at seven periods. Four periods were related to the night shift: (1) night shift work, (2) naps in the daytime after the night shift, (3) relax time in the evening after naps and (4) sleeping time at night after the night shift and three were related to usual daily life, (5) day activity time, (6) relax time in the evening and (7) sleeping time at night.

Results: The means of the LF/HF were as follows: During the night shift (1) 9.17 (the highest among seven periods) and during naps (2) 7.83 (the second highest). The mean LF/HF of daytime activity (5) was lower than that of (1) and (2) at 7.56.

Conclusions & Significance: Despite this study's small sample size (only one) and short time recordings, our findings suggest that night shifts create stressful psychophysiological conditions. Nonetheless, the addition of more details or subjective data is necessary to consider the support for night shift nurses.

Biography

Yuka Omura is currently a PhD student of Health Science at Osaka University, Japan. She has worked at hospitals and at an elderly home as a Nurse for over 10 years. Her research interest area is in in-service training for staff nurses.

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