



Research Article

EFFECTS OF ROTATING NIGHT SHIFT AND EXPOSURE OF LIGHT AT NIGHT ON CIRCADIAN PATTERN OF SALIVARY CORTISOL AND URINARY MELATONIN LEVELS

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ABSTRACT

Objectives: The objective of the present study was to investigate the effects of rotating night shift and light exposure at night on circadian pattern of salivary cortisol and urinary melatonin levels.

Methods: 62 healthy nursing professionals of both genders performing day and night shifts (continuous 9 days night shift with alternate day shifts) were recruited. Each month scheduled to continuous 9 days night shift (12 hours in regular 9 nights, from 20:00 to 08:00); after 9 days night shift they perform remaining duties in day shift and 4 days off. Saliva and Urine samples were collected at around 8 hours interval while they were performing night duties and repeated when they were assigned day duties. Saliva and Urine samples were analyzed by the ELISA method.

Resu-16(d)23(t)10(r)-214(d)2(aS12(y)BT /F8 7.4448 Tf 0 0 0 rg 0.9981 0 0 1 88.08 337.92 Tm [4(e)-5(s)7(u-12(a)2(y)-16(44.-14(o)-16(u)-14(r)10(s)10()-46(t)25(n)-14()-46

Melatonin is a hormone (N-acetyl 5 methoxy-tryptamine) synthesized and secreted principally by the pineal gland at night under normal environmental conditions. The pineal gland decides the amount of melatonin secretion based on information sent from the retina of the eye which contains a unique subset of cells that produce a pigment called melanopsin. Melanopsin allows a cell to detect light and dark. Information collected by the cells is sent along the retinohypothalamic tract (RHT), a sort of information highway that extend from the retina to hypothalamus. In hypothalamus, this information is transmitted to a cell called the suprachiasmatic nuclei (SCN). The SCN of the hypothalamus have melatonin receptors and melatonin may have a direct action on SCN to influence the circadian rhythm.⁵ Melatonin secretion is enhanced in darkness and decreased by light exposure at night. Exposure to artificial light at night and disruption of the endogenous circadian rhythm with suppression of the melatonin synthesis has been suggested mechanisms.⁶ Melatonin gives a measure of day length, it can reset the clock by acting as chemical zeitgeber. Melatonin is metabolized to 6-hydroxy-mel in the liver and the main metabolite excreted in urine is 6-Sulphatoxy-melatonin are more stable than 6-hydroxy melatonin in serum. The concentration of 6-Sulfatoxy melatonin or 6-hydroxyl melatonin sulphate in urine correlates with the total level of melatonin in the blood during the collection period. Melatonin levels in individuals 981 0 0 1 59.76 359.044ee 390 Tm [(8)-33iod.

particularly at night and in the morning time during night shift due to desynchronization. However, recovery (reversed in the

- with improved performance in short shift work schedule. Sleep. 20(12):1145-50.
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