

Recovery of autonomic functions and attentional ability after night shift in rotating shift nursing staffs

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Objective: To analysis the recoveries of autonomic and cognitive functions of rotating shift nursing staffs after night shift.

Methods: From December 2012 to April 2013, totally thirty-eight rotating shift nursing staff was enrolled. Inclusion criteria: 1) age between twenty and forty. 2) has rotating shift work for at least one year. 3) healthy female. Exclusion criteria: 1) diagnosed sleep disorder/systemic disorder. 2) hypnotic drugs use. We chose heart rate variability (HRV) analysis to explore autonomic modulation. We used Multiple Unprepared Reaction Time (MURT), Digit Symbol Substitution Test (DSST), and Symbol Searching Test (SST) to evaluate sustained and selective attention. We set 3 time points for assessment: 1) upon finishing the night shift. 2) 24 hours after the night shift. 3) 48 hours after the night shift.

Results: The analysis of HRV showed relatively lower parasympathetic activity upon finishing the night shift; relatively higher parasympathetic activity 24 hours after the night shift; and the lowest parasympathetic activity 48 hours after the night shift. The MURT was longest when upon finishing the night shift, and was shortest 48 hours after the night shift. The scores of DSST and SST were lowest upon finishing the night shift, and were highest 48 hours after the night shift.

Conclusion: The parasympathetic activity begins to increase upon finishing the night shift to the highest level 24 hours after the night shift. On the other hand, it takes more time for the recovery of attention until at least 48 hours after the night shift. Thus we suggest to take two days off after finishing the night shift and before restarting the next rotating shift working schedule.